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Trust, Exchange and Social Embeddedness: The Case of The Israeli Diamond Industry

A Doctoral Thesis Presented by

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**Submitted to
City University**

In fulfilment of the requirements for the degree of

Doctor of Philosophy

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Declaration

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ABSTRACT

Research by behaviourally orientated scholars such as Burt (1997, 1992); Nahapiet and Ghoshal (1998); and Granovetter (1985) have helped to illustrate that once analysis moves away from the abstract economic models of perfect information and frictionless exchange, reality is based on the complexities of imperfect competition. This reality is based for instance, on social structures, personal contacts and relationships to facilitate successful exchange.

The researcher believes that the realities of such social capital, structure and relational effects are especially true and important in the Israeli diamond industry. The significance of this proposition rests on the fact that it is very difficult to ascertain the quality and value of polished diamonds, especially at the time of exchange. This is further augmented by the traditional and in many cases secretive nature of exchange methods and conventions of the diamond industry based on medieval Jewish law and values.

In such a case, the ability to identify the characteristics of others in exchange rather than solely the quality and price of the products exchanged becomes crucial to facilitate exchange (Darby and Karni, 1973; Choi et al, 1995). The basic proposition of the approach is that the structure and content of ties among the various actors in a network significantly affect individual's behaviour as well as the behaviour of the network as a whole (Uzzi, 1996, 1997). In this view, it is the relationship between potential exchange actors that determine exchange and not solely the product exchanged. Thus, the unit of analysis in this doctorate thesis shifts the focus of enquiry from the qualities of the transaction to the qualities of the relationship.

Researchers have generally bestowed positive effects of social capital on performance, but have not discussed its limitations. The researcher argues that social capital may have limits. This paper illustrates that initially social capital may improve competitive advantage, but as the market becomes more rationalised limitations to social capital set in. The researcher illustrates its limits with empirically tested propositions and discusses its implications in the context of the Israeli diamond industry.

In terms of limiting the scope of enquiry, the researcher suggests that it is useful to consider the effects of social capital on firm performance and limit social capital to trust and reputation as the conduit through which exchange is undertaken. Trust and reputation are important variables of social capital as it influences a firm's attractiveness as an exchange partner (Dollinger et al, 1997; Burt, 1997; Fombrun, 1996; Barney and Hansen, 1994). Furthermore, it is an essential part of socially based exchange that may lead to a competitive advantage (Uzzi, 1997; Kramer and Tyler, 1996; Barney and Hansen, 1994).

Diamond firms were found to be fundamentally family run business units, where the owner was involved in all key aspects of the business and consequently had firsthand knowledge of all the firm's strategy and administrative activities. Hence, the relationship between managerial characteristics and firm performance were found to be fundamentally important in order to forecast a firm's economic performance.

The researcher saw the diamond industry as an important case study to research as the diamond industry as a whole and the Israeli diamond industry in part was found to be an under researched area in business. The diamond industry is Israel's chief export and the only industry that Israel is globally dominant in.

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1. Introduction

1.1 An Overview

Market Structure. This doctorate thesis furthers the debate on social structure and models of exchange (Nahapiet and Ghoshal, 1998; Burt, 1997; Granovetter, 1985). It attempts to explain organisational behaviour through an understanding of how exchange and resource dependencies among actors affect market structure and firm strategy. The basic proposition of the approach is that the structure and content of ties among the various actors in a network significantly affects individual actors' behaviour as well as the behaviour of the network as a whole (Uzzi, 1996, 1997; Granovetter, 1985; Schelling, 1978).

Anonymous exchange theorists assume that exchange is rational, based on perfect competition and is minutely affected by the character of social relations (Chandler, 1962; Williamson, 1975, 1979, 1981). Thus, actors are considered to be interchangeable (Hirshman, 1970). The content, price and quantity are the fundamental variables facilitating exchange (Akerlof, 1970; Williamson, 1993; Uzzi, 1996, 1997). Only these things capable of being exchanged in the marketplace are conceived as having any value (Khanna, 1998; Uzzi, 1993; Granovetter, 1985).

On the other hand, when information is imperfect exchange is bound by existing social structures, personal contacts and relationships (Nahapiet and Ghoshal, 1988; Burt, 1997). It is one's role and position in a social system that determines interaction and not necessarily its content. It is the relationship between potential exchange actors that may facilitate exchange (Uzzi, 1996, 1997; Granovetter, 1985). The relationship is seen as the conduit through which interaction occurs (Hosmer, 1995; Barney and Hansen, 1994; Grief, 1989; 1994). For instance, an Israeli diamantaire whose exchange was socially embedded claimed in an interview that: "Our marketing is based on what we transact with ... First we show the best stones to friends and

only what's left to others ... you see friendship and helping friends is very important in the diamond industry."

While informal relations are seen by traditional organisational theorists (Williamson, 1975, 1979, 1981) as random noise, they are seen as crucial indicators in understanding the mechanisms in social settings (Uzzi, 1996, 1997; Abrahamson, 1991, 1996; Katz and Shapiro, 1985, 1992). These relationships are seen as the structure through which exchange transpires. The unit of analysis in this doctorate thesis shifts the focus of enquiry from the qualities of the transaction to the qualities of the relationship.

Research by behaviourally orientated scholars such as Burt (1987, 1992; 1997); Coleman (1987); and Granovetter (1985) have helped to illustrate that once analysis moves away from the abstract economic models of perfect information and frictionless exchange, reality is based on the complexities of imperfect competition. This reality is based for instance, on social structures, personal contacts and relationships to facilitate successful exchange. The researcher believes that the realities of such social capital, structure and relational effects are especially true and important in the Israeli diamond industry (Bernstein, 1992; Spar, 1994). The significance of this proposition rests on the fact that it is very difficult to ascertain the quality and value of polished diamonds, especially at the time of exchange (Paribas Capital Markets, 1996, Economist, 1992; Shainberg, 1987).

An examination of the diverse literature on social capital and its effects on performance indicated that it generally bestows positive effects in exchange when utilised (Nahapiet and Ghoshal, 1998; Khanna, 1998; Burt, 1997). The researcher will illustrate that initially exchange, based on trust and reputation, led to a firm's success in the Israeli diamond industry. On the other hand, as the Israeli diamond industry matured and became more rationalised, socially embedded exchange led to limitations and decline compared to the globally prevalent arm's length exchange.

Social Capital. Past research has indicated that reality is based on complexities of imperfect competition (Khanna et al. 1998; Nahapiet and Ghoshal, 1998; Choi et al. 1995; Darby and Karni, 1973). A firm's level of trustworthiness may influence its attractiveness as a partner (Dollinger et al. 1997; Fombrun, 1996). Trust is a social capital that is hard to imitate, thus, may lead to a sustainable competitive advantage (Burt, 1997; Uzzi, 1996, 1997; Kramer and Tyler, 1996; Baker, 1990).

Such social capital is one mechanism by which actors may reduce the complexity of exchange through the market (Grief, 1989, 1994; Fombrun, 1996; Uzzi, 1996, 1997). It may enable actors to mutually establish specific expectations about future behaviour of others (Choi et al. 1995; Fombrun, 1996) and thus, reduce some of the uncertainty in exchange (Lane and Bachmann, 1996). Trust helps reduce uncertainty and creates opportunities for the exchange of goods and services that are difficult to price or enforce contractually (Darby and Karni, 1973; Uzzi, 1996). As a result, trust is important for analysing the Israeli diamond industry (Bernstein, 1992). It is argued that since trust economises on the cost of governance (Nooteboom, 1996), the selection pressures of markets led to the prevalence of trust in the Israeli diamond industry (Spar, 1994).

Trust has recently been more extensively researched in academic literature (Barney and Hansen, 1994; Kramer and Tyler, 1996; Nooteboom, 1996). It is no coincidence that such growing attention coincides with the increase of various types of co-operative relations between, and among, organisations (Gulati, 1995; Ernst and Bleeker, 1993; Ring and Van de Ven, 1992), and economic uncertainty in the Far East and central Europe.

As a result of the increased uncertainty and complexity in exchange (Hamel and Prahalad, 1996; Bettis and Hitt, 1995), the role of trust has become more important in many collaborative arrangements. Trust and other forms of social capital are particularly interesting because they are moral resources that operate in a fundamentally different manner than physical

capital (Nahapiet and Ghoshal, 1998; Fombrun, 1996; Arthur, 1996, 1994; Barney and Hansen, 1994). It seems that the scope and scale of trust increases, rather than decreases, with use and becomes depleted if not used (Uzzi, 1997; Kramer and Tyler, 1996).

Social capital has many different attributes (Burt, 1997; Fombrun, 1996; Uzzi, 1996, 1997). In terms of limiting the scope of enquiry, the researcher suggests that it is useful to consider the effects of social capital on firm performance, and limit social capital to trust and reputation as the conduit through which exchange is undertaken. Trust and reputation are important variables of social capital as it influences a firm's attractiveness as an exchange partner (Dollinger et al, 1997; Burt, 1997; Fombrun, 1996; Barney and Hansen, 1994). Trust is more a "one-on-one" asset (Kramer and Tyler, 1996; Gulati, 1995; Luhmann, 1979) while reputation is more holistic in nature (Dollinger et al, 1997; Fombrun, 1996; Grief, 1989; Weigelt and Camerer, 1988). It is an essential part of social exchange and social action (Nahapiet and Ghoshal, 1998; Sitkin and Roth, 1993) that may lead to a competitive advantage (Uzzi, 1996, 1997; Kramer and Tyler, 1996; Barney and Hansen, 1994).

Anonymous exchange in economics, in many cases, is served as a starting point for analysing competition (Burt, 1987, 1992, 1997; Uzzi, 1996, 1997; Granovetter, 1985). In reality, one may need to take into account social structures and social relationships when analysing competition. It was thought that trust as a means of facilitating exchange is crucial and increases competitive advantage (Fombrun, 1996; Uzzi, 1996, 1997; Ernst and Bleeke, 1993) in the Israeli diamond industry (Bernstein, 1992; Spar, 1994). Trust was seen as the glue that holds many co-operative relationships together (Kramer and Tyler, 1996).

Performance. From a lengthy literature review, the researcher concluded that business success is not an objective term, as actors may perceive success differently (Louter et al, 1991). Knowledge of the factors that determine success is rather inadequate (Cavusgil and Kirpalani, 1993). What one manager may consider a success, another may condemn as a failure (Moini,

1995; Bijmolt and Zwart, 1994; Das, 1994; Louter et al, 1991). The most widely used quantitative measures of success, found in the literature are: sales growth, profitability, market share, and composite measures, using a combination of the above (Cavusgil and Kirpalani, 1993; Das, 1991).

The researcher would like to highlight that performance in this paper was measured through polished diamond export activity, as it was the only available quantitative information on Israeli diamond firms. This indicator was seen as reliable, as there is a small local market for polished diamonds and is the only official quantitative data available on the Israeli diamond industry. In line with Cavusgil and Kirpalani (1993) and the Israeli Ministry of Industry and Trade successful performance was defined as an Israeli diamond exporting firm that increased its export turnover in the last 3 years and whose export in 1996, export had increased by at least 10% in relation to 1995.

Social Networks. Scholars agree on the significance of relationships as a social capital. Much of this capital is seen as embedded within networks of mutual acquaintance and recognition (Choi et al, 1995; Grief, 1994; Granovetter, 1985). Baker (1990), for instance, limits the scope of social capital only to the structure of the relationship. On the other hand, Burt (1992) and Nahapiet and Ghoshal (1998) claim that the term comprises both the network and the assets that may be mobilised through the network.

The tradition has been to identify forms of organisation by their structure (Burt, 1997). The shift in analysis away from bureaucracy to networks, calls for a shift in research strategy for studying organisations. The shift to networks is more difficult to observe because changes may not be structural, so much as procedural. Given that formal structure is an imperfect indicator of networked organisations, led the researcher to analyse the network in terms of consequences (Burt, 1997) and not structure. Social networks are defined by a group of others similar (Choi et al, 1995).

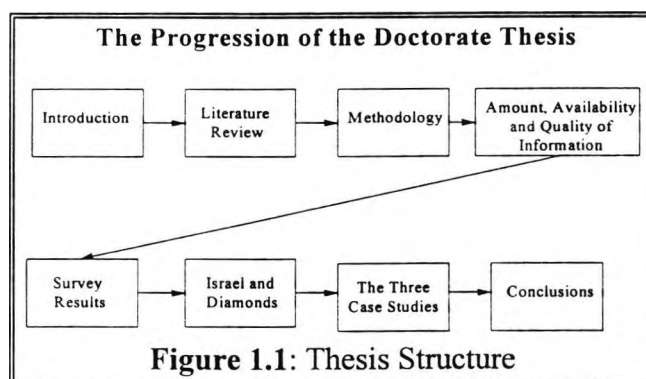
In making the distinction between the structural and the content dimensions of a network, the researcher would like highlight to that the content embedded in relations describes the kind of personal relationships he has developed and the type of information transferred through those conduits (Uzzi, 1996, 1997). On the other hand, the structural dimension concerns the properties of the social system (Nahapiet and Ghoshal, 1998). The term illustrates the impersonal configuration of linkages between the various actors.

Social capital generally is created through a process of combining the knowledge and experience of various socially networked actors, who are interdependent on one another (Nahapiet and Ghoshal, 1998; Uzzi, 1996, 1997). Strong norms and mutual identification that may exert a powerful positive influence on network performance (Choi et al, 1995). On the other hand, it may produce forms of collective blindness as a result of conformity to a set yardstick (Nahapiet and Ghoshal, 1998; Burt, 1997; Pouder and St.John, 1996).

The Structure of The Doctorate Thesis. The process of illustrating the emergence and decline of trust in the Israeli diamond industry unfolds in three principal phases: (1) pre history (see case study one) illustrating the evolution, structure and the workings of the global diamond industry; (2) the history stage illustrating the evolution of trust in the Israeli diamond industry through a phenomenological perspective. The case study illustrates how Israel became a dominant player in the global diamond industry (see case study two). It sets the stage for the interplay between the “accidents” of history, strategic actions undertaken and sociostructural values; and (3) the present (1997) maturity/decline stage of the Israeli diamond industry (see case study three). It illustrates through a positivistic approach the effects of diminishing returns depicted by industry over capacity and the inclination of Israeli diammantaires to forego trust (Tidhar, 1996). It portrays the prevailing taste of pessimism and a decline in trust in the Israeli diamond industry.

This study investigates the effects of identity and trust in the competitive marketplace. In other words, how an Israeli polished diamond firm's identity and level of trustworthiness affects its probability of success as defined in the methodology. The study contributes to organisation theory by illustrating some conditions under which organisations cultivate a collective identity through strategic groups (Pouder and St.John, 1996; Barney, 1986; Cool, 1985). It examines the dynamics by which affiliations shape identity, and influences organisational outcomes in the competitive market (Choi et al, 1995). Furthermore, the research illustrates that once analysis moves away from abstract economic models of perfect competition, to models based on the complexities of imperfect competition, exchange is fundamentally based on social structures, personal contacts and relationships (Biglaiser and Friedman, 1994; Granovetter, 1985). Thus, the study will further elaborate on the intricacies of socially embedded exchange in comparison to arm's length exchange frameworks.

The unit of analysis in this doctorate thesis was the Israeli polished diamond firms who exported in the value of US\$4m over a year (1996). The research illustrated two different managerial practices in the Israeli diamond industry, one of arm's length exchange and another of socially embedded exchange leading to different levels of business success. The following figure illustrates the progression of this doctorate thesis:



1.2 Research Questions

Derived from the objectives of this doctorate thesis, the following research questions were addressed:

- 1) How has the organisational structure and behaviour in the Israeli diamond industry evolved over the years ?
- 2) What types of exchange models apply to the Israeli diamond industry ?
- 3) When does socially embedded/trust based exchange run into limitations ?
- 4) What is the prevalent model of exchange that will most likely increase a firm's performance ?

1.3 Exploratory Propositions

In line with the research questions, the researcher has formulated four exploratory propositions. The *first* exploratory proposition addresses the importance of socially embedded relations, based on trust, as a mechanism to reduce uncertainty. It seems that socially embedded exchange affects managerial strategies chosen in the Israeli diamond industry. Thus, the weaker the ability of prices to deploy information on the polished diamonds being exchanged in the Israeli diamond industry, the more Israeli polished diamond firms will form and rely on socially embedded networks to facilitate exchange. It was found that Israeli diammantaires - transacting in tacitly priced polished diamonds - will rely much more on socially embedded ties than those transacting in explicitly priced polished diamonds.

The *second* exploratory proposition examines if social embeddedness, as opposed to arm's length exchange of Israeli polished diamond firms operating in the Israeli diamond industry, increases one's probability of success. It was found that those firms implementing arm's length strategies are significantly more successful in their business activities than those implementing socially based business strategies.

The *third* exploratory proposition deals with the importance of the characteristics of the operators/owners of Israeli diamond firms in facilitating the firms' performances. The researcher discovered from his field work that the operators/owners in this type of family orientated firm are involved in all key aspects of the business and consequently have firsthand knowledge of all the firm's strategy and administrative activities. Moini (1995) claims that management characteristics are one of the key facilitators of economic success, thus, it is important to know the managerial characteristics of the operator/owner in facilitating an Israeli polished diamond firm's strategy. From the research it was found that successful operators/owners in the Israeli diamond industry are generally those with: (1) least years in the diamond business; (2) least years as members of the Israeli diamond Exchange; (3) those least often emanating from a diamond family; and (4) those with least years in their present firm. These findings are in line with proposition two, illustrating that social embeddedness does not necessarily lead to a higher probability of success in the Israeli diamond industry. The findings and implications are elaborated in detail in case study three.

The *fourth* exploratory proposition leads from research such as Pouder and St.John (1996) and Chiles and Meyer (1997), which examined the risks of over embeddedness. Exchange in the diamond industry is relatively simple (Spar, 1994; Bernstein, 1992; Shainberg, 1987). It is complemented by the lack of formal education, leading to the question of the correlation between firm strategy and a firm's future probability of success. This led the researcher to make the following exploratory proposition: firms that build their competitive advantages on the use of socially embedded ties will be at a higher risk of economic failure as institutional changes fundamentally rationalise the basis of business transactions than those firms transacting in arms length ties. The researcher indicated and backed by industry experts concluded that this exploratory proposition holds true.

In conclusion, one of the main goals of a research and its design is to seek to address all of the questions put forth (Yin, 1985, 1994) and, importantly, to bridge some of the gap between the academic point of view and that of the practitioner. In attempting to realise this goal, the researcher exercised due diligence by planning ahead, as best as possible, through the creation of a concise and cohesive research design. The two essential elements of this research design were rigorous analysis complemented by much needed flexibility as a consequence of the special characteristics of the Israeli diamond industry.

2. A Review of the Relevant Literature - Networks

2.1 An Overview

This chapter focuses on the theoretical tools which were employed in the work for this doctorate thesis. This chapter progresses by providing an examination of existing literature in terms of its implementation in this thesis. The first part of the chapter will discuss the generic classification of diamonds as an integral part of the luxury goods market. The second part will focus and discuss the elements affecting social networks. These elements include the knowledge of groupings and information deployment through signals and indices. This information leads to one's reputation and trust as a facilitator of exchange, as illustrated in the following figure (figure 2-1). The highlighted boxes indicate the key areas on which the literature review will focus.

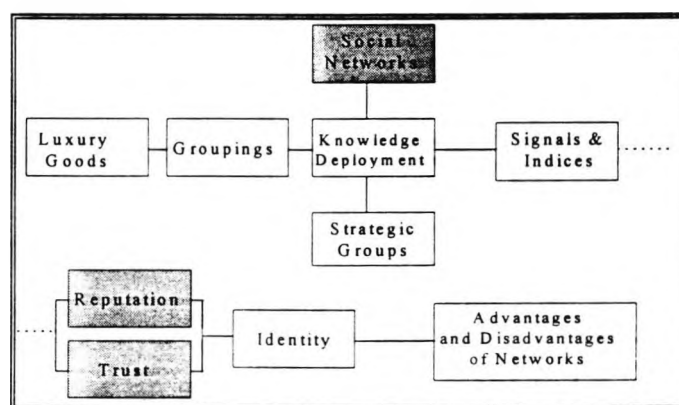


Figure 2-1: Structure of the Literature Review - Groupings

2.2 Luxury goods

Segmentation has always been considered as one of the most important, but challenging, issues in marketing (Bijmolt and Zwart, 1994; Dubois and Duquesne, 1993; Cooper and Kleinschmidt, 1985; Cavusgil and Nevin, 1981). From a marketing research point of view, segmentation is essential because it has a direct impact on the way in which markets are understood and even defined (Stoner et al, 1995; Achrol, 1991; Bonama, 1985; Churchill, 1979). From a managerial standpoint, market segmentation is strategic because the selection of the

appropriate target markets is paramount to developing successful marketing programmes and utilising a firm's resources and capabilities (Johnson and Scholes, 1997; Abrahamson, 1996; Chen, 1995; Aharoni, 1993)

Traditionally, economists have stressed the role of income as a limiting factor, inhibiting people from fully satisfying their consumption needs (Johnson and Scholes, 1997; Lipsey and Chrystal, 1995). According to this view, consumer creditworthiness and purchasing power are essential elements in defining the demand for any item offered. The symbolic and social value attached to the consumption of such goods reveals a significant impact of culture (Estelle, 1993; Aharoni, 1993; Becker, 1991; Aaby and Slater, 1988). It would seem that cultural identity is a powerful variable for segmenting the market for luxury items (Elsbach and Kramer, 1996; Landa, 1994; Liebenstein, 1950).

As discretionary income increases, complemented by the prevailing media culture that promotes immediate self-indulgence and gratification, it may cause the consumer to seek status and recognition - whether to impress others or to impress oneself (Erez and Somech, 1997; Fombrun, 1996; Roth, 1995; Abrahamson, 1991, 1996). For luxury goods, sources of utility typically include product quality, aesthetic design, excellence of service, uniqueness, and the desire to impress others (Johnson and Scholes, 1997; Dubois and Duquesne, 1993).

This indicates that many consumers may purchase such luxury goods for what they symbolise (Bikhenandi et al, 1992; Czinkota and Johnston, 1983). These goods may represent an extreme form of expressing one's values (Jackson, 1996; Foresi and Mei, 1991). One could argue that buying a luxury branded item, for instance, a fashion accessory or a diamond ring, activates the "dream" and the desire to belong to a social status, thereby leading to the acquisition of a collection of products bearing the same prestigious name or image (Fombrun, 1996; Fombrun and Shanley, 1990). By making the dream come true, the purchase act itself

takes away some of the inaccessibility of being part of a social group or status (Dubois and Duquesne, 1993; Lohmann, 1992; Mackay, 1980).

Luxury goods are expensive in relative and absolute terms. Moreover, they are identified as such by the market and, even more so, when one considers them to be trivial products, without any clear functional advantage over their non-luxury counterparts - except for the intangible image it bestows on its owner (Katz and Shapiro, 1985, 1992; Abrahamson, 1991, 1996). Furthermore, many producers of luxury goods tend to believe that their clientele appears primarily from upper income classes, which may not necessarily be the case (Saldern, 1990).

Over the past 15 years, the market for luxury goods has experienced spectacular growth (Fombrun, 1996; Paribas Capital Markets, 1996; Economist, 1992b; Saldern, 1990). Even if difficult to evaluate, due to relatively flexible boundaries, the luxury goods market was estimated at over US\$60bn (McKinsey & Co, 1991). This is based on a world-wide analysis of a number of sectors such as: haute couture, perfume, jewellery, watches, leather goods, shoes, cars, wine, champagne, spirits, tableware, crystal, and porcelain.

Although the large size of the luxury market, panels of consumers and retailers, or even image barometers, which are frequently used in many other sectors of consumer products, are claimed to hardly exist in the luxury goods market (Johnson and Scholes, 1997; Dubois and Duquesne, 1993). Very few luxury goods firms are equipped with information systems which allow them to measure and anticipate the continuing developments occurring in the marketplace, thus, they often lose touch with their markets (Fombrun, 1996; Dubois and Duquesne, 1993).

The luxury goods market tends to be dominated by many, rather small, firms which are often family controlled and have modest - or even no - market research budgets (Forem, 1997; Spar, 1994; Dubois and Duquesne, 1993; Saldern, 1990). At the same time, it seems that this lack of market research in the luxury goods sector kept alive certain ideas and illusions in relation to the consumption of these fashion products (Abrahamson, 1991; 1996; Fombrun,

1996; Uzzi, 1993). One of the most persistent of these, concerns the identity of the consumer in the eyes of producers (Dubois and Duquesne, 1993). As one interviewee in the Israeli diamond industry claimed: "More and more people can afford diamond jewellery these days. We are getting to the stage where people have already more than one car or one television. They are the sort of things that go wrong and have to be repaired. They are now looking for something else to buy, not for investment purposes, but for enjoyment ... and there really is a magic about a diamond ... and it never needs repairs."

The boom of the 1980s made luxury goods affordable to more people than ever before (Fombrun, 1996; Economist, 1992b; Saldern, 1990). On the other hand, some of these customers disappeared with the recessions in the mid 1980s (Paribas Capital Markets, 1996; Jackson, 1996). For instance, industry experts in the Israeli diamond industry claimed that some of the problems resulting from the downturn may have been self imposed. In some cases the quality of the polished diamonds was compromised in the boom as the production process struggled to handle increased orders.

As fake luxury goods entered the markets in the 1980s, the real brands were tainted by the street corner vendor image. When recession hit, luxury goods manufacturers found themselves out of fashion. Even those consumers who still could afford to buy were put off by the old associations with yuppies and ostentation. To cope with the change, marketers who in the mid 1980s were used to products "walking off the shelves" as long as they had the right label, have had to rethink their fundamental marketing strategy (Dubois and Duquesne, 1993; Economist, 1992b; Saldern, 1990).

2.3 Groupings

Schelling (1978) claims that actors tend to create groupings comprised of others who are similar to themselves based on characteristics such as income, sex, ethnic background and race.

These groupings are called networks (Choi et al, 1995; Katz and Shapiro, 1985, 1994; Abrahamson, 1996). For instance, the Israeli diamond industry is a case of a network, as diammantaires illustrate similar characteristics and are geographically dense. From the researcher's study, the Israeli Diamond Industry was found to be extremely family orientated and socially embedded. For instance, where the father brings in his children, sons/daughters in law, cousins, etc. to work for him.

Strategic Groups. Strategic groupings are seen as the result of strategic choice (Des and Davis, 1984). These can be defined and identified by the relationship between the industry at hand and the activities carried out by their member firms outside the industry (McGee and Thomas, 1986). While the identification of strategic groups is a judgmental process, it does enrich our understanding of the workings of industries (Dess and Davis, 1984). For instance, Cool and Schendel (1988) claim that: (1) strategic groups do exist within industries; (2) strategic groups do affect overall industry performance; and (3) performance differs within strategic groups.

The factors delineating strategic groups themselves may be directly related to structural barriers to entry (Cool and Schendel, 1988). This may be one explanation why some strategic groups may prove persistently more, or less, profitable than others in the same market. Strategic group members may not realise similar returns, as important differences may exist in their stock of assets (Cool and Schendel, 1988). For instance, risk exposure may differ between various group members to the extent that their strategies are characterised by a different degree of fit between their current strategy and their environment.

The Three Generic Exchange Models. One important initial finding from the researcher's study on the Israeli diamond industry was that there are three fundamental forms of exchange methods: (1) arm's length ties or the undersocialised perspective - it is when a market relationship is focused on the lack of reciprocity between exchange partners; (2) oversocialised

perspective, where interaction is highly constrained by one's identity; and (3) the relational perspective, which is called by Uzzi (1997) as "close or special relationships". Exchange based on socially embedded ties is where information needed to compute the risk of an action is not calculated by exchange partners who trust each other (Uzzi, 1996).

Economic theory is based on the undersocialised perspective (Coleman, 1990; Granovetter, 1985). In this position, it is assumed that interaction is rational, self - interested and minimally affected by social relations (Uzzi, 1996, 1997; Sako, 1992). In market exchange, the actors are considered to be interchangeable and so their identity is unimportant (Nahapiet and Ghoshal, 1998; Burt, 1997; Kramer and Tyler, 1996). It is the content of the exchange, which is exchanged between actors, as well as its price and quantity that determines an exchange.

In this perspective, only these things capable of being exchanged in the marketplace are conceived as having any value (Uzzi, 1996, 1997; Nonaka and Takeuchi, 1995). These arm's length ties are illustrated by the lack of reciprocity between exchange partners, the non-repeated nature of the interaction, narrow economic matters, and are often seen by actors as a one-shot deal (Khanna et al, 1998; Uzzi, 1993; Akerlof, 1970). It is argued that arm's length ties facilitate economic performance because, for instance, firms disperse their business among many subcontractors and suppliers, widely sampling prices and avoiding situations that can entrap them in inefficient relationships (Uzzi, 1997; Landa, 1994; Hirshman, 1970).

The oversocialised perspective (Grief, 1989, 1994), on the contrary, assumes that interaction is highly constrained by existing social roles and relations among exchange partners (Grief, 1994; Sako, 1992). It is one's role or position in a social system that determines interaction or the possibility of exchange, and not necessarily the content of the exchange (Uzzi, 1996, 1997; Granovetter, 1985). In this instance, actors discriminate in the market and so may limit their possible exchange partners on the base of identity factors, such as age, gender and ethnic background (Fombrun, 1996; Choi et al, 1995; Cool, 1985). On the one hand, actors may

reduce uncertainty but, on the other hand, such actors may also lose competitive advantage as a direct result of a decreased pool of possible exchange partners through market discrimination (Chiles and Meyer, 1997; Pouders and St. John, 1996).

In the relational perspective (Granovetter, 1985), it is the relationship between potential exchange actors that determines an interaction. The "relationship" is the property of both actors as a whole (Burt, 1997; Uzzi, 1993). The conduit through which interaction occurs includes, but cannot be reduced to, what is being exchanged or to an actor's social position (Uzzi, 1996, 1997; Landa, 1994). In this case, exchange based on networks takes into account one's identity as well as what is being exchanged. This perspective is somewhere between the under- and over-socialised perspective of exchange. It is argued that social networks promote economies of time, and contracting costs may be avoided all together (Spar, 1994; Bernstein, 1992; Benson, 1988). For instance, a familiar response found by Uzzi (1997) in the US garment industry as well as the researcher's interview into the Israeli diamond industry was: "... he knows that he can trust us as he's part of the family".

2.3.1 Social Networks

Exchange Through Networks. Transactions can take place through loose collections of individuals who maintain impersonal, and constantly shifting, exchange ties - as in markets (Ernst and Bleeke, 1993; Ring and Van de Ven, 1992; Williamson, 1975; 1981). On the other hand, transactions can take place through stable networks of exchange (Uzzi, 1996, 1977; Spar, 1994; Elster, 1989) as illustrated in the following quote from the researcher's interviews: "The absorption of the sons of diammantaires in their father's enterprise is absolutely essential for the soundness of the industry, since they have grown up in the diamond climate and have naturally absorbed the complicated practices of the trade, not mentioning the trust element".

Williamson (1975, 1979, 1981) inquired under what basis economic functions are performed within the boundaries of firms, rather than by market processes. The organisational form observed in any firm is thought to be that which deals most efficiently with minimising the cost of exchange (Barney and Hansen, 1994; Baker, 1990; Granovetter, 1985). Those transactions that are straightforward, non-repetitive, and require little or no transaction specific investment, will more likely take place in the market through arm's length contractual arrangements (Sako, 1990). As opposed to exchange that is uncertain in outcome, recurs frequently and requires substantial transaction specific investments that cannot be easily transferred to other actors, and most likely would be internalised within the firm or group (Nonaka, 1991; Nonaka and Takeuchi, 1995; Williamson, 1975, 1979, 1981; Chandler, 1962).

Market based exchange may become increasingly inefficient when there is high uncertainty or radical changes in the market environment (Stacey, 1996; Choi and Lee, 1995; Wade, 1995; Darby and Karni, 1973). The amount of information in the environment that one needs to process is vast and time consuming (Fombrun, 1996; Abrahamson, 1991; Ackoff, 1970). This is further augmented by the fact that information flow is imperfect. This leads to the need to find tools to deal with uncertainty (Cohen and Levinthal, 1990). Uncertainty may lead actors to seek alternative sources of information, such as opinion leaders and "experts" or internalise exchange, as seen in the Israeli diamond industry, through social embedded exchange (Abrahamson and Rosenkopf, 1990, 1993; Katz and Shapiro, 1985, 1992). The differences between market socially based exchange is summarised in the following table (table 2-1):

Type	Explanation
Market Exchange	Diffusion of information is virtually unlimited; relationships are impersonal; goals are freely chosen by actors and co-ordination is self regulated; number of actors is very large; low uncertainty
Social / relational exchange	Diffusion of information is limited; relationships are personal; goals are achieved by negotiation and co-ordination is by mutual adjustment; number of actors is limited; high uncertainty

Table 2-1: Types of Exchange

Social Networks as a Mechanism of Reducing Uncertainty. It is important to note that actors are thought to live in a world of imperfect information (Bettis and Hitt, 1995; Lipsey and Crystal, 1995; Hamel and Prahalad, 1996). As most actors are thought to be risk adverse in nature, they often seek information from the environment, for instance, through their social networks to decrease the risk involved in transactions through the market (Schelling, 1978). Some examples where quality can be learned only after use are restaurants and movies. In the extreme Darby and Karni (1973) defined another category named “credence goods”, where quality is rarely learnt even after use, for instance, advertising campaigns and many legal services (Choi and Hilton, 1995).

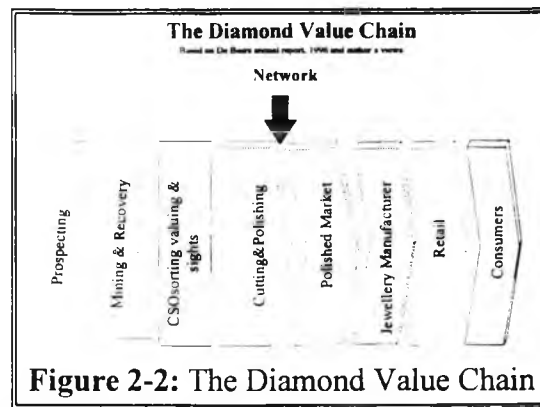
While the quality of many goods, mostly tangible, can be determined before purchase (for instance a car), the risks involved creates a demand for additional information. Hence, actors seek out additional information to lower those risks (Fombrun, 1996; Fombrun and Rindova, 1996), for instance, by relying heavily on their social networks and certifiers, as will be illustrated in the Israeli diamond industry (Spar, 1994; Bernstein, 1992).

The ability to identify the characteristics of other firms or actors in exchange through markets encompassed by high levels of uncertainty and complexity becomes crucial to facilitate successful exchange (Darby and Karni, 1973; Williamson, 1993; Choi et al, 1995; Uzzi, 1996, 1997). The basic proposition of the approach is that the structure and content of ties among the various actors in a network significantly affect individual’s behaviour as well as the behaviour of the network as a whole (Uzzi, 1996, 1997). As a result of the elusive value of polished diamonds, it is not surprising that Israeli diammantaires rely heavily on socially understood, and constructed, exchange mechanisms built over time (Spar, 1994; Shor, 1993; Bernstein, 1992). In this view, it is the relationship embedded in trust and reputation between potential exchange partners, that heavily determines exchange, and not solely the diamond exchanged.

In conclusion, reality is based to a large extent on imperfect competition (Nahapiet and Ghoshal, 1998; Burt, 1997, 1992; Bettis and Hitt, 1995) and exchange is based to some extent on social structures, as the conduit through which exchange is undertaken (Uzzi, 1996, 1997; Granovetter, 1985). Actors build their social networks through various stereotyping and discriminating mechanisms. They use these mechanisms as a screening process to reduce uncertainty in exchange through markets (Schelling, 1978; Cohen and Levinthal, 1990).

Certification. Actors within a network do not necessarily share identical goals, but they can share an identity, interests, or relationships to a focal organisation or individual that may help with identity formulation (Aldrich and Fiol, 1994; Landa, 1994; DiMaggio and Powell, 1983). If individual relationships are the vehicles through which particular kinds of interaction can occur, then networks of relationships can be seen as the social infrastructure for exchange (Nahapiet and Ghoshal, 1998; Burt, 1992, 1997; Uzzi, 1996, 1997).

An actor's position in a social structure can affect one's rewards and abilities to interact with other actors with different social status (Uzzi, 1997; Bonacich, 1987; Astley and Fombrun, 1983). As the identity of the actors involved in socially embedded exchange is extremely important, certification by intermediaries as a process of building one's identity between exchange partners is a fundamental ingredient in forming exchange (Elsbach and Kramer, 1996; Bonacich, 1987; Granovetter, 1985; Podolny, 1993; Bernstein, 1992). Furthermore, these intermediaries may help to measure and certify the identity of actors involved, thus, certification becomes fundamentally important when an actor's trustworthiness is unknown or uncertain. In addition, certification is important when monitoring an actor's trustworthiness is expensive or almost impossible (Choi et al, 1995; Spar, 1994; Bernstein, 1992; Darby and Karni, 1973). The following figure (figure 2-2) illustrates where social networks and certification are fundamental in the diamond value chain:



Prices of polished diamonds are highly subjective (Saldern, 1990; Benson, 1988; Bruton, 1981; Pollak, 1975). The illusion surrounding each individual diamond may lead different actors to price the polished diamond differently (Paribas Capital Markets, 1996; Bernstein, 1992; Schnitzer, 1988; Schumach, 1981; Tolansky, 1962). These are further augmented by the variations of the characteristics of the many different customers, suppliers and brokers involved as a result of their reputation, experience, and knowledge (Shor, 1993; Shainberg, 1987).

The researcher found in his research that some Israeli diamond firms were willing to pay more for a polished diamond presented by a diammantaire seen favourably. On the other hand, a diammantaire may refuse to buy the same polished diamond from a diammantaire that was not trusted. This fact was seen as surprising by the researcher as diamonds are seen by many experts as commodities with fixed attributes and prices (Paribas Capital Markets, 1996; Saldern, 1990; Bruton, 1981). In most cases the evaluations of many aspects of polished diamonds is seen by industry experts as inherently subjective, for instance, colour, cut and clarity (Bullen, 1995; Ghaswala, 1987; Epstein, 1982) are all subjective variables in a polished diamond value.

Diamond brokers are key players in the exchange mechanism for diamonds (Benson, 1988; Davies, 1984; Green, 1981). The task of the broker is to assume an air of trust or act as a certifier in exchange (Bernstein, 1992). Many transactions have fallen through, as a result of the absence of a broker or his inability to intervene effectively (Ami, 1990; 1996a; Freedman, 1980; Lenzen, 1970). Mediation between potential exchange actors is invaluable in bridging gaps between the actors involved in the diamond industry. The broker, by the very definition of his

task, is an actor of special connections and of high moral standards, who can present both the seller and the buyer with equal trust and devotion (Saldern, 1990; Harel, 1986; Epstein, 1982).

The certifier performs two functions: (1) transfers expectations of behaviour from the existing socially embedded relationship to the newly matched actors; and (2) "calls on" the reciprocity "owed" the intermediary, by the exchange actors. In essence, the intermediary transfers the expectations and opportunities of an existing embedded social structure to a newly formed one, providing a new base for trust.

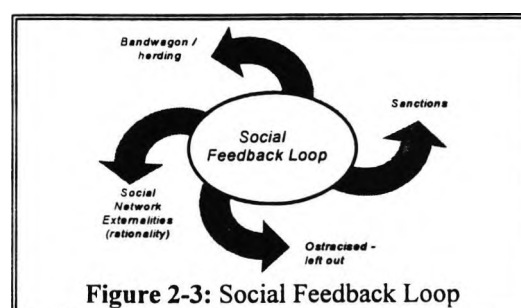
The Need for Homogeneity in Social Networks. It seems that "outsiders" tend to generalise about the identity of grouped actors, for instance, the quality of products produced (Choi et al, 1995; Ficher and Shavit, 1995; Church and Gandal, 1992; Katz and Shapiro, 1985, 1992). Hence, abiding by the network norms and values, is fundamental for the survival of the network (Choi et al, 1995; Spar, 1994; Bernstein, 1992). The homogeneity or standardisation of networked members means that there is an incentive for all members to watch out for each other's behaviour as one member's cheating on (for instance), quality, may decrease the whole group's reputation (Dollinger et al, 1997; Fombrun, 1993, 1996; Choi et al, 1995; Grief, 1989; Akerlof, 1970). For instance, if a member of the Israeli diamond firm cheats, it may affect the reputation of the whole firm, the members within it, and the image of the Israeli diamond Exchange as a whole (Spar, 1994; Shor, 1993; Bernstein, 1992; Shainberg, 1987).

As behaviour is relatively standardised, it is thought that it is easier to identify any types of deviations from the standard norms and values of the network (Pouder and St.John, 1996; Liebowitz and Margolis, 1994). However, it is important to note that the other members of the network are important, only, if they possess the ability of punishing the cheating member (Nooteboom, 1996; Choi et al, 1995; Bernstein, 1992; Williamson, 1979), for instance, the Israeli diamond industry's internal arbitration system's ability to punish offenders (Bernstein, 1992; Benson, 1988).

Social Feedback Loops. Once analysis moves away from abstract economic models where one is presumed to be dealing with premeditated decision makers in pursuit of goals, within limits of information and comprehension of the environment, reality is based on the complexities of imperfect competition (Nahapiet and Ghoshal, 1998; Coleman, 1987; Granovetter, 1985; Schelling, 1978). The complexities of imperfect competition based on social structures may lead to unintended consequences which cannot be predicted from the adding of the individual choices made (Arthur, 1994, 1996; Cowan and Gunby, 1996; Wade 1995). The aggregate choice may, for instance, lead to irrational results such as standardising (Achiz et al, 1995; MacKay, 1980) on an inferior technology for instance, the QWERTY vs. DVORAK keyboard system (David, 1985).

Actors are part of various social networks and do not live in a vacuum because they interact through their social networks within the environment (Stacey, 1996). In other words, an actor's behaviour is claimed to depend, to an extent, on how many other actors are behaving in a particular way (Schelling, 1978, Abrahamson, 1991, 1996; Abrahamson and Rosenkopf, 1990, 1993). Many sociologists claim that humans are social animals. Thus, in some instances, led to a cascading effect of herding without a coherent rationale behind it (Arthur, 1996; Wade, 1995).

An actor's behaviour may depend on how many other actors are already behaving in a particular way (Abrahamson, 1991, 1996; Abrahamson and Rosenkopf, 1990, 1993). There are those who call this dependence phenomenon "herding" (Choi et al, 1995). When enough actors follow other actors as a result of this herding process, it can cause a bandwagon effect (Abrahamson, 1991, 1996; Abrahamson and Rosenkopf, 1990, 1993) as illustrated in the following figure (figure 2-3):



Social feedback loops come about as a result of the interaction between individuals and the relationships it encompasses (Stacey, 1995, 1996; Schelling, 1978). Actors are often reluctant to try new products and services because they are unsure about their quality (Choi and Hilton, 1995). In many cases explicit information is not available, resulting in the importance of secondary information such as trust and reputation (Kramer and Tyler, 1996; Nooteboom, 1996; Fombrun, 1996; Gulati, 1995; Gambetta, 1988). As humans in many instances move in "herds" (Choi, 1995; Abrahamson, 1991, 1996; Abrahamson and Rosenkopf, 1990, 1993) there may be no rational reason for adoption of a product, service or exchange mechanism.

A social reason for adoption may exist for such products and services (Abrahamson, 1991, 1996; Katz and Shapiro, 1985; 1992). As a product, or service adoption spreads, a threshold may be reached beyond which adoption provides legitimacy rather than improves performance (Arthur, 1994, 1996; DiMaggio and Powell, 1983; Oliver, 1985). This diffusion may be as a result of fads and fashions stemming from environmental ambiguities and personal perceptions (Katz and Shapiro, 1994; Abrahamson, 1996), political pressures (Jervis, 1989), uncertainty (Jervis, 1989; Fombrun, 1996), and a need for homogeneity (David, 1985; Farrell and Shapiro, 1992; Farrell and Saloner, 1985).

It seems that social networks are fundamental for a diammantaire's performance (Spar, 1994; Bernstein, 1992; Benson, 1988; Bruton, 1981). For instance, it is possible to buy diamonds on the open market, but a dealer who does not have access to a network such as a diamond Exchange would be at a competitive disadvantage compared to one who is networked (Paribas Capital Markets, 1996; Spar, 1994; Bernstein, 1992). Exchange in the diamond industry is heavily orientated towards socially embedded exchange, as diamonds can be seen as credence goods (Even-Zohar, 1997c; Economist, 1992b). Diammantaires who are part of a diamond Exchange would have a competitive advantage in comparison to those who are not part of the network, as diammantaires within the network are bound by norms and values of the group

(Spar, 1994). Thus, being a member of a network lowers costs and risks involved in exchange (Grief, 1989, 1994; Bernstein, 1992; Choi et al, 1995). The following table (table 2-2) illustrates the underlying concepts of the five social generic decision making processes:

The Concept	Explanation of concept	References
<i>Rationality</i>	It is assumed that everyone independently can evaluate the best choice or/and the benefits of a specific choice can be explained to others. For example, the outcome of drink driving can be independently evaluated and easily explained by others.	DiMaggio & Powell (1983); Hirshman (1970); Lohmann (1992); Nonaka & Takeuchi (1995); Hirshleifer (1995); Liebowitz & Margolis (1994)
<i>Network benefits</i>	One person's action directly increases the utility for someone else. For example the more people joining a particular telephone system the higher the benefit one achieves from its use.	Arthur (1994, 1996); Cowan & Gunby (1996); Katz & Shapiro (1985, 1992, 1994); Wade (1995); Achiz et al (1995); Church & Gandal (1992)
<i>Ostracised - left out</i>	It is based on the assumption of network utility between individuals and groups. One will conform to norms as a need to be similar to the "Joneses" not necessarily as a result of making one more efficient, but as a result of providing legitimacy in the eyes of others.	Schelling (1978); Fombrun (1996); Choi & Hilton (1995); Abrahamson (1996); Bikhenandani et al (1992); Foresi & Mei (1991); Galaskiewicz & Wasserman (1989)
<i>Sanctions</i>	As "outsiders" may generalise about the perceived "quality" of the individuals within a group, group members may impose threats of sanctions upon deviants (a need for rigid behaviour). For example, one may be disconnected from a telephone network for not abiding to the network's norms and values.	Akerlof (1970, 1976); Coleman (1987); Abrahamson (1996); Choi (1995); Choi et al (1995); Choi & Lee (1995); Schelling (1978)
<i>Herding - Uncertainty</i>	People directly prefer to do the same things others do, even if it's against their personal knowledge as a result of "docility" - the tendency to rely on suggestions, recommendations, and information obtained through a social network as a major source of information. For example, the tendency to purchase an inferior product as a result of others doing the same.	Becker (1991, 1992); Abrahamson (1991); Abrahamson & Rosenkopf (1990, 1993); Choi & Hilton (1995); David (1985); MacKay (1980); Robin (1984); Ryan & Gross (1943); Weigelt & Camerer (1988)

Table 2-2: Underlying Concepts of Decision Making and Exchange

2.3.2 Knowledge Deployment

While informal relations are seen by traditional organisational theorists (Williamson, 1975, 1979, 1981) as random noise, they are seen as crucial indicators in understanding the mechanisms in networks (Uzzi, 1996, 1997). How information and knowledge spread, and the "noise" one may pick up on the way, is crucial in socially embedded exchange (Uzzi, 1993; Jervis, 1989; Schelling, 1978; Hirschman, 1970). It is important to note that actors whose behaviour is uninfluenced by other actors, nevertheless, may influence other actors (Fombrun, 1996; Schelling, 1978; Akerlof, 1970).

Social networks may help predict the behaviour of one's potential trading partners (Uzzi, 1997; Cowan and Gunby, 1996; Wade, 1995; Achiz et al, 1995). It may help reduce uncertainty in exchange (Uzzi, 1993; Church and Gandal, 1992; Granovetter, 1985). Signals through social networks can help supply information about ambiguous product quality (Choi et al, 1995; Darby and Karni, 1973) and firms (Jervis, 1989; Fombrun, 1996). For instance, the research indicated that many actors in the Israeli diamond industry perceive signals, such as word of mouth, as reliable sources of information and may base their strategic decisions on them.

Types of Knowledge. Nonaka (1991) categorises two different types of knowledge. Firstly, *explicit knowledge* is formal and systematic, thus, it can be easily communicated and shared. For instance, such knowledge can be deployed through a price list or a scientific formula (Kim and Mauborgne, 1997; Choi and Lee, 1995; Kogut and Zander, 1992). In other words, such knowledge can be deployed through information sharing, through markets (Williamson, 1975; 1979, 1981; Chandler, 1962). Explicit knowledge is transferable and can be easily capitalised and, subsequently, exchanged through market transactions (Nonaka and Takeuchi, 1995; Nonaka, 1991).

Secondly, *tacit knowledge* is hard to formalise, therefore, it is difficult to communicate to others (Nonaka and Takeuchi, 1995). It is deeply rooted in actions, specific contexts and consists partly of technical skills (Nonaka, 1991; Arthur, 1989; Kirpalani and Macintosh, 1980). Tacit knowledge is, therefore, not easily transferable through the market (Nonaka and Takeuchi, 1995) and cannot, therefore, be explicitly and easily capitalised or exchanged.

Knowledge Transfer. In order for knowledge transfer to occur, incentives and mechanisms for the transfer of implicit, or tacit knowledge must be established. For instance, the diamond industry disseminates tacit knowledge, which is its core competence, through social networks - such as family ties (Spar, 1994; Bernstein, 1992). This is illustrated in the following interviewee's view: "The diamond business largely depends upon experience transmitted from

father to son. Anyone attempting to learn the trade on his own must be prepared for sweat and toil ... Even then, some things have to be learnt from the parent generation, who started out as diamond workers and feel the very pulse of the industry and firm”.

On the other hand, another interviewee claimed that: “In the past, diamond dealers and manufacturers would train their children themselves, and introduce them gradually to the various aspects of the profession ... Fathers would pass on the particular skills that they had refined themselves over the years, expecting their sons to follow in their footsteps... But things have changed. Technological developments are being introduced with dazzling speed. This fact is coupled by fierce competition, has changed the competitive environment leading, to some extent, what is passed by elders to be irrelevant and sometimes even destructive.”

The Five Conditions for Knowledge Deployment. There are five fundamental conditions required to promote knowledge deployment (Nonaka and Takeuchi, 1995). *Intention*, is where knowledge deployment is driven by an actor’s aim and desire to reach one’s goals. Thus, knowledge creation lies in developing the capability to acquire, create, accumulate, and exploit, knowledge and information (Cohen and Levinthal, 1990).

Autonomy, is where all members of a firm should be allowed to act autonomously as far as circumstances permit (Nooteboom, 1996; Chen, 1995; Hill, 1990), thus, increasing the chance of bringing unexpected opportunities (Arthur, 1994, 1996; Cowan and Gunby, 1996).

Fluctuations and creative chaos, is where the interaction between the firm and the external environment is complemented by an open attitude (Nonaka and Takeuchi, 1995). This may lead to the ability to exploit the environment’s ambiguity, in order to improve one’s own knowledge base.

Redundancy, refers to intentional overlapping of information about business activities, management responsibilities and the firm as a whole (Nonaka and Takeuchi, 1995; Chen, 1995; Nonaka, 1991). In other words, it builds communication channels. Sharing extra information

may help one understand the business framework by having more in common with others (Choi et al, 1995).

Requisite variety, in order to deal with challenges posed by the environment actors must be flexible (Chen, 1995; Nonaka and Takeuchi, 1995). Such flexibility can be enhanced by combining information differently and quickly. To maximise flexibility, actors in the firm should have fast and efficient access to the broadest possible information sources (Achrol, 1991; Cohen and Levinthal, 1990).

Knowledge Barriers. Knowledge diffusion literature recognises that at least two barriers to information diffusion exists (Abrahamson, 1991): (1) *heterophily*, is the degree to which actors who interact are different in attributes (Rogers, 1983). It is thought that heterophyllous actors are less receptive to each other's communication; (2) *disconnectedness*, which is the degree to which an actor is not linked to others in a communication network (Nonaka and Takeuchi, 1995). Disconnected actors learn less from other actors and are more immune to imitating the fashion setters' decisions (Chiles and Meyer, 1997; Pouder and St.John, 1996).

Jacobson (1992) claims that if all actors in a firm share the same specialised language, it is assumed that they will be effective in communicating with one another. On the other hand, Pouder and St.John (1996) claim that they may not be able to tap into different external knowledge sources, thus, they may lose to some extent their innovative culture (Abrahamson, 1991; Rogers, 1983).

Cohen and Levinthal (1990) claim that accumulating absorptive capacity in one period will permit its more efficient accumulation in the next, thus, the knowledge accumulation would become easier over time. By having already developed some absorptive capacity in a particular area, an actor may be able to store what additional knowledge he needs in the following periods. Once a firm ceases investing in its absorptive capacity, it may never understand and exploit new information in that field, regardless of the value of that information; In other words, a type of

lockout. For instance an interviewee claimed that: "After all, the trade is based on methods tried and developed in the past. While we certainly endeavour to redress shortcomings, all the young people in the firm absolutely trust the judgement (owner), who founded the firm and accumulated vast know-how which enables him to envisage all eventualities".

Evidence of barriers to knowledge have been illustrated in clustered industries, such as Route 128 in Boston, Massachusetts, and the Minneapolis, Minnesota, area. They have experienced great declines in growth, accompanied by economic devastation (Chiles and Meyer, 1997; Pouder and St.John, 1996). Actors clustered in one geographical location may be led to have similar industry experiences and technical training. Thus, within the cluster, actors may have similar cognitive frameworks and may become resistant to outside influence (Schelling, 1978). For instance, from the researcher's interviews the following views have emerged to be prevalent in the Israeli diamond industry: "whereas many of the fathers began their careers in diamonds while still in their teens, the second and third generations received the benefits of modern education and comfortable surroundings, often the sons had planned to continue their studies in different professions, but the attraction of the diamond business proved greater. While some of the fathers had come by their profession accidentally, for the sons it was a matter of deliberate choice". Another interviewee claimed that: "Those who enter the diamond industry are willing to work long hours, to take great financial risks, to acquire the precise skills, to develop that special sense, because in a mechanised world, diamonds are still essentially a human business. That is one reason why the back-bone of the diamond economy throughout the generations has been the family".

As the cluster grows, however, size and congestion may begin to "choke off" the agglomeration economies (Pouder and St.John, 1996; Krugman, 1996a, 1996b). For instance, urban areas often grow beyond the ability of the infrastructure to adapt, leading to diseconomies

of scale. This may be illustrated to some extent by the Israeli diamond industry, with over 900 firms located in four buildings in 1996 (Israeli Ministry of Industry and Trade).

Procedures and controls within the actors' environment may create institutional pressures for conformity (DiMaggio and Powell, 1983; Abrahamson and Fombrun, 1994). Thus, clustered actors may be slower to react to environmental jolts than their nonclustered competitors (Chiles and Meyer, 1997; Pouder and St.John, 1996). Socially embedded arrangements and clustering may have advantages over market transactions for the deployment of information and knowledge (Nahapiet and Ghoshal, 1998; Burt, 1992, 1997; Uzzi, 1996, 1997). Although market transactions are usually efficient in facilitating the exchange of explicit or codified knowledge, they become increasingly inefficient when there is high uncertainty or radical changes in the market environment (Choi and Lee, 1995; Nonaka and Takeuchi, 1995).

In conclusion, the central issue in the sustainability of social networks is how to share, transfer and integrate knowledge more efficiently through relationships. Furthermore, a key issue may be how to prevent other actors from exploiting the joint assets and knowledge without sharing the cost to create it. Thus, interorganisational arrangements may be more efficient than markets in terms of integrating and transferring implicit, or tacit knowledge (Boisot and Child, 1988; Badsracco, 1991; Uzzi, 1996, 1997).

Signals and Indices. A major predecessor of socially embedded exchange is communication. It can be defined broadly as the formal as well as informal sharing of meaningful, and timely, information between actors (Morgan and Hunt, 1994). Communication, especially timely communication, fosters trust by assisting in relieving disputes and aligning perceptions and expectations (Khanna et al, 1998; Uzzi, 1996, 1997; Kramer and Tyler, 1996; Jervis, 1989). As the Nobel laureate economist Friedrich Hayek has argued: "Practically every individual ... possesses unique information ... that can be put to use only with his active co-

operation ... Getting that active co-operation may well turn out to be one of the key managerial issues of the next few decades” (Kramer and Tyler, 1996).

Schelling's (1978) work helped to establish the importance of signals in the market place in overcoming information asymmetries. His work was further developed by Spence (1974) and Jervis (1989) who showed how actors can signal to other actors in the market place. Choi et al (1995) and Macaulay (1963) claim that in the world of contract uncertainty, actors often care about who they trade with as opposed to the impersonal exchange between anonymous exchange actors that may exist in a world of perfect contract certainty (Lohmann, 1992; Bikhenandani et al, 1992; Thomas and Daniel, 1990). Thus, social capital building and one's identity is strategically important in incomplete information settings (Nahapiet and Ghoshal, 1998; Burt, 1992, 1997; Weigelt and Camerer, 1988; Darby and Karni, 1973).

An actor's identity in the environment is a function of generated signals (Johnson and Scholes, 1997; Fombrun, 1996; Jervis, 1989). Signals help communication between actors and determine their identity under uncertainty (Abrahamson, 1991, 1996; Wade, 1995; Abrahamson and Rosenkopf, 1990, 1993). Signals can be seen as a demonstration to other actors of one's aims or competencies (Milgrom and Roberts, 1992; Schelling, 1978; Akerlof, 1970). Signals are statements that are an essential part of establishing understandings among actors, that can be manipulated to strategic ends (Hirshleifer, 1995; Schelling, 1978).

Indices are seen as signals that carry some intrinsic indication that the images disseminated are legitimate because they are believed to be inextricably coupled to the actor's capabilities, reputation, or intentions (Jervis, 1989). Indices, unlike signals, cannot be as easily manipulated and so may be seen as a type of external signal or a type of certified signal.

In a market where enforcement depends on social expulsion or reputational damage, the formation of extralegal contracts fundamentally relies on information deployment about an actor's reputation and trust (Spar, 1994; Bernstein, 1992; Benson, 1988; Macaulay, 1963).

Group membership may enable actors to signal that they are trustworthy and fulfil the basic requirements for group membership (Choi et al, 1995; Spar, 1994). For instance, two members of the Israeli diamond Exchange must certify a new member if he is to be accepted (Ami, 1991; Benson, 1988; Harel, 1986). As a result, signals, and the way they are disseminated, are of the essence to building an actor's social capital.

Fair Process. Actors are thought to trust and cooperate freely, whether they themselves win or lose, when signalled by fair process (Nooteboom, 1996; Fredrickson and Mitchell, 1984; Schelling, 1978). Kim and Mauborgne (1997) claim that actors do care about outcomes, but they also care about fair process. Fair process is when one cares about the processes that produce those outcomes. Outcomes matter, but no more than the signals and indices of the processes that produce them. Thus, fair process seems to be important for firms labouring to create social capital. Fair process is important in the diamond industry as it is based on a diammantaires' knowledge, ideas and innovation.

Economists assume that people are maximisers of utility (Lipsey and Chrystal, 1995; Milgrom and Roberts, 1992). Thus, they are driven principally by rationale calculations of their own self interest. That is, economists assume one focuses solely on outcomes (Lipsey and Chrystal, 1995; Kim and Mauborgne, 1997). Fair process may offer a theory of behaviour that clarifies, to some extent, what would otherwise appear to be irrational behaviour (Schelling, 1978; Hirshman, 1970). The process seems to build trust and commitment (Kramer and Tyler, 1996; Gulati, 1995; Gambetta, 1988). In conclusion, fair process reaches into a dimension of human psychology unexplored in conventional management practice (Stoner et al, 1995; Kim and Mauborgne, 1997).

2.3.3 Social Capital

The Significance of Social Capital. Past research has indicated that reality is based on the

complexities of imperfect competition (Khanna et al, 1998; Nahapiet and Ghoshal, 1998; Granovetter, 1985). Analysts of social capital are concerned with the significance of relationships as a resource for social action (Fombrun, 1996; Uzzi, 1996, 1997; Burt, 1992). The definition of social capital was found to be elusive. Early definitions limited social capital to the set of resources inherent in family and community relations (Loury, 1977), then the concept was applied to economic performance of firms (Khanna et al, 1998; Uzzi, 1996, 1997; Burt, 1997).

Scholars agree on the significance of relationships as a social capital. Much of this capital is seen as embedded within networks of mutual acquaintance and recognition (Choi et al, 1995; Grief, 1994; Granovetter, 1985). Baker (1990), for instance, limits the scope of social capital only to the structure of the relationship. On the other hand, Burt (1992) and Nahapiet and Ghoshal (1998) claim that the term comprises both the network and the assets that may be mobilised through the network.

Social capital has many different attributes (Burt, 1997; Fombrun, 1996; Uzzi, 1996, 1997). The researcher is aware that there are many more variables of social capital - such as friendships, reputation, trust and network size. In terms of limiting the scope of enquiry, the researcher suggests that it is useful to consider the effects of social capital on firm performance, and limit social capital to trust and reputation, as the conduit through which exchange is undertaken. This is as trust and reputation are the two most commonly used variables measuring social capital. Trust and reputation are important variables of social capital as it influences a firm's attractiveness as an exchange partner (Dollinger et al, 1997; Burt, 1997; Fombrun, 1996; Barney and Hansen, 1994). Trust is more a one-on-one asset, while reputation is more holistic (Kramer and Tyler, 1996; Gulati, 1995; Luhmann, 1979). It is an essential part of social exchange and social action (Nahapiet and Ghoshal, 1998; Sitkin and Roth, 1993) that may lead to a competitive advantage (Uzzi, 1996, 1997; Kramer and Tyler, 1996; Barney and Hansen, 1994). Trust, reputation, and co-operative norms within groups fall within the elastic definition

that most scholars have applied to the term social capital. It seems that authority relations, relations of trust and reputation, and consequential allocations of rights which establish norms can be viewed as resources for individuals. Social capital was introduced to describe these resources. Furthermore trust and reputation were associated with stronger economic performance. Other forms of social capital include client base, social networks and friendships.

Trust, co-operative norms, reputation, and associations within groups each fall within the elastic definitions that most scholars have applied to the term social capital (Knack and Keefer, 1997). Writers on social capital have tended to emphasise indicators of trust and reputation in their empirical work (Temple and Johnson, 1998). Coleman (1990:300-301) writes that "relations of trust, and consensual allocations of rights which enable norms" can be viewed as resources for individuals. According to Arrow (1972:357) "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence". Transaction cost economics view trust as a cause of reduced opportunism among transacting parties, which result in lower transaction costs (Williamson, 1975). Trust can be the result of deep dependence and identity formation, as has been the case historically in Japanese firms. Trust as the result of institutional arrangements is characteristic of a sociological perspective (Rousseau et al, 1988).

Trust sensitive transactions include those in which goods and services are provided in exchange for future payment, employment contracts in which managers rely on employees to accomplish tasks that are difficult to monitor, and investments and savings decisions that rely on assurances by governments or banks that they will not expropriate these assets. Economic historians have documented cases where trust resulting from repeated interaction between parties, with the expectation that the present value of rewards from future interactions outweighs the benefits from reneging on current deals, was associated with expanded trade and economic

activity. For instance, Grief (1989, 1994) illustrates that the development of formal institutions that promote trust had a dramatic impact on the spread of long distance trade in the Middle Ages.

Upon reviewing the spectrum of research on trust, I marvelled at the breadth of the theoretical and empirical approaches on trust. Personality theory, behavioural decision theory, social psychology, and sociological theory, each of these traditions has been drawn upon to some extent in research on trust (Doney et al, 1998). Trust has received a great deal of attention from scholars in many fields, such as, Psychology (Deutsch, 1960; Lewicki and Bunker, 1995; Lindsfold, 1978), sociology (Lewis and Weigert, 1985; Strub and Priest, 1976), economics (Dasgupta, 1988; Williamson, 1991), management (Gulati, 1995; Lane and Bachman, 1996), and marketing (Anderson and Weitz, 1989; Dwyer, Schurr and Oh, 1987; Moorman, Zaltman and Deshpande, 1992). Hosmer (1995) claims that there appears to be a widespread agreement on the importance of trust in human conduct, but unfortunately there appears to be equally widespread lack of agreement on a suitable definition of the construct. The importance of benefits of trust, and the emerging global and multicultural workplace highlight the need for the understanding how trust develops (Doney et al, 1998).

On the other hand, across disciplines, there is agreement on the conditions that must exist for trust to arise (Rousseau et al, 1998). Risk is one condition considered essential in psychological, sociological, and economic conceptualisation of trust (Barney and Hansen, 1994). Trust would not be needed if actions could be undertaken with complete certainty and no risk. Trust is not a behaviour or a choice, but an underlying psychological condition that can cause or result from such actions. Trust is psychological and is important to organisational life (Rousseau, 1998).

I claim that the best approach to bridging the gap between the many approaches to trust research is to attend to researchers' specific organisational problems. For example, decision

based conceptualisation of trust may be quite useful for problems involving interactions taking place within contexts that present actors with salient and harsh penalties for untrustworthy behaviour (Bigley and Pearce, 1998; Spar, 1994; Bernstein, 1992). One illustration is Coleman's (1990) investigation of the problem of how close communities allow diamond dealers in London and New York to engage in transactions worth considerable sums of money solely on the basis of verbal agreements. He concludes that the communities in which these transactions take place support interactions of this sort because they effectively disseminate information regarding a trustee's reputation to all those on whom he or she must rely for business in the future. This particular problem may call for a purely rational choice perspective on trust. In other circumstances, where personal relationships are expected to be particularly strong and situational factors relatively weak, one of the trust theories that involves emotional elements may be more predictive.

Understanding why people trust, as well as how that trust shapes social relations, has been a central focus for psychologists (Worchek, 1979), sociologists (Gambetta, 1988), political scientists (Barber, 1983), economists (Axelrod, 1984), anthropologists (Ekeh, 1974), and organisational behaviour (Kramer and Tyler, 1966). Academics have seen trust as an essential ingredient in the healthy personality (Shaver and Hazan, 1994), as a foundation for interpersonal relationships, for co-operation and as the basis for stability in social institutions and markets (Lewicki, 1998). Recently, researchers of trust within organisations have focused on understanding the efficiencies of trust and explaining its emergence. Academics are increasingly recognising the uncertainty, complexity, and change that punctuate today's fast-paced global business environment (Hamel and Prahalad, 1994) and the resulting strategic impact of trust relationships on competitiveness.

Trust is a valuable contributor to many forms of exchange. For instance, in interfirm relationships, researchers credit trust with lowering transaction costs in more uncertain

environments, thereby providing firms with a source of competitive advantage (Doney et al, 1998). Trust also facilitates long term relationships between firms and is an important component in the success of many strategic alliances.

It seems that trust cannot exist in an environment of certainty; if it did, it would do so trivially (Bhattacharya et al, 1998). Therefore, trust exists in an uncertain and risky environment, hence reflects an aspect of predictability. As individuals must act on trust, they must have some idea about how much they trust someone (Barney and Hansen, 1994). Trust exists in an environment of mutuality, that is, it is situation and person specific (Kramer and Tyler, 1996). A survey of the literature suggests that trust is likely to result when (1) the interests of transacting parties are aligned; (2) when a sense of shared identity or solidarity is created; and (3) when care is taken in choosing transaction partners (Bhattacharya et al, 1998). Since actors regularly find themselves in situations where they cannot specify, scrutinise, evaluate, or constrain the performance of those on whom they depend, certain social mechanisms function to maintain trust (Bigley and Pearce, 1998). In conclusion, trust reduces social complexity and uncertainty by allowing specific undesirable conduct to be removed from consideration and by allowing desirable conduct to be viewed as certain (Lewicki, 1998).

The economics literature suggests that developing trust involves a calculative process. Trust can be established through a calculative process whereby one party calculates the costs and/or rewards of another party (Doney et al, 1998). In other words, economists concern themselves with the costs and benefits of specific behaviours (Bhattacharya et al, 1998). It is important to note that it is not a requirement of economic models that all actors are inherently untrustworthy. Kreps (1990) and Daggupta (1988) provide good examples of the economic modelling of trust. They represent trust less as an inherent concept and more as a label describing an equilibrium behavioural outcome not to cheat one's opponent or partner. Hence,

economists tend to view trust as either calculative (Williamson, 1993) or institutional (North, 1990).

Applying trust constructs to the problem of transactional economics is a relatively recent occurrence in the organisation studies literature (Bigley and Pearce, 1998). Although their central concern has been the organisation of transactions, many researchers using a transaction cost economics perspective have attempted to demonstrate how the organisation of transactions within an economic system is dependent, at least partially, on the quality of interpersonal, intergroup, or interorganisational relationships. Williamson claims that "It is redundant at best and can be misleading to use the term 'trust' to describe commercial exchange for which cost effective safeguards have been devised in support of more efficient exchange" (1993:463). Williamson does acknowledge a type of trust that is based on people's emotions, only to dismiss it as irrelevant to commercial exchange relationships. He argues that because personal trust involves switching out of a rationale decision making mode it is warranted only for very special personal relations that would be seriously degraded if a calculative orientation were permitted - commercial relations do not qualify. Furthermore, research indicated that sociologists rely more on "past behaviour" such as past obligations in determining their present behaviour, while economists rely on "future behaviour" such as calculativeness of trust.

Trust has been a central theme in negotiation and conflict management research (Deutsch, 1973). As trust relationships evolve from orientation through exploration and testing to stabilisation, trust evolves from impressionistic and highly undifferentiated to more finely grained and differentiated along specific bases. As emphasis shifts from "How much do I trust?" to "In what areas and in what ways do I trust?" the limits of trust and the domains where trust is inappropriate becomes specified more clearly (Lewicki, 1998). Both history and nature of interaction between the parties can shape the form that trust takes. Trust has a "band-width", where it can vary in scope as well as degree. Trust takes different forms in different relationships,

from a calculated weighing of perceived gains and losses to an emotional response based on interpersonal attachment and identification. The bandwidth of trust varies in the same relationship over time. Thus, the central issues for the different models of trust presented in the thesis revolve around the questions of how individuals develop their disposition to trust and how these bias affect their thoughts and actions.

The efficiency properties of trust are seen to derive in various ways from the long-term interorganisational relationships between member firms (Hundley and Jacobson, 1998). For instance, in the case of the keiretsu in Japan the advantages of trust is: first, because the main financial institutions are more deeply familiar with member firms, they are able to economise on the costs associated with open capital market transactions and provide financial capital to group members at lower cost; second, because the stability of shareholdings insulates keiretsu firms from the difficulty associated with short-term stock price fluctuations, managers of keiretsu firms are able to make decisions more consistent with a long term strategic orientation; third, the mutual trust that exists between member companies means that keiretsu members will have greater scope for mutually beneficial co-ordination of activities.

On the other hand, trust may actually dampen performance by: first, although it is possible to derive theoretical support for market protection as a means of export promotion, the special conditions of monopolistic competition and increasing returns to scale that are required for this outcome do not generally apply (Hundley and Jacobson, 1998). Second, while domestic markets are often intensely competitive, grouped firms that compete in these markets nonetheless face a business environment that is relatively less rivalrous than the one faced by their independent non-grouped competitors (Dranove et al, 1998; Peteraf and Shanley, 1997). The resultant slack may render them less diligent in their pursuit of the efficiencies that would enable them to compete more effectively. The results provide some evidence of a negative association between group membership (i.e trust) membership and performance. Hundley and

Jacobson (1998) found in their research on Japanese keiretsu that firms that are members of the six major corporate financial groupings or subsidiaries of members have lower export ratios than otherwise similar independent firms. One possible explanation is that the preferential treatment given to sales of the company within the keiretsu engenders complacency and a reduced incentive to export. Thus, it seems that the properties of trust sometimes ascribed to the Keiretsu actually reduce competitiveness, thus dampening export performance.

In conclusion, trust and reputation are important variables of social capital as it influences a firm's attractiveness as an exchange partner (Doney et al, 1998; Kramer and Tyler, 1996; Barney and Hansen, 1994). Trust is an essential part of social exchange and social action that may lead to a competitive advantage (Knack and Keefer, 1997). Trust, reputation, and cooperative norms within groups fall within the elastic definition that most scholars have applied to the term social capital. It seems that relations of trust and reputation, and consequential allocations of rights which establish norms can be viewed as resources for individuals. Social capital was introduced to describe these resources. Furthermore, trust and reputation were associated with economic performance (Hundley and Jacobson, 1998).

In making the distinction between the structural and the content dimensions of a network, the researcher would like to highlight that the content embedded in relations describes the kind of personal relationships one has developed and the type of information transferred through those conduits (Uzzi, 1996, 1997). On the other hand, the structural dimension concerns the properties of the social system (Nahapiet and Ghoshal, 1998). The term illustrates the impersonal configuration of linkages between the various actors.

Reputation. In recent years, managers and researchers have begun to recognise that competitive advantages, based on reputation, can prove even more enduring than those that result from traditional strategic positioning (Nahapiet and Ghoshal, 1998; Burt, 1997; Fombrun, 1996; Kramer and Tyler, 1996). As a result of the increased uncertainty and complexity in the

business arena (Hamel and Prahalad, 1996; Bettis and Hitt, 1995), the role of reputation has become more important in many collaborative arrangements (Dollinger, 1997; Choi et al, 1995; Weigelt and Camerer, 1988). Reputation and other forms of social capital are particularly interesting as they are seen as moral resources that operate differently than physical capital (Fombrun, 1996; Kramer and Tyler, 1996). Reputations' scope and scale increases rather than decreases with use (Uzzi, 1996, 1997; Gulati, 1995) and is both the direct and indirect result of competition (Fombrun, 1993; Grant, 1991; Grief, 1989).

Reputation describes the intangible set of values which actors associate with a firm or with other actors (Camic, 1992; Dollinger et al, 1997). It is derived from one's experience since its founding (Chen, 1995). In other words, it is one's cumulative record of successes and failures (Grief, 1989; Weigelt and Camerer, 1988). It describes one's overall appeal to stakeholders when compared with other actors (Fombrun, 1996; Choi and Hilton, 1995; Coleman, 1987). Reputation is a signal, it informs other actors about one's strengths and weaknesses and more importantly what to expect in the future, based on past experiences. Reputations are actually perceptions, held by external observers (Kramer and Tyler, 1996; Fombrun and Rindova, 1996). It complements and may even surpass the value of the more tangible material and financial assets as seen in many knowledge based firms (Choi and Lee, 1995; Nonaka, 1991; Fombrun and Shanley, 1990).

Actors envisage a firm's reputation from available information about one's activities (Kramer and Tyler, 1996; Fombrun, 1986, 1993; Luhmann, 1979). Actors use and generate information which they judge important for assessing a firm's reputation (Fombrun, 1996; Jervis, 1989). Information on one's reputation is often incomplete, and may be based on second hand information (Morgan and Hunt, 1994; Mari, 1992; Schelling, 1978). Each decision maker processes this reputational content according to one's proficiency for handling such ambiguous information (Cohen and Levinthal, 1990).

Reputation building is strategically important in incomplete information settings. For instance, settings where actors are not equally informed about a one's attributes (Weigelt and Camerer, 1988) and/or quality of products as is illustrated in the Israeli diamond industry (Spar, 1994; Bernstein, 1992; Benson, 1988). Actors may rely on firms' reputations because they have less information than managers do about one's commitment to delivering desirable product features and being trustworthy (Grossman and Stiglitz, 1980).

Reputation. Reputation is important in this thesis as Weigelt and Camerer (1998) claim that a reputation of an actor is the perception others have of the actor's values. Hence, it may determine the choice of strategies undertaken. Furthermore, Dollinger et al (1997) claim that reputation is an intangible element of an actor's business strategy. It can be employed to earn above-average profits as a firm's reputation influences trust and may make one a more attractive exchange partner (Kramer and Tyler, 1996; Luhmann, 1979).

Actors with strong positive and negative reputations are more visible. They are likely to receive more media coverage than others with no reputations. When viewed from a strategic perspective, reputations are both assets and barriers to mobility (Fombrun, 1996). A positive reputation may grant more leeway and understanding from consumers and stakeholders than those actors who lack this intangible asset. For instance, having a good reputation can reduce some operational and transactional costs, as reputation provides leverage in many negotiations - particularly with suppliers, creditors, and distributors. In other words, suppliers and customers would prefer to negotiate contracts with credible actors.

The diamond industry is besotted by information asymmetries through its veil of secrecy and misinformation (Paribas Capital Markets, 1996; Spar, 1994; Shor, 1993; Bernstein, 1992; Benson, 1988). It forces actors to rely on substitute sources of information to forecast one's level of trustworthiness (Kramer and Tyler, 1996; Gulati, 1995; Landa, 1994; Morgan and Hunt, 1994; Economist, 1992b). Thus, one's reputation is an essential part of exchange in the diamond

industry as legalistic remedies are hard to observe and enforce (Bernstein, 1992; Benson, 1988; Pollak, 1975). Enforcement problems become even more acute as diammantaires in many instances, trade, using someone else's capital, and so can easily disappear with the capital or cheat in business (Even-Zohar, 1997c; Shainberg, 1987; Freedman, 1980). Thus, socially embedded relations as opposed to arm's length relations are important to facilitate exchange (Uzzi, 1996, 1997; Sako, 1992; Economist, 1992b; Grief, 1989; 1992).

The fundamental problem in this case is that it is almost impossible ex-ante for the potential exchange partner to tell the difference between honest and dishonest actors without relying on intangible variables, such as reputation and past experiences (Uzzi, 1993; Bernstein, 1992; Akerlof, 1970). Thus, the presence of rogue actors who are willing to offer inferior goods tend to drive the market, as well as the actors involved, out of existence in the long run (Choi et al, 1995; Spar, 1994; Schelling, 1978; Akerlof, 1970). This is a continuous problem for the reputation of the diamond industry (Jackson, 1996; Gwaswala, 1987; Green, 1981).

By signalling potential exchange partners about product quality, through favourable reputations, may enable actors to charge premium prices (Milgrom and Roberts, 1986), attract highly esteemed exchange partners (Fombrun, 1996), attract investors (Khanna et al, 1998; Dollinger, et al, 1997; Fombrun and Shanley, 1990), and even drive out rogue actors (Akerlof, 1970). In addition, reputation allows actors to earn rents from the repeat purchases that their reputations generate, resulting in relatively superior outcomes (Fombrun, 1996; Kramer and Tyler, 1996). In contrast, low-quality producers avoid investing in reputation building because they do not expect repeat purchases and will market their wares at a discount (Bagwell, 1992), resulting in relatively inferior outcomes (Nahapiet and Ghoshal, 1998; Burt, 1997).

In conclusion, reputations summarise assessments of past performance by diverse evaluators who assess one's ability and potential to satisfy one's economic and social needs. Reputations adjust the multiple images of actors among all the stakeholders. Thus, they signal an

actor's overall attractiveness to others. Reputations embody two fundamental dimensions of an actor's effectiveness: (1) an appraisal of economic performance; and (2) an appraisal of success in fulfilling social responsibilities. A reputation can be valuable, rare, hard to duplicate, and nonsubstitutable (Fombrun, 1996), thus, providing the firm with the sustainable competitive advantage (Dollinger et al, 1997).

Trust. Trust is an important area to research as it is viewed as an important concept by academic researchers, business practitioners and consultants (Hosmer, 1995). Trust is an essential part of all socially embedded exchange relations (Uzzi, 1996, 1997; Sitkin and Roth, 1993) and so is an essential part of this thesis. Trust itself is difficult to observe and measure as a result of its tacitness and implicit elements (Nonaka and Takeuchi, 1995). It has a "taken for granted" character, since it is so closely linked to fundamental social norms and customs (Burt, 1997; Kramer and Tyler, 1996; Gulati, 1985). Although researchers have used a variety of definitions and operational measures for trust, research has at least implicitly accepted the definition of trust as: "... the belief, attitude, or expectation concerning the likelihood that the actions or outcomes of another individual, group or organisation will be acceptable or will serve the actor's interests" (Sitkin and Roth, 1993) .

The ability to identify the characteristics of other firms or actors in exchange through markets, encompassed by high levels of uncertainty and complexity, becomes crucial to facilitate successful exchange (Darby and Karni, 1973; Williamson, 1993; Choi et al, 1995; Uzzi, 1996, 1997). The basic proposition of the approach is that the structure and content of ties among the various actors in a network significantly affect individual's behaviour as well as the behaviour of the network as a whole (Uzzi, 1996, 1997). As a result of the elusive value of polished diamonds, it is not surprising that Israeli diammantaires rely heavily on socially understood and constructed exchange mechanisms built over time (Spar, 1994; Shor, 1993; Bernstein, 1992). In this view, it is the relationship embedded in trust between potential exchange partners that

heavily determines exchange, and not solely the diamond exchanged.

Trust is one's decision, based upon optimistic expectations or confidence about the outcome of an uncertain event, given personal vulnerability, the lack of personal control over the actions of others (Hosmer, 1995; Morgan and Hunt, 1994; Fombrun, 1996; Barney and Hansen, 1994). Furthermore, Nooteboom (1996) adds that actors may trust someone if they are likely to co-operate, even if not coerced to do so. Trust cannot be forced. It is built and given freely (Kim and Mauborgne, 1997).

Such capital is one mechanism by which actors may reduce the complexity of exchange through markets (Nahapiet and Ghoshal, 1998; Burt, 1997; Kramer and Tyler, 1996; Granovetter, 1985). It may enable actors to mutually establish specific expectations about future behaviour of others (Choi et al. 1995; Barney and Hansen, 1994), thus, reducing some of the uncertainty in exchange (Lane and Bachmann, 1996). Trust helps reduce uncertainty and creates opportunities for the exchange of goods and services that are difficult to price or enforce contractually (Uzzi, 1996; Bernstein, 1992; Darby and Karni, 1973). It is argued that since trust economises on the cost of governance (Nooteboom, 1996; Bernstein, 1992), the selection pressures of markets may lead to the prevalence of trust in the diamond industry (Paribas Capital Markets, 1996; Spar, 1994; Economist, 1992b). Thus, trust is an explicit and fundamental feature of socially embedded ties and is a fundamental element for this doctorate thesis. However, one must remember that trust has its limitations. It can break down after repeated abuses, because its holistic quality enables actors to continue to recognise fundamental breaches that can change trust to mistrust over time (Uzzi, 1997; Chen, 1995).

Trust is developed when extra effort is voluntarily given and reciprocated (Uzzi, 1997). Thus, interdependence is an essential trust-related feature as expectations about another actor's trustworthiness only become relevant when the completion of one's own activities depend on the prior actions of another actor (Sitkin and Roth, 1993). It is important to note that no formal

devices are used to enforce reciprocation and there is no lucid scale of conversion to the measuring rod of money. For instance, these efforts might entail giving an exchange partner preferred treatment (Kramer and Tyler, 1996). The following are two quotes from interviews in the Israeli diamond industry: "I don't want to see our factory as merely a money-making machine ... Therefore I do not want to squeeze profits out of it. Being an observing Jew and from a Zionist family, it is understandable that we wanted to move part of our activity to Israel. Thus, no less important than the firm's reputation is its character. A diamond company is also a way of life". Furthermore, another interviewee claimed that: "We don't want customers to buy from us only because of cheaper prices, but also because of our method of supply, sorting, and trustworthiness."

Such capital is seen as a source of competitive advantage (Fombrun, 1996; Morgan and Hunt, 1994; Luhmann, 1979). The primary outcome of governance by trust is that it promoted access to privileged and difficult to price resources that enhance competitiveness (Burt, 1997; Shor, 1993; Bernstein, 1992). Thus, trust is important because it increases an actor's access to resources and may strengthen one's ability to adapt to unforeseen circumstances that may be difficult to achieve through arm's length ties (Uzzi, 1997).

Three generic types of trust. While trust is the mutual confidence that one's vulnerabilities will not be exploited in an exchange, different types of trust can exist (Barney and Hansen, 1994). *Weak form trust*, does not depend on the construction of contractual or other forms of exchange governance, nor does its existence adhere to commitments by actors to an exchange to trustworthy standards of behaviour. Rather, trust emanates in this type of exchange because there are limited opportunities for opportunism; for instance, the market for crude oil and other commodities (Spar, 1994). In all these markets it is for buyers and sellers to evaluate the quality of the goods or services they are receiving (Saldern, 1990). Moreover, in all these markets, there are large numbers of equally qualified buyers and sellers, thus, firms do not have

to make transaction specific investment to trade with any other firm.

Semi strong form of trust, is when significant exchange vulnerabilities exist. Trust emerges if actors to an exchange are protected through various governance devices. If the appropriate governance devices are in place, the cost of opportunistic behaviour will be greater than the benefit (Choi et al, 1995). Thus, it will be in the rational self-interest of exchange partners to behave in a trustworthy way (Hill, 1990), for instance, the market for property and electronic goods. Whenever the cost of governance needed to generate semi-strong form trust is greater than the expected gains from trade, the exchange with semi-strong trustworthy partners will not be pursued (Barney and Hansen, 1994). This is illustrated, to an extent, in the diamond industry where if the cost of governance exceeds its benefits, cheating will occur (Bernstein, 1992; Benson, 1988).

In *strong form trust*, trust emerges in the face of significant exchange vulnerabilities, independent of whether or not elaborate social and economic governance mechanisms exist. Opportunistic behaviour is thought to violate value, principles, and standards of behaviour that have been internalised by parties to an exchange. Hence, it seems that trust in the Israeli diamond industry is positioned amid the semi-strong to strong form trust. As a result of the idealistic construct of this concept, such as the concept of perfect competition, it was impossible to illustrate an example of strong form trust.

Limits to Trust. Social capital generally is created through a process of combining the knowledge and experience of various socially networked actors who are interdependent of one another (Nahapiet and Ghoshal, 1998; Uzzi, 1996, 1997). Strong norms and mutual identification that may exert a powerful positive influence on network performance (Choi et al, 1995) may produce forms of collective blindness as a result of conformity to a set yardstick (Nahapiet and Ghoshal, 1998; Burt, 1997; Poudier and St.John, 1996).

Networked firms may also be susceptible to exaggerated forces of coercive isomorphism,

when procedures, controls and structures, within the organisation, create institutional pressures for conformity (DiMaggio and Powell, 1983). Institutional theorists for instance, Chiles and Meyer (1997); Pouder and St.John (1996) DiMaggio and Powell (1983); and Meyer and Rowan (1977), point out that organisations are subject to institutionalised expectations about what behaviours they can pursue legitimately. These expectations reside in the organisation's environment and, more specifically, in the taken for granted assumptions of external stakeholders (Zucker, 1987). They may lead to a decline in innovation and competitiveness (Nahapiet and Ghoshal, 1998; Chiles and Meyer, 1997; Pouder and St.John, 1996).

As social capital involves inter-connected social norms and values (Gulati, 1985), it seems that some networks may become so dense and path dependent that they may actually hold back the deployment of new information and important changes (Burt, 1992) that do not adhere to preconceived ideas (DiMaggio and Powell, 1983). This may be, to some extent, attributed to the difficulty posed by market discrimination. In other words, "insiders" may find it more difficult to co-operate and trust "outsiders" as the attributes being used to establish identity are, in many instances, based on one's identity (Grief, 1989, 1994).

This type of behaviour is inherent mostly to homogeneous groups such as the overseas Chinese in Asia and the Jews in mediaeval Europe (Landa, 1994; Grief, 1989, 1994). Such behaviour was found to be also inherent in US firms, for instance the laser and electro-optics industry in Orlando, Florida; the biotechnology and communication industries in San Diego, California; the computer manufacturing and computer chip industry in Austin Texas; and the ceramics industry in Corning, New York (Chiles and Meyer, 1997; Pouder and St.John, 1996).

As a result of market discrimination and possible insulation from the economic environment, networks, which by definition are relatively homogeneous, may face different resource availability and competitive practices (Chiles and Meyer, 1997). These practices may lead them to evolve independently to their environment (Pouder and St.John, 1996). Over

embeddedness may cause competitors within these geographically dense networks to behave differently from competitors outside the network (Krugman, 1996a, 1996b). Over dependence may cause them to assess competitor and market trends differently and, ultimately, to become vulnerable to ignorant industry assumptions and imitative behaviour (Nahapiet and Ghoshal, 1998; DiMaggio and Powell, 1983). The competitive strategies of actors in a network may, initially, be highly innovative and successful. Further on, it may tend to be less innovative and successful because actors may benchmark their field of competition mostly against other actors in the cluster, rather than against the total industry population (Pouder and St.John, 1996).

Choi et al (1995) claimed that when a network becomes too large to monitor, opportunities to cheat arise. Thus, the limits of trust may be the ability to monitor and punish offenders. Furthermore, it seems that a common ground for instance, homogeneity is needed if trust is to evolve (Kramer and Tyler, 1996; Luhmann, 1979). It seems that social capital resides in relations between, and among, actors and is a productive asset facilitating some forms of social action while inhibiting others (Nahapiet and Ghoshal, 1998). In conclusion the following is a summary of the limits and disadvantages to trust based exchange: Over discrimination may lead to loss of business opportunities; Over embeddedness may lead to a loss of touch with one's environment; Loss of innovation as a result of a need for conformity, limiting innovation; Opportunities to cheat as a result of limitations of monitoring; A need for homogeneity, leading to limits in network size.

In conclusion, anonymous exchange in economics, in many cases, is served as a starting point for analysing competition. In reality, one may need to take into account social structures and social relationships when analysing competition. Trust is important in various areas, such as management (Barney and Hansen, 1994; Ring and Van de Ven, 1994) and social sciences (Landa, 1994; Elster, 1989; Luhmann, 1979). Burt (1997, 1992) claims that in imperfect competition, trust is critical as illustrated in the following quote: "The question is not whether to

trust or not, but whom to trust.” It is therefore not the presence of trust that is distinctive in the Israeli diamond industry but, rather, the depth and nature of its social embeddedness (Spar, 1994; Bernstein, 1992; Benson, 1988).

2.3.4 Identity

The proliferation of international business between heterogeneous exchange partners, complicated by a diverse legal mechanism has increased uncertainty in the business arena (Elsbach and Kramer, 1996; Moini, 1995; Choi and Lee, 1995; Choi, 1994). In a sense, uncertainty in exchange may be placing a limit on the proliferation of exchange in the Israeli diamond industry. The ability to identify the characteristics of other actors may be fundamental to the proliferation of exchange (Grief, 1989, 1994). Identity is especially important in knowledge based exchange, and where exchange is across regions or national borders, as illustrated in the diamond industry. It may be used to reduce uncertainty in exchange (Spar, 1994; Bernstein, 1992; Benson, 1988).

Variables of Identity. Actors can be classified using variable and fixed identity factors (Grief, 1989; Choi et al, 1997). *Fixed* factors of identity include age, gender, income, ethnic background, and status, which are all pre-established without taking into account one’s personal characteristics. This type of identification is common in many ethnic groups (Chen, 1995; Landa, 1994). It can determine identity and level of potential trustworthiness, based on an actor’s background and relations to a network (Grief, 1989, 1994). For instance, car insurance premiums in the UK go down for those who are over the age of 27. In another instance, insurance firms give discounts to those actors who are elderly and, in some cases, there are firms who insure only women.

On the other hand, *variable identity* factors are those attributes that are built over time. For instance, past experience with a specific exchange partner may lead to trust (Kramer and

Tyler, 1996; Gulati, 1995; Schelling, 1978). Variable identity factors may be more reliable than fixed identity factors as they are based on actors' signals of quality, values, and levels of trustworthiness built over time (Jervis, 1989; Choi et al, 1997).

Identity and Certification as a Factor to Reduce Uncertainty. As a result of risk and uncertainty in the changing industrial landscape identifying a potential exchange, actor's attributes may be one of the few effective tools of reducing risk (Bettis and Hitt, 1995; Hamel and Prahalad, 1996). The following may be one example of how actors are able to overcome the difficulties of uncertainty by signalling one's identity: "The calculus of relations, is an informally efficient screening device, because it enables an ethnically homogeneous middlemen to pick up nonprice market signals directly from social characteristics of the potential trading partners such as kinship, distance, and ethnic identity. Hence, predict the contractual behaviour of his potential trading partner with a high degree of accuracy" (Landa, 1981).

Actors may overcome some uncertainty in exchange through market discrimination (Podolny, 1993; Hosmer, 1995; Pouder and St.John, 1996). To build on social capital, one must first be able to identify one's characteristics, but if that is not possible certification by trusted actors may be the next best alternative. For instance, from the literature on the Israeli diamond industry the researcher concluded that one's favourable identity, in most cases, is a prerequisite for exchange (Spar, 1994; Bernstein, 1992).

Before an exchange is undertaken in uncertain and complex business environments, one enquires to the level of ones trustworthiness based on fixed and variable factors of identity (Uzzi, 1996, 1997; Shor, 1993; Shainberg, 1987). This may be undertaken through social networks such as past transactions through trusted exchange partners and brokers, as well as getting any financial and family background (Choi et al, 1995; Spar, 1994). For instance, one interviewee claimed that "Here identity and the ability to trust is not just a useful and welcome quality. Here it is far and far more. It is the one functional factor on which the very foundation of

the business stands. Trust is not just the 'cement' which keeps the trade together; it is also the 'engine' which makes it run. Without it there is no diamond business... We don't want customers to buy from us only because of cheaper prices, but also because of our method of supply, sorting, and trustworthiness".

As a result of the level of uncertainty and ambiguity existing in many markets, actors may seek alternative channels to measure one's identity (Abrahamson, 1996; Jervis, 1989; Akerlof, 1970), for instance opinion leaders and industry experts. On the other hand, consumers of "new" products may carefully observe other purchasers' actions as little historical data may be available on the quality of the products and services being offered (Becker, 1991, 1992; Choi and Hilton, 1995; Robin, 1984). Thus, the only information available may emanate from the experience of other potential purchasers. In addition, actors transacting with those who are new in the industry or new to the potential exchange partner may observe other actors' actions and rely on others to certify those new actors before exchange can take place. For instance, from the literature on the diamond industry it seems that diammantaires are not willing to purchase diamonds from an actor whose identity is not known or certified (Bernstein, 1992; Ami, 1990; Benson, 1988; Lenzen, 1970). They must first get assurances about the potential exchange partner's trustworthiness and reliability as a prerequisite for exchange (Bernstein, 1992; Benson, 1988).

Drivers of Identity. An actor's identity is determined by three main drivers of identity (Podolny, 1993; Camic, 1992). First, an actor's *client base and networks* is a driver of identity. The position or status of an actor's client base can elevate one's social capital and so affect one's identity (Podolny, 1993; Elsbach and Kramer, 1996; D'Aveni, 1996). Actors with many clients transmit more information to other actors than those with smaller client base (Choi and Hilton, 1995; Bijmolt and Zwart, 1995; Naidu and Prasad, 1994). In parallel, a positive identity is

enhanced when actors have in their client base other actors who are seen as trustworthy - in other words, a “rub-off” effect.

Second, an actor’s *ability, trustworthiness and reputation* is a driver of identity (Dollinger et al, 1997; Fombrun, 1996; Camic, 1992; Weigelt and Camerer, 1988). In a world of imperfect information, an actor’s history may, for instance, convey information that can enhance the actor’s identity (Grief, 1989, 1994). An actor’s history provides the information that, regardless of the past business environment, the actor has been able to compete with rivals and sustain one’s level of perceived trustworthiness (Kramer and Tyler, 1996; Choi et al, 1995).

Third, *external intermediaries* as sources of information are drivers of identity (Abrahamson, 1991, 1996; Katz and Shapiro, 1985, 1992; Jervis, 1989). For instance, rankings, indexes, consumer reports, magazines, experts and journals, that assist an actor to assess one’s trustworthiness and integrity (Elsbach and Kramer, 1996; Choi and Hilton, 1995). These indirect sources of information may certify an actor’s trustworthiness and quality of products and services offered in a useful way to potential exchange partners when nothing or little, is known about the potential exchange partner (Abrahamson and Rosenkopf, 1990, 1993; Weigelt and Camerer, 1988; David, 1985; MacKay, 1980).

2.3.5 Advantages and Disadvantages of Networks

Certain networks may become so dense and path dependent that they may actually hold back the deployment of new information and important changes (Chiles and Meyer, 1997; Burt, 1992). Pouder and St.John (1996) claim that former dense industrial districts have experienced declines in growth. This may be, to some extent, attributed to the difficulty posed by market discrimination, based on fixed factors of identity. “Outsiders” may find it more difficult to co-operate with “insiders” as the attributes being used to establish identity are based on fixed factors of identity. For instance, when trade spreads into different product categories and

markets, many societies have a tendency to use fixed identity factors to discriminate in the market (Choi and Lee, 1995; Choi and Hilton, 1995; Grief, 1989, 1994). This type of behaviour is inherent mostly to homogeneous groups such as the overseas Chinese in Asia and the Jews in mediaeval Europe (Chen, 1995; Landa, 1994; Choi, 1994; Grief, 1989, 1994). For instance, in the US a few examples of geographically dense networks include the laser and electro-optics industry in Orlando, Florida; the biotechnology and communication industries in San Diego, California; the computer manufacturing and computer chip industry in Austin Texas; and the ceramics industry in Corning, New York (Pouder and St.John, 1996). Homogeneous groups may face different resource availability and competitive practices that may lead it to evolve independently to its environment (Chiles and Meyer, 1997; Pouder and St.John, 1996). It seems, when anything at all disturbs such a homogeneous system from its state of equilibrium, it will return to that equilibrium (Stacey, 1996; DiMaggio and Powel, 1983). This type of system may reduce uncertainty and so shield networked members from environmental uncertainty (Ficher and Shavit, 1995; Uzzi, 1993).

Geographically dense networks may cause competitors within these networks to behave differently from competitors outside the network (Uzzi, 1996, 1997; Krugman, 1996a, 1996b). It may cause them to assess competitor and market trends differently and, ultimately, to become vulnerable to ignorant industry assumptions and imitative behaviour that leads to unproductive business practices (Chiles and Meyer, 1997). The competitive strategies of actors in a given cluster, may initially be highly innovative. Further on, in time it may tend to be less innovative because actors may define their field of competition mostly against other actors in the cluster, rather than as against the total industry population (Pouder and St.John, 1996).

Networks may experience, initially, resource cost and access advantages, heightened competitor awareness and enhanced legitimacy which may allow the network to grow and innovate (Khanna, 1998; Chiles and Meyer, 1997; Pouder and St.John, 1996). This type of

network may initially protect its members and enhance growth. For example, greenfield sites give start-ups a seemingly better chance for survival than otherwise possible.

On the other hand, actors that discriminate in a market may exchange continually with the same actors as a result of past dependency and proven trustworthiness that has been built over time (Ami, 1996b; Shainberg, 1987; Freedman, 1980). Such actors may create a type of exchange network or a type of group based on the homogeneous needs of its members (Choi et al, 1995; Pouder and St.John, 1996) such as the World Diamond Exchange (Spar, 1994; Bernstein, 1992; Benson, 1988). This networked exchange may constrain the possibility of generating new exchange relationships (Burt, 1982; Grief, 1989, 1994; Boisot and Child, 1996; Pouder and St.John, 1996) leading to a possible competitive disadvantage.

As networks or groups grow, size, congestion, and saturation may begin to constrict the agglomeration economies (Pouder and St.John, 1996). As firms may enjoy economies of scale to a certain point, congestion may transform economies of scale to diseconomies of scale (Chiles and Meyer, 1997). This is further augmented as networked firms may also be susceptible to exaggerated forces of coercive isomorphism, when procedures, controls and structures, within the organisation, create institutional pressures for conformity (DiMaggio and Powell, 1983). Networks may on the one hand attract specialised labour but, on the other, the high demand will increase labour costs. Knowledge spillover seems to be more efficient, but highly embedded (Pouder and St.John, 1996). As a result of the proximity of the actors involved, search costs of the suppliers and customers may be reduced. Furthermore, unconstrained assessment of market forces may increase competition (Swann and Prevezer, 1996) as summarised in table 2-3:

Characteristic	Advantages	Disadvantages
Labour	Attracts a large pool of specialised labour	Increased labour costs as a result of increased demand
Knowledge	Drawing on a high level of industry - specific knowledge spillover	Highly industry specific spillover - risk of over embeddedness
Infrastructure	Attracts specialised intermediate institutions	High real estate costs as a result of the high demand
Stakeholders	Being part of a group enables one to enjoy the reputation of the group	High reputational interdependence. In other words, one's reputation is highly interdependent on the other
Geographic Proximity	Relatively easy and informal information and knowledge transfer	As clusters or groups grow, size, may lead to congestion and so may diseconomies of scale
Search costs	Lower search costs for suppliers and customers as a result of proximity	High competition
Information externalities	Actors can assess the market more easily from the actors within the group	High competition
Governance	Remedy of violations are relatively inexpensive and swift. Group norms and values result in conformity.	May hold back innovation and change as a result of conformity and a need for homogeneity (coercive Isomorphism).
Mass	As a result of the homogeneous nature of the group, it leads to stability (safety in numbers) that reduces uncertainty and risk.	Benchmarking against the same actors can lead to complacency and may result in losing touch with the environment.
Cost	Economises on monitoring of grouped members and may reduce transactional costs.	Over discrimination may result in lost opportunities leading to a competitive disadvantage.

Table 2-3: Summary of Advantages and Disadvantages of Groupings

3. A Review of the Relevant Literature Governance and Performance

3.1 An Overview

Scholars agree on the significance of relationships as a social capital. Much of this capital is seen as embedded within networks of mutual acquaintance and recognition (Choi et al, 1995; Grief, 1994; Granovetter, 1985). Nahapiet and Ghoshal (1998) claim that organisations have some particular capabilities for creating and sharing knowledge that gives them their distinctive advantage over other institutional arrangements. It is claimed that social capital in the form of trust and reputation lowers the probability of opportunism and reduces the need for costly monitoring processes (Khanna et al, 1998; Nahapiet and Ghoshal, 1998; Burt, 1997; Uzzi, 1996, 1997; Spar, 1994; Bernstein, 1992).

Chapter three examines governance mechanisms in social networks focusing on the Israeli diamond industry. Furthermore, it will discuss the differences between innate and adoptive exporters and examine what are the mitigating factors that affect success and failure, focusing on the Israeli diamond industry. The researcher would like to highlight that a firm's performance in this doctorate thesis was measured through polished diamond export activity as it was the only available quantitative information on Israeli diamond firms' performance. The progression of this chapter is illustrated in figure 3-1. The highlighted boxes indicate the key areas on which the literature review will focus.

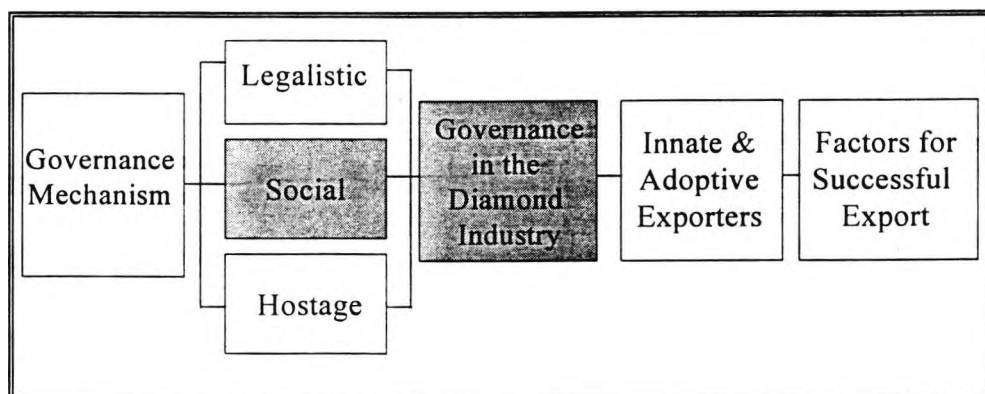


Figure 3-1: Structure of the Literature Review

The large heterogeneous characteristics of diamond dealers globally for instance, India and China becoming key players, complemented by a need to extend credit, has increased risk and uncertainty to an unmanageable level (Even-Zohar, 1997c; Spar, 1994; Benson, 1988). This fact led to the need for some kind of governance mechanism to facilitate exchange and reduce uncertainty (Nooteboom, 1996; Bernstein, 1992; Williamson, 1979). Thus, transaction based on socially embedded networks, with its implicit, pre-existing and unspecified conditions for co-operation, is the mechanism that the diamond industry chose in order to economise on the specification and monitoring of contracts and material incentives for co-operation (Nooteboom, 1996). In other words, reduce uncertainty and complexity.

Networked members may share similar cultural values, Thus making it easier for an actor to receive compensation if any members were to cheat on an agreement (Spar, 1994; Grief, 1989, 1994; Benson, 1988). For instance, if a member reneges on a commitment with an outsider, then the whole group becomes blamed, and there are negative repercussions on all network members (Choi et al, 1995; Choi, 1994; Katz and Shapiro, 1985; Akerlof, 1970). Thus, if one reneges on a commitment the whole network may shun him, or even evict him from the network (Bullen, 1995; Bernstein, 1992; Benson, 1988).

The homogeneity or standardisation of networked members means that there is an incentive for all members to watch out for each other's behaviour. As networked behaviour is relatively standardised, it is easier to identify any types of deviations from the standard norms or traditions (Choi et al, 1995; Coleman, 1987; DiMaggio and Powel, 1983). However, it is important to note that the other members of the network are important only if they possess the ability of punishing the cheating member (Choi et al, 1995; Spar, 1994; Bernstein, 1992). If individual relationships are the vehicles through which particular kinds of interaction can occur, then the group can be seen as the social infrastructure for exchange (Uzzi, 1996, 1997).

Unblemished group reputation increases credibility, making one more confident in

exchange relations with a specific group or actor (Fombrun, 1996; Weigelt and Camerer, 1988). To enhance one's reputation there may be a need for secrecy (Bernstein, 1992; Boisoit and Child, 1996). The importance of secrecy stems from the extent to which any co-operation between exchange partners, whatever the level of trust may be, demands a certain amount of juggling, fine tuning, and strategic retreats (Stoner et al, 1995; Spar, 1994). For instance, if the negotiations are conducted out of the public realm, one can bargain more freely and make concessions without fear of losing face (Jervis, 1989). This illustrates some of the advantage of the diamond industry's secretive arbitration process (Bernstein, 1992; Benson, 1988).

Sitkin and Roth (1993) and Bernstein (1992) claim that attempts to remedy trust violations legalistically, frequently fail because they paradoxically reduce the level of trust rather than reproducing trust. Even fully specified legally enforceable contracts contain an implicit component (Dick, 1996; Choi, 1994; Macaulay, 1963). As costs of enforcing written contracts in court increases relative to the expected benefit, written contracts become less appealing and legal remedies even less. Furthermore, the promisee would almost always be undercompensated under standard damage remedies, as Courts are reluctant to award compensation for lost profit since, in most instances, it is considered speculative (Bernstein, 1992).

3.2 Governance Mechanisms

3.2.1 An Overview

Simultaneous exchange is advantageous in the sense that it reduces the risks involved in exchange (Choi et al, 1995; Bernstein, 1992; Jaskow, 1985; Schelling, 1978). In reality this is not always the case. Thus, there is a need for some kind of governance mechanism to facilitate exchange. Bounded rationality (Bernstein, 1992; Jervis, 1989), illustrates that one's inability to anticipate fully the complex chain of contingencies creates the need for some kind of governance (Granovetter, 1985). For instance, slight variations of weight, colour, clarity, and cut of polished

diamonds may translate into often massive differences in value (Saldern, 1990; Lenzen, 1983; Bruton, 1981; Pollak, 1975). Thus, governance is important in the diamond industry as polished diamonds, by their very nature, provide ample opportunity for disputes to arise among actors who trade in them for their livelihood (Bernstein, 1992; Schnitzer, 1988; Shainberg, 1987).

The researcher would like to note that even fully specified legally enforceable contracts contain an implicit component (Spar, 1994; Bernstein, 1992; Macaulay, 1963). As costs of enforcing written contracts in court increase relative to the expected benefit, written contracts become less appealing and legal remedies even less. It is thought that in a typical diamond transaction, litigation costs would be high relative to the expected amount to be recovered. The time it would take to recover one's costs would be deficient as cash flow in many instances is what makes or breaks a diammantaire (Even-Zohar, 1997c; Benson, 1988). The promisee would almost always be undercompensated under standard damage remedies, as Courts are reluctant to award compensation for lost profit since in most instances it is considered speculative (Bernstein, 1992). When transactions are internalised, it may be unnecessary to anticipate all contingencies as they can be handled within a network's governance structure such as the diamond Exchange's arbitration mechanism and the World Federation of Diamond Bourse.

Opportunism may be further alleviated by social enforcement and by the ability to identify actors in specific exchange than in market based exchange (Choi, 1994; Sitkin and Roth, 1993; Bernstein, 1992). Thus, the importance of identity, trust and reputation (Kramer and Tyler, 1996; Fombrun, 1996). In socially embedded exchange, it is thought that contracts and legalistic controls are expensive substitutes for trust (Spar, 1994; Barney and Hansen, 1994; Macaulay, 1963). Hence, have the undesirable side effect of reducing innovative and co-operative behaviours (Uzzi, 1996, 1997).

Williamson (1975, 1979, 1981, 1985) and Hill (1990) argue that among alternative governance structures the one that will survive is the one which most fits the needs of the actors

involved and the environment in which one transacts. Thus, the most efficient governance mechanism in a specific environment would prevail. Exchange in the diamond industry, as a result of its characteristics, flows well with Williamson's (1975, 1979, 1981) claims and is embedded in socially based governance mechanism. The following are the three prevalent generic governance mechanisms:

3.2.2 Governance

Legalistic governance mechanisms, is where transaction costs, which typically arise out of concerns about opportunistic behaviour on the part of exchange actors (Barney and Hansen, 1994; Choi, 1994; Sitkin and Roth, 1993). It includes: (1) the costs of negotiating and writing contracts; (2) monitoring contractual performance; (3) enforcing contractual promises; and (4) addressing breaches of contractual promises (Gulati, 1995; Jaskow, 1985; Macaulay, 1963).

Explicit, legal contracts work most efficiently in societies which believe in the power of free market and where information is readily available to all members of society (Choi and Lee, 1995; Bernstein, 1992). Written enforceable contracts are an important mechanism by which actors protect themselves from another actor's potential opportunistic behaviour (Spar, 1994; Bernstein, 1992; Benson, 1988; Macaulay, 1963). These agreements serve as a framework within which co-operation between potential exchange actors is undertaken. Although realistically actors may not follow their initial contract to the letter, it provides a set of normative guidelines (Choi, 1994). In conclusion, this governance mechanism is efficient when the products exchanged are explicit and tangible incorporated by a strong legal mechanism.

Social Governance Mechanism. The second type of governance system is embedded in *social networks*. It is rooted in intangible or an implicit framework (Choi, 1994; DiMaggio and Powell, 1983). As opposed to the formal, legalistically based mechanisms, socially embedded governance is the implicit, informal mechanism of contracts based on trust, reputation, identity

and social networks (Choi, 1994). Such governance mechanisms are relatively common in closed stable societies, where actors work with long time horizons and approach agreements with that in mind (Chen, 1995). As “outsiders” may see actors within the group as one entity, adherence to the norms and values of the group is essential (Bernstein, 1992; Benson, 1988). Enforcement may be difficult and costly when based on norms and values (Choi et al, 1995). Thus, difficult initiation rites, apprenticeship and other pre-membership requirements are essential (Grief, 1989, 1994). For instance, as the global diamond industry is dominated by Jews, a Jew that reneges on an agreement may be discommunicated from social and religious circles.

Hostage Based Governance Mechanism. The third governance mechanism, is based on *hostage taking*. Each actor in a transaction exchanges a hostage, or hostages (Choi et al, 1995; Schelling, 1960). This governance mechanism is based on the fundamental concept of an actor’s rationality (Choi, 1994). For instance, actors are expected to try to conciliate in the event of a disagreement, as the opposite outcome would be using the hostages creating a “lose - lose” situation on both sides (Nalebuff and Brandenburger, 1996; Jervis, 1989).

The researcher would like to note that the hostage based governance mechanism would most likely function only if both sides hold credible hostages and are able to communicate effectively. This governance mechanism works best in societies that: (1) have weak legal systems; (2) where uncertainty is high; (3) where government intervention is to some extent arbitrary; and (4) information dissemination is imperfect and inequitably distributed. For instance, the following quote illustrates this view: “The ancients exchanged hostages, drank wine from the same glass to demonstrate the absence of poison met in public places to inhibit the massacre of one by the other, and even deliberately exchanged spies to facilitate transmittal of authentic information ... in a lawless world that provides no recourse to damage suits for breach of unwritten contracts, hostages may be the only device for partners to strike a bargain” (Schelling, 1960).

The three governance mechanisms are fundamentally different in concept and are common in different environments that necessitate their implementation. The table below (table 3-1) summarises the three governance mechanisms discussed above:

Type	Characteristics
<i>Market based exchange</i>	Short term, discrete exchange transactions; anonymous exchange relationships; reliance on legalistic remedies of contract law; free market
<i>Social based exchange</i>	Long term, recurrent transactions; social based transaction; bilateral rather than multilateral exchange - closed societies
<i>Hostage based exchange</i>	Mutual commitment based relationships; incentives not to infringe on exchange agreements; weak legal systems, high uncertainty

Table 3-1: Three Generic Governance Mechanisms

3.2.3 Governance in the Diamond Industry

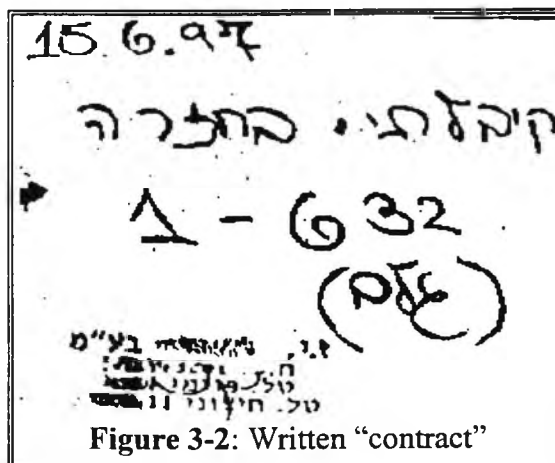
Ring and Van de Ven (1989) and Gulati (1995) claim that the important role of informal, personal connections across organisations may determine, to some extent, the governance structures used. Furthermore, Spar (1994) claims that arbitration adds to the flexibility and speed needed in the diamond industry. Historically, preserving the secrecy is one of the primary reasons that the diamond industry uses extralegal agreements rather than legally enforceable contracts (Bernstein, 1992; Benson, 1988). Thus, in the global diamond industry an oral contract is undertaken by handshakes, iterating “mazal u’bracha” (luck and blessing in Hebrew), cachets, weight slips, bills of sales, and public notice boards (Even-Zohar, 1997c; Saldern, 1990; Shainberg, 1987; Green, 1981).

Enforcement mechanisms within the diamond industry adhere to and are in accordance with the principle of minimising governance costs (Bernstein, 1992; Benson, 1988). This is important as profits in the diamond industry essentially are derived from the colossal turnover in value terms and not necessarily from the profits of a particular transaction (Paribas Capital Markets, 1996; Economist, 1992b). This is because profit levels are claimed by industry experts to be extremely low, i.e around 3 - 5% gross on turnover.

In the diamond industry there is an immense need for credit to finance the purchases of

rough diamonds because income, i.e sale of a polished diamond lags behind expenses (Even-Zohar, 1997c) for instance, buying the rough diamond, cutting, polishing, and salaries. Therefore, manufacturers need these credit lines from banks and other financial institutions to create cash flows in order to enable actors to purchase enough rough diamonds to keep factories open and running (Ami, 1991, 1996; Jackson, 1996; Economist, 1992b). The need for vast credit lines is further bloated as a result of the seasonality of the demand behaviour for polished diamonds on the retail level where 30 - 40% of polished diamonds are sold between November and December (Israeli Ministry of Industry and Trade Statistics, 1996).

As in all industries disputes arise, for instance, out of problems in communication and opportunism. The diamond industry is no exception. Unlike most industries that are based on legalistic remedies, the diamond industry is based on internal arbitration that can get legal backing from the governmental institutions if need arises. As a result of the intangibility of the value of rough and polished diamonds, the diamond industry has developed over the years, a complex set of rules and regulations strengthened by its own institutional governance mechanisms and sanctions to deal with fraud. Furthermore, the diamond industry is unique in its ability to create and enforce its own system of “private” governance mechanism (Bernstein, 1992). For instance, the following figure (figure 3-2) depicts an example of a common “vague” contract in the Israeli diamond Exchange. The contract states in Hebrew, that on the 15 of June 1997 an un-named person returned one rough “stone” to the signed firm:



A System Within a System. The researcher views the diamond industry's governance mechanism like a system within a system. In other words, the socially embedded governance mechanism of the diamond industry is situated within a legalistic environment of the country it is embedded in. The diamond industry is characterised by the researcher as "*external secrecy and internal transparency*". Those who are inside the network, information about the doings of other group members is deployed through socially embedded ties such as word of mouth (Davies, 1984; Epstein, 1982; Bruton, 1981). However, those who are not part of the network lack those socially embedded ties and thus will not receive socially embedded information. Thus, non-networked diammantaires would most likely be "in the dark" to the doings of the diamond industry and so be positioned at a competitive disadvantage. To complement further the secrecy of the Israeli diamond industry, diammantaires, to a large extent, shun outsiders and are legally obligated not to discuss the doings of the group with outsiders without the explicit consent of the board of directors of the Israeli diamond Exchange (as written in the rules of the Exchange).

The norm of secrecy that is common in the diamond industry and the diamonds exchanged is a partial explanation for its evolution towards socially based governance mechanisms (Spar, 1994; Bernstein, 1992; Benson, 1988). A diammantaire's relative profit is extremely small, relatively large amounts of capital are held up in each transaction and the perplexity of the number of exchanged actors involved is large (Paribas Capital Markets, 1996; Economist, 1992b), thus, increasing the risks involved in diamond related exchange.

Legally enforceable contracts are seen to be inefficient remedies to breaches in the diamond industry (Bernstein, 1992) as: (1) time of recovery of the promised assets is fundamental; (2) the ways Courts calculate damages is inconsistent with "real" costs in the diamond industry; (3) costs of writing and enforcing legal contracts is high; and (4) information about the industry especially specific transactions would become public and so against norms of the diamond Exchange. In addition, exchange in the diamond industry is tightly coupled. Thus,

any breach of a contract will cause a ripple effect where a substantial part of the diamond market will collapse (Spar, 1994). This may be a result of the high leveraging common in the global diamond industry, i.e the domino effect (Even-Zohar, 1997c). The need for arbitration is furthered by Macaulay (1963) who claims that even among businessmen who use legally enforceable contracts, when enforceable contingencies arise, there is a tendency to renegotiate contracts and settle disputes rather than resort to litigation.

Arbitration in the Diamond Industry. It is in these shortfalls that the diamond exchange's arbitration mechanism steps in to fill the gap in the legalistic governance mechanism (Bernstein, 1992; Benson, 1988). By providing members with an arbitration system based on social mechanisms through which disputes may be resolved: (1) in as short a time as possible; (2) by a body which is intimately familiar with the characteristics of the business; (3) keeping the secrecy of the Israeli diamond industry; and (4) providing the trade-off with the legalistic system of justice, as one Israeli arbitrator highlighted to the researcher, claiming in an interview that: "Justice delayed is justice not done !!"

An important feature of the arbitration mechanism is the secrecy surrounding the arbitration proceedings (Spar, 1994; Bernstein, 1992; Benson, 1988). Industry experts claim that the arbitrators are not required to make findings of fact and are not required to produce written decisions explaining their reasoning. As long as judgements are complied with, the fact of the arbitration as well as its outcome are officially kept secret. Although the arbitration's results sometimes become known through gossip and word of mouth, it is seen as secretive. As long as specific actors are not frequently involved in controversies, the damage to one's reputation is likely to be contained as a result of the arbitration process. Bernstein (1992) claims that arbitrators may decide on complex cases, in many instances, on the basis of trade customs, common sense, and some Jewish law. At present more common law legal principles are implemented as a result of legal counsel present at some of these hearings.

The agreement to arbitrate is binding unless the arbitrators are not willing to hear the case for any reason (Bernstein, 1992; Benson, 1988). The ruling of the arbitrators is final and binding. It can get legal backing from the state and may expel group members who do not adhere to its verdict. Industry experts claimed in interviews that expulsion is uncommon as then the diamantaire expelled has no further obligation to the group. Thus, may damage the group further, for instance out of spite.

On becoming a member of the Israeli diamond Exchange, a diamantaire automatically agrees to abide by the internal arbitration system. The right of the arbitration boards to pass judgements is vested in the Israeli Arbitration Law, which was passed by the Knesset (the Israeli parliament) in 1968. The law was in effect a recognition on the part of the legislature that in certain legal disputes an internal resolution is more efficient (Schnitzer, 1988; Szenberg, 1973). Essentially the law provides the specific instances in which cases can be heard. It outlines the procedure that must be followed by the different arbitration boards. It provides instances under which an arbitration ruling can be nullified by the civil courts. For instance, if an Israeli diamond Exchange member disputes a decision taken by an arbitration board in a civil court, the Court will not consider the facts heard in the arbitration hearing, but will study whether the arbitration hearing itself complied with the law (Benson, 1988). If the Court considers an arbitration to have been conducted according to the demands of the law, it will defer to the arbitration board's findings, regardless of whether or not the individual judges feel it is correct (Bernstein, 1992).

The World Federation of the Diamond Bourse. In addition to utilising Israel's laws and the Israeli diamond Exchange's regulations, the Israeli diamond Exchange also works within the framework of the regulations of the World Federation of the Diamond Bourse (WFDB). It bestows on any claimant the advantage of expanding the arbitration process to include overseas transactions (Spar, 1994; Bernstein, 1992; Benson, 1988). Affiliation to the WFDB allows a member of a specific diamond Exchange to settle a dispute with members of other diamond

Exchanges. In other words, the diamond Exchange's arbitration mechanism can serve a member even in the event of a conflict with a member who resides abroad. This gives a member of a diamond Exchange additional security when doing business throughout the world. This situation differs from civil courts as the international jurisdiction of a sovereign country is, in most instances, restricted and includes only actors physically located within the borders of the sovereign state, or in those cases where special permission must be obtained from the Court to permit an actor from outside of the Court's jurisdiction to be subpoenaed.

It is important to note that members of diamond Exchanges who are part of the WFDB have the right to enter and transact in any diamond Exchange that is a member of the WFDB, with certain limitations and exceptions. For instance, a diamantaire who is a member of the diamond Exchange in London can enter and transact in the diamond Exchange in Israel. An important point that was highlighted to the researcher in his interviews was the difference in the various charters at different global diamond Exchanges. For instance, the rules of acceptance in the London diamond Exchange, may be less stringent than those of the Israeli diamond Exchange leading to a conflict and a ranking of networked members. Thus, the researcher was told by industry experts that, if a diamantaire gets rejected from being a member in the Israeli diamond Exchange, that actor can apply to the London diamond Exchange. If accepted, through the WFDB subject can transact in the Israeli diamond Exchange.

In conclusion, if extralegal contracts are rationally preferred, an actor offering a written contract would have to offer a much higher price to compensate for the risk and imperfections of litigation and its uncertain outcomes (Bernstein, 1992; Grief, 1989, 1994), hence the advantage of the WFDB. Furthermore, attempts to remedy trust violations legalistically may frequently fail because they paradoxically reduce the level of trust rather than increase it (Spar, 1994; Sitkin and Roth, 1993). The adoption of legalistic remedies is claimed, in many instances, to impose a psychological and/or an interactional barrier between actors to an exchange. It may stimulate an

escalating spiral of formality and distance that may lead to a need for more rules. Although actors may adopt legalistic remedies to attempt to restore trust (Zucker, 1986), these socially unbedded substitutes for trust are frequently ineffective (Uzzi, 1996, 1997; Granovetter, 1985) in that they fail to restore trust relations as is illustrated in the diamond industry (Spar, 1994; Bernstein, 1992; Benson, 1988).

3.3 Exporters

The researcher would like to highlight that export activity in this doctorate thesis is utilised as the only indicator of a firm's performance. As it is a central tool in this doctorate thesis, the researcher would like to elaborate on its characteristics further. Export is defined as to send goods from one country to another (Johnson and Scholes, 1997; Stoner et al, 1995; Enet, 1977). The role of exporting is not necessarily to bring prestige to a firm, but to help it increase its turnover and profits. Exporting performance depends on how conscious the exporter is of the fact that sales incentives abroad are not automatically the same as locally (Haigh, 1994; Gomez-Mejia, 1988; Reid, 1982).

Innate exporters are firms geared for export since their inception. Thus, it is claimed that managers of innate exporters get directly involved in strategic export activities, such as the identification and development of all key success factors of their business (Ganitsky, 1989). Furthermore, they commit themselves to allocating and developing additional resources for performing the required tasks and strengthening their competitive positions, while senior managers of adoptive exporters are more committed to the firm's domestic opportunities. They allocate fewer resources to exporting than might be required. Moreover, adoptive exporters tend to experience greater difficulty in adjusting their domestic strategies to demands associated with exporting (Ganitsky, 1989). The importance of exporting is illustrated in the following quote from an interview in the Israeli diamond industry: "Due to the fact that the business is based on

export, it gives me great satisfaction when I see it expanding to new areas in the world or new countries as this is our future.”

Most successful Israeli exporters, whether innate or adoptive, have been found to exploit the following five common sources of competitive (Ganitsky, 1989): (1) flexibility, perseverance, and capacity to improvise; (2) strong organisational leaders, many with strong military backgrounds, who challenge conventional wisdom and provide the entrepreneurial spirit to overcome export hurdles; (3) focus on a few carefully chosen small segments where they compete and are content to remain small; (4) efficient communication systems and fair reward mechanisms with their distributors and agents abroad which have allowed actors to develop trustworthy and enduring relations; and (5) carefully chosen technological challenges where they can deploy their limited resources better.

Ganitsky (1989) claims that exporters, if unaffected by either unforeseeable or uncontrollable environmental changes, can achieve a solid basis for success by: (1) focusing their attention on all key details and viable export opportunities; (2) meeting their industries' minimum competitive requirements; and (3) avoiding implementation errors. Most of Israel's successful exporters emphasised variety by introducing new products, rather than value (Mannheim, 1984). Ganitsky (1989) claims that those focusing on variety, experience less difficulty in identifying and exploiting niches abroad or even in becoming leaders in global markets. In contrast, those emphasising value have greater difficulty because their sources of advantage in the domestic market usually translate into weaknesses in the more competitive international markets.

In conclusion, Israeli exporters have based their strategies on the nation's main source of competitive advantage based on the following distinctive factors (Ganitsky, 1989): (1) strong national and organisational commitments to exporting as a means of achieving broader goals, which have been reflected in co-operative efforts to overcome the small size disadvantage; (2)

quality orientated differentiated products, specialised processes, and efficient production methods derived from the country's value conscious, demanding, small markets; (3) highly qualified, motivated and relatively inexpensive professionals, many of them immigrants with vastly different backgrounds; and (4) exploiting the strong relations with the US and EU and those of its close neighbours.

3.4 Performance Variables

Competition is claimed to be a result of an initial supply-demand disequilibrium (Johnson and Scholes, 1997; Stoner et al, 1995), that is, an initial market inefficiency (Dickson, 1992). Following this line of thought, marketing planning may be a rational result of limited knowledge and uncertainty (Lipsey and Chrystal, 1995). It is used to decide what to produce and how to communicate and deliver the product or service to a market (Stoner et al, 1995).

Export success is not an objective term, because actors may perceive success differently (Louter et al, 1991; Cavusgil and Kirpalani, 1993; Das, 1991). Knowledge of the factors that determine export success for international marketing is rather inadequate (Cavusgil and Kirpalani, 1993). What one considers to be a success, another may condemn as a failure. Thus, interpretation of data for a firm's business performance should be evaluated. For this reason it may be important to measure a firm's performance by means of more than one indicator. Researchers have measured export success by using either quantitative or qualitative measures. The most widely used quantitative measures of export success found in the literature are: export sales growth, export intensity (percentage of total sales exported), export market share and composite measures using a combination of the above (Das, 1991). The following are some of the generic factors of export success:

Size Variables - Critical Mass. Firm size is often regarded by export researchers as a critical variable in explaining export behaviour and success (Moini, 1995). Some researchers

have used sales volume as a measure of size. In the Israeli diamond industry such information is inaccessible as firms are all privately held, so such an indicator is of little use. The closest indicator the researcher was able to extrapolate sales turnover was by export turnover. The most common claim is that the larger firms have size related advantages that enable them to more effectively engage in export (Nils-Eric and Slater, 1988). Thus, some researchers found that size and exporting success were positively related (Withey, 1980; Cavusgil and Kirpalani, 1993). On the other hand, other researchers have argued that size was important, only, as it is related to the abundance of resources in the organisation (Walters, 1985).

According to several studies on export behaviour and export success, the most important firm characteristics for success is the size of the firm in monetary terms (Cavusgil and Kirpalani, 1993). It is thought that critical mass is necessary before reasonable export results can be realised (Louter et al, 1991). This may be as a direct result of economies of scale and scope. Critical mass is the point where successful products or firms that are ahead, tend to gain further competitive advantage, while unsuccessful products and firms tend to further lose competitive advantage (Arthur, 1994, 1996).

Experience Variables. The number of years a firm is exporting might influence export results, as exporting can be seen as a learning process (Johnson and Scholes, 1997; Stoner et al, 1995). It may be a function of motivation, education and quality of employees (Louter et al, 1991). On the other hand, newer firms have been found by Das (1991) to be better at exporting and sometimes no relationship between age and export success has been found. For instance, younger firms tend to be better exporters than older firms, because young firm's management tend to more aggressively seek export market information than their counterparts (Nils-Erik and Slater, 1988).

Managerial Variables. Moini (1995) claims that management characteristics is a set of variables which measure management demographics, for instance, age, education, and

knowledge of foreign languages. It appears that management commitment and management's perceptions and attitudes towards export problems and incentives are good predictors of export success (Bijmolt and Zwart, 1994; Nils-Eric and Slater, 1988). Styles and Ambler (1994) and Uzzi (1996, 1997) claim that management factors are key determinants of export success.

A firm's export marketing activities and its business performance in exporting are related to the quality, attitudes and characteristics of its managers. For instance, export involvement and a firm's business performance have been found to be associated with the manager's knowledge of foreign languages and experience abroad (Nils-Eric and Slater, 1988). Positive managerial attitudes towards exporting have been linked to increased probability of exporting success, while the same study found that other managerial factors, such as international background of company personnel, are not necessarily crucial for export success (Das, 1991). It seems that senior managers of innate exporting firms get directly involved in export activities. They may commit themselves more often than adoptive exporters to allocating and developing additional resources for performing the required tasks and strengthening their competitive positions (Ganitsky, 1989).

External Variables. Variables external to the firm, such as the level of competition, type of industry the firm is in, the country's economic and political environment and country of origin of the buyer, which are seen by many researchers to have an impact on exporting success (Das, 1991), are seen as hard to ascertain in the Israeli diamond industry. Thus, they are seen by the researcher as out of the scope of this doctorate thesis.

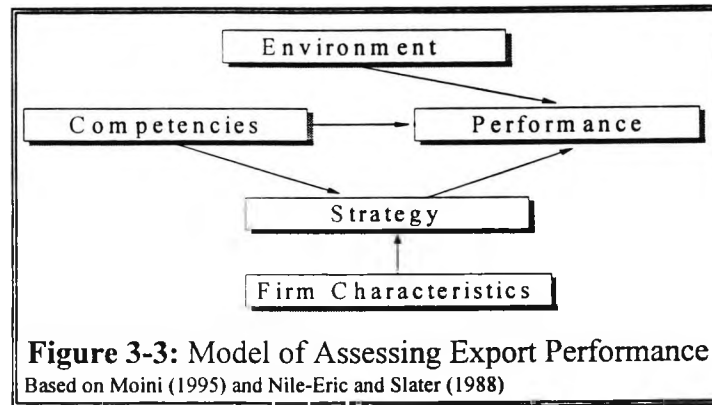
Marketing Mix Variables. Markets are based on customers' needs and on how these are satisfied (Moini, 1995). Strategies to meet them are formulated in terms of price and competition (Johnson and Scholes, 1997; Stoner et al, 1995). There are two functional philosophies of marketing product through markets (Ganitsky, 1989). The first adds value, under the assumption that consumers are more sensitive to performance and price. The second adds variety, under the

assumption that consumers will respond favourably to more expensive, custom-designed solutions. For instance, most of Israel's successful exporters emphasised variety by introducing new products, rather than value and ended up developing new market niches (Ganitsky, 1989).

Thus, management's ability to apply appropriate technology, establish necessary commitment, acquire international knowledge, institute consistent and realistic business objectives, develop business policy and establish the necessary management control systems are fundamental elements for a firm's performance (Nils-Eric and Slater, 1988). Furthermore, it has been found that product strength in terms of attribute uniqueness and quality are strongly related to export success (Styles and Ambler, 1994).

Quantitative measurements. Assessments regarding financial factors of firms' performances have been made in a variety of ways. To illustrate the many points of view, it is useful to examine the quantitative criteria employed, for instance, in the UK in selecting the Queen's Award to Industry for Export Activities and that of the Ministry of Industry and Trade (MIT) in Israel (see the chapter on methodology). On the other hand, there are many less financial or "sterile" means of measuring success. These qualitative factors of success are important in firms and/or industries where little financial and public data is available as is common in the Israeli diamond industry.

Firms that intend to succeed in export markets must develop and strengthen their competitive advantages. Maintaining an efficient distribution network and marketing techniques must remain a top priority after the firm is in the export markets. The firms must try to produce products that are a speciality by taking advantage of a firm technological edge and knowledge. Hence, it seems that firms must either systematically explore markets for any export possibilities and must commit adequate resources to exporting (Moini, 1995). The figure 3-3 depicts the relation between the variables:



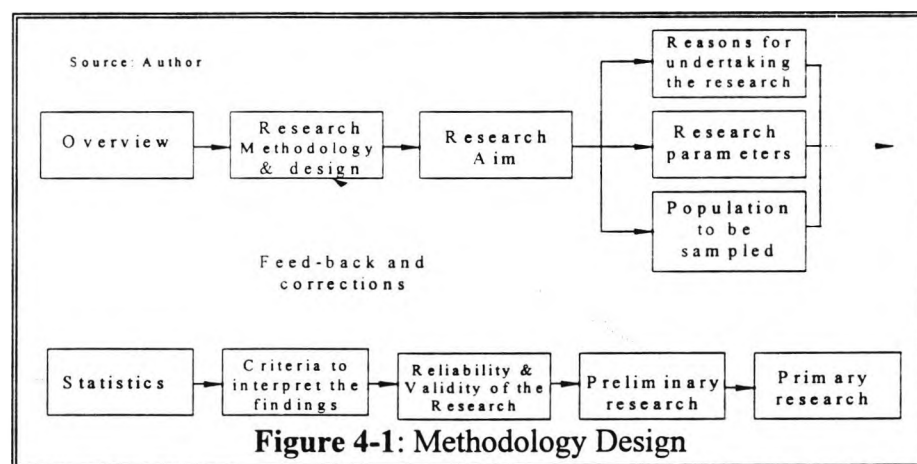
In conclusion, given the wide variety of variables identified as correlates of export success, it is dangerous to assume that certain characteristics of either the firm or its managers are always key success factors (Moini, 1995). The evidence seems to suggest that much depends on the specific situation of the firm and the industry in which it is competing. However, there appears to be sufficient evidence to draw a number of general conclusions. Management competencies are probably more important than firm characteristics (Uzzi, 1996, 1997; Nils-Eric and Slater, 1988) in determining a firm's performance. Unless management has an international vision, consistent export goals, favourable perceptions and attitudes towards export, is willing to take risks and is capable of engaging positively in export activities, a firm is not likely to become a successful exporter (Ganitsky, 1989; Nils-Eric and Slater, 1988).

4. Research Methodology

4.1 An Overview

The researcher would like to note that one of the keys to research success is to approach the research in a competent way, by having a clear and cohesive research design. In essence, the research design performs like a road map. Getting from point A, which is seen by the researcher as the exploratory propositions to point B, which is the findings, conclusions and implications of the research (Yin, 1994; Estelle and Pugh, 1993). On completion, the researcher will illustrate added value to the academic and practical bodies of knowledge.

The chapter will progress by providing an overview of the research methodology progressing from: (1) research methods and designs; (2) the aim of the research; (3) definition of the reasons for undertaking the research, parameters and population to be sampled; (4) leading to the statistical tools employed; (5) criteria for interpreting the findings; (6) reliability and validity of the research (7) preliminary research; and (8) finally preparations for the primary field work as depicted in the following figure (figure 4-1):



The goal of this, as of any research methodology, is to be able to address the selected exploratory propositions in an efficient and effective fashion within the chosen research environment (Estelle and Pugh, 1993). The researcher's hope is that, with the assistance of a

tight methodology, the research would yield a coherent backing to the proposed exploratory propositions. Hence, the importance of this chapter as a fundamental and integral part of the success of this doctorate thesis.

4.2 Research Methods and Design

One of the main goals of any research design is to seek to address all of the questions put forth. In attempting to fulfil this objective, the researcher has sought to apply a rigorous methodology, in conjunction with the room for flexibility, as a result of the characteristics of the Israeli diamond industry. In order to reduce possible obstacles in the fieldwork, the researcher thought through possible uncertainties by planning ahead as best as possible, through the creation of a concise and cohesive research strategy. In light of the problems presented and, as a result of the characteristics of the Israeli diamond industry, and the nature of the questions asked, a research methodology was required which would allow for: (1) a description of the diamond industry focusing on Israel and its Jewish origins; (2) describing the socially embedded business framework prevalent in the Israeli diamond industry; (3) classification of what mitigates success or failure in the Israeli diamond industry; and (4) attaining data from a reluctant industry.

Most scientists agree that research is distinguished from other means of knowledge accumulation, by its application of “scientific method” in the problem solving process. However, there is no agreement about what comprises sound scientific method in social sciences (Bonoma, 1985). Methodologies are neither appropriate, nor inappropriate, until they are applied to a specific research problem (Jick, 1979). Mintzberg (1979) claims that only through “soft” data one is able to explain a phenomenon, especially if it is socially embedded. Thus, a research design is the logic that links the data to be collected and the conclusions to be drawn to the initial questions of the study.

The conduct of strategy research in recent years has been skewed toward quantitative, as

opposed to qualitative, approaches (Snow and James, 1994). Several observers have expressed concern that strategy researchers are increasingly using “sterile” data and that there is a clear tendency toward analysis of secondary data. As Mintzberg (1979) argued, effective theory building and subsequent testing requires rich descriptions. Some researchers claim that “soft” data may be better able to explain relationships among variables, and set the foundation for prediction and subsequent testing (Snow and James, 1994).

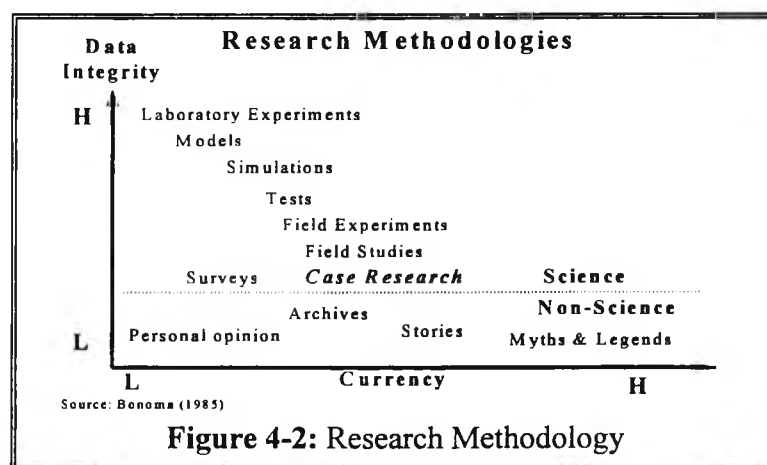
Snow and James (1994) claim that strategic management was not regarded as an academic discipline in the 1950s and early 1960s. This may be as a result of the early strategy literature dominated by case studies, such as Chandler (1962) and Learned et al (1965). Strategy literature was, essentially, a vast collection of case studies. Although most of these cases were constructed using various field methods, their purpose was to enhance classroom teaching and not necessarily develop theory. Furthermore, many social science textbooks have failed to consider the case study, a formal research strategy (Yin, 1994). The common flaw in the case study methodology was to consider the case study as the exploratory stage of some other type of research strategy. In the 1970s, and especially in the 1980s, strategic management research became much more rigorous and quantitative. Now, towards the end of the 1990s, calls are being heard for research that explores the considerable unexplained discord that remains from the quantitative studies (Snow and James, 1994). The case study has only recently received formal recognition as a research strategy in its own right (Yin, 1984, 1994).

One would use case study method because one deliberately wanted to cover contextual conditions, believing that they were highly appropriate to the phenomenon of study (Yin, 1994). The researcher views these contextual conditions as paramount in order to understand the diamond industry. Furthermore, the Israeli diamond industry needs a contextual approach as a result of: (1) it being extremely closed to outsiders; (2) based on socially embedded exchange; (3) being basically a secretive industry; (4) little academic literature existing; and (5) where

other literature and statistics being extensively biased towards the authors views and objectives.

The amount, quality, and availability of information, is a critical factor in terms of creating the necessary enabling environment in which the aims of the research study could be fully realised, for without such information the process of bringing the research exploratory propositions through to completion would have been a very difficult task - if not an impossible one. In fact, the researcher presumes that the lack of information on the diamond industry and, especially, on the Israeli diamond industry has more than likely been a contributing factor to the prevalent lack and shortcomings found in previous research studies in this area.

The case study approach can elucidate the casual links in real life interventions that are too complex for the survey or experimental research methods to clarify (Yin, 1994). Bonoma (1985) positions case study research on a graph with the axes “data integrity” and “currency”. By “data integrity”, he denotes internal validity and reliability; by “currency”, he denotes generalisability and contextual relevance. Bonoma (1985) claims that, within any methodology, researchers aim to maximise both currency and data integrity; but that there seems to be a necessary trade-off between the two. The following figure (figure 4-2) depicts the different methodologies, on a scale ranging from high integrity, low currency, to low integrity, high currency. It depicts the case study methodology as a trade-off between data integrity and currency:



Bonoma (1985) argues that case study research is a valuable tool for description and grounding of theory. Yin (1984) argues that case study research may be used for exploratory and descriptive purposes and has a competitive advantage when a “how or why” question is being asked about events, over which the researcher has little or no control. This corresponds well with the assertion of Schramm (1971) that the central feature of a case study is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result. Yin (1981), in a more general analysis of the features of the case study approach, in comparison with other research strategies, defines a case study as:

An empirical enquiry that investigates a contemporary phenomenon within its real - life context; when (1) the boundaries between phenomenon and context are not clearly evident; and in which (2) multiple sources of evidence are used.

Field methods are advantageous in the case of the Israeli diamond industry, because they provide rich data for theorising and conducting a detailed analysis of the dynamics of interfirm ties (Uzzi, 1997). The following table (table 4-1) depicts the research strategy that is thought by Yin (1994) to best suit various research questions:

Strategy	Research Question	Controls Behavioural events?	Focuses on contemporary Events
Experiment	how, why	yes	yes
Survey	who, what, where, how many, how much	no	yes
Archival Analysis	who, what, where, how many, how much	no	yes/no
History	how, why	no	no
Case Study	how, why	no	yes

Source: Yin, 1984, 1994

Table 4-1: Research Strategy

As a result, the case study method was chosen and implemented in this doctorate thesis. Strategic management, implements a broad list of research methods. For instance, the tools available to strategic management research cover field methods (for instance case studies and surveys), experiments, computerised data bases, simulations, and the combinations of the various approaches. Two tactics based on Yin (1994) were implemented by the researcher to increase the *construct validity* of this research. The first was the use of multiple sources of

evidence, such as documentation, archival records, and interviews. The second tactic was to have the draft case studies reviewed by some of the interviewees themselves, and industry experts. The following table (table 4-2) depicts a summary of different research tools, implemented by different researchers in the past:

Type	Example	Source
Direct and participant observation	Observation	Mintzberg (1973)
	Participation	Bartunek (1984);
Interviewing	Open ended	Miles and Snow (1978)
	Structured	Egelhoff (1988)
	Group	McDaniel et al (1987)
	Longitudinal	Johnson (1988)
	Telephone	Javidan (1984)
Questionnaire	Mailed	Dess and Davis (1984)
	Administered on site	Miller et al (1982)
	Single respondent per site	Zajac and Shortell (1989)
	Multiple respondents per site	Norburn (1986)
	Longitudinal	Gomez - Mejia (1988)
Field simulations / experiment	In field setting	Fredrickson and Mitchell (1984)
	Mailed questionnaire	Thomas and McDaniel (1990)
	Quasi experiment	Venkatraman and Zaheer (1990)
	Natural experiment	Meyer (1982)
Multi method study	Interviewing & archives	Chandler (1962)
	Observation/questionnaires/interviewing	Bourgeois and Eisenhardt (1988)
	Observation/interview/archival analysis	Meyer (1982); Reid (1989);

Source: Snow and James (1994)

Table 4-2: Implementation of different research methods

The following table (table 4-3) depicts the strength and weakness of the data collection tools involved in this doctorate thesis:

SOURCE OF EVIDENCE	STRENGTHS	WEAKNESSES
Documentation	* Stable - can be reviewed repeatedly * Unobtrusive - not created as a result of the case study * Exact - contains exact names, references and details of an event * Broad coverage - long span of time	* Retrievability - can be low * Biased selectivity - if collection is incomplete * Reporting bias - reflects bias of author * Access - may be deliberately blocked.
Archival records	* Precise and quantitative * Same as documentation	* Accessibility due to privacy reasons * Same as documentation
Interviews / survey	* Targeted - focused directly on case study topic * Insightful - provides perceived casual inferences	* Bias due to poorly constructed questions * Response bias * Inaccuracies due to poor recall * Reflexivity - interviewee gives what interviewer wants to hear

Source: Yin, 1994

Table 4-3: Strengths and Weaknesses of Sources of Information

The two essential elements of this research design were, rigorous analysis complemented

by the need for adaptability. This was as a result of the dynamic and complex research environment and the special characteristics of the Israeli diamond industry. (1) Rigorous analysis and procedures were needed as a result of the challenging nature and dynamic characteristics of the Israeli diamond industry. It was implemented to tackle the real difficulties involved in obtaining accurate information in such a secretive industry as the Israeli diamond industry (see chapter five). (2) The element of adaptability was needed in order for the researcher to be able to adjust promptly and proficiently to the requirements and needs of the Israeli diamond industry, coupled with possible crises that may arise during the course of the fieldwork in this doctorate thesis, such as, accessibility problems (see chapter five for further details).

4.3 Research Aim

4.3.1 An Overview

The Israeli diamond industry has so far attracted very little academic attention, drawing the need for a descriptive line of thought. This may have something to do with the difficulty involved in defining the industry's boundaries, and penetrating and peeling its layers of secrecy and deception. The diamond industry is like a maze, a web of subtle connections that made the researcher's curiosity tingle. Mapping it out will, hopefully, open the door for future research in management and strategy.

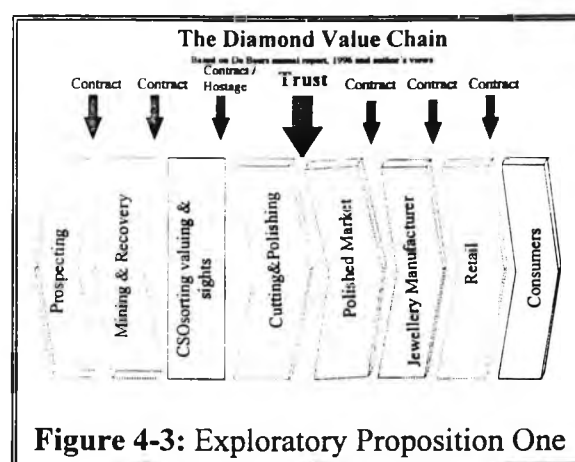
The researcher would like to understand the intricacies of socially embedded relations, based on trust and reputation in the Israeli diamond industry, as opposed to the seemingly more prevalent arm's length exchange. The researcher will elucidate two relatively different managerial practices in the Israeli diamond industry. One of arm's length and the other of socially embedded exchange. The researcher will illustrate their possible merits and failing; discovering some key success factors for Israeli polished diamond firms. The researcher tested the following four exploratory propositions:

4.3.2 Exploratory Propositions

Exploratory Proposition One. Exchange in the diamond industry is fundamentally based on trust and reputation (Bernstein, 1992; Spar, 1994). Therefore, the *first* exploratory proposition addresses the importance of socially embedded relationships in facilitating exchange in the Israeli diamond industry. For example, exchange may be based on one's identity and social networks, as is indicated in the literature review, to facilitate exchange. Hence, it is important to study how this socially embedded manner of conducting business facilitates exchange in the Israeli diamond industry, thus, the first exploratory proposition claims:

The weaker the ability of prices to deploy information on the polished diamond being exchanged, the more Israeli polished diamond firms will form and rely on their socially embedded ties.

The following figure (figure 4-3) depicts the exchange relations in the diamond industry, using the diamond value chain as a model of exchange. It is important to note that, only, in the polished market stage are socially embedded ties fully utilised. It indicates that the focus of this research will be mainly based on the cutting, polishing and marketing, stage of the diamond value chain:

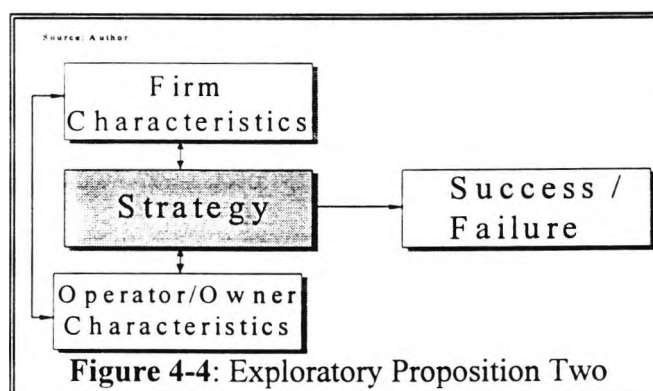


Exploratory Proposition Two. The *second* exploratory proposition analyses the strategy of the Israeli polished diamond firms in facilitating a strategy leading to economic success, or

failure. It examines the difference in economic success between those firms transacting through arm's length exchange and those transacting through socially embedded exchange, thus, the second exploratory proposition queries:

Does social embeddedness, as opposed to arm's length exchange, of an Israeli polished diamond firm operating in the Israeli diamond industry increase one's probability of economic success?

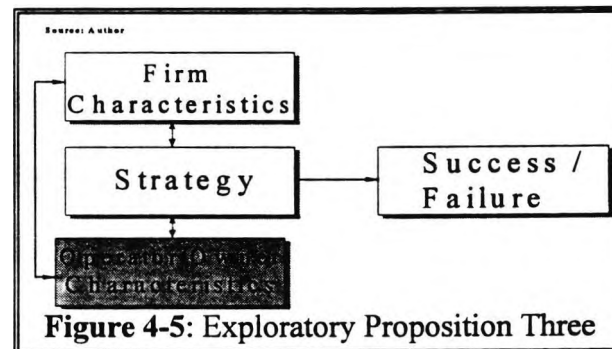
The following figure (figure 4-4) depicts the relationship between firm strategy, firm characteristics, and its operator/owner's characteristics, leading to economic success or failure of the Israeli polished diamond firms:



Exploratory Proposition Three. The *third* exploratory proposition deals with the importance of the characteristics of the firm operator/owner, in facilitating the strategy of the Israeli diamond exporting firm leading to various levels of economic success. It is claimed that the operator/owner in this type of family orientated firm is involved in all key aspects of the business and, consequently, have firsthand knowledge of the firm's strategy and administrative activities (Uzzi, 1996, 1997). Furthermore, the literature review indicated that management characteristics are key indicators for export success (Bijmolt and Zwart, 1994; Axinn, 1988; Aaby and Slater, 1988; Cavusgil, 1984). It is important to note what are the characteristics of the firm's operators and/or owners, and study how their socially embedded ties and characteristics affect the firm's probability of economic success. The third exploratory proposition asks:

What are the characteristics of the operator/owner of a firm operating in the Israeli diamond exchange that affect its probability of economic success.

The following figure (figure 4-5) depicts the relationship between firm strategy, firm characteristics, and its operator/owner's characteristics leading to export success, or failure, of the Israeli polished diamond firm focusing on operator's/owner's characteristics:



Exploratory Proposition Four. The *fourth* exploratory proposition is grounded on work such as Pouder and St.John (1996), Uzzi (1996, 1997) and Chiles and Meyer (1997), who discuss the risks of over embeddedness in exchange. As exchange in the Israeli diamond industry is: (1) relatively simple as a result of the lack of formal education (Shor, 1993) and the need for speed and flexibility (Spar, 1994; Bernstein, 1992; Benson, 1988); (2) closed to outsiders (Paribas Capital Markets, 1996; Spar, 1994; Economist, 1992b); (3) is benchmarked against other group members (Chiles and Meyer, 1997; Pouder and St.John, 1996); and (4) based on socially embedded relations (Lenzen, 1970; Freedman, 1980; Bruton, 1981), this led the researcher to the fourth exploratory proposition:

Israeli polished diamond firms that build their competitive advantages on the use of socially embedded ties will be at a higher risk of economic failure, as environmental changes fundamentally rationalise the basis of business transactions more than of those who build their competitive advantage on arm's length ties.

The following figure (figure 4-6) illustrates exploratory proposition four:

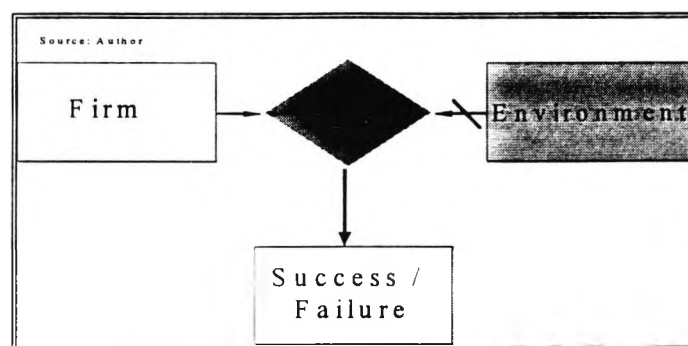


Figure 4-6: Exploratory Proposition Four

In addition to answering these four exploratory propositions, the researcher also needed to obtain more general information pertaining, for instance, to: (1) the origins and nature of the diamond industry; (2) how the diamond industry evolved over time; (3) the structure of the diamond industry as a whole; (4) how business is conducted within and between different diamond centres; (5) the elements of the diamond value chain; (6) who are the key players in the diamond industry; (7) how these actors are linked to and within the industry; (8) what are the supporting industries, institutions and how they are incorporated in the overall picture; and then to focus on the above elements in the context of the Israeli diamond industry. This was needed in order to get a more holistic portrayal of the relational ties in the Israeli diamond industry.

4.4 Reasons for undertaking the Research

The diamond industry is generally an important area to research as: (1) it is still one of the few industries left, transacting based mainly on social embedded relations. For instance, through word of mouth, trust, reputation (variable factors of identity), and family background (fixed factors of identity), thus, illustrating fundamental differences with the ever prevalent arm's length exchange (Sako, 1992; Grief, 1989, 1994; Bernstein, 1992); (2) the industry has been based for over a century on the same cartel framework. The diamond cartel (i.e DeBeers) managed to survive economic shifts, legal changes, fashion changes, globalisation, and "defections", almost unscathed, with minor changes in its structure. This is opposed to other similarly structured cartels such as gold, silver, and uranium which its organisational structure

dissolved (Spar, 1994); (3) the diamond industry has managed to stay out of the public limelight with its reputation, and illusion surrounding it, intact. For instance, DeBeers - the fundamental element of the global diamond cartel, although being South African and pro-Apartheid and being a publicly held firm has, in most cases, managed to avert reputational pitfalls (Paribas Capital Markets, 1996; Pallister et al, 1988); and (4) the industry pertains to many other different industries such as gold, copper, pulp, electronics, agribusiness, and finance (DeBeers annual report, 1996; Economist, 1992b).

Explaining the logic behind the selection of Israel as the research site, over other diamond centres, such as India, Belgium, and America is crucial. Thus, (1) being an Israeli, the researcher assumed to have a better chance of access to the Israeli diamond industry than other diamond centres; (2) Israel is a leading global diamond centre with over 50% of the DeBeers rough diamonds, by value, being cut and polished in Israel (Shur, 1996); and (3) the Israeli diamond centre was never researched in depth, in the area of business.

Personally, the researcher saw the Israeli diamond industry as an interesting area for investigation. The researcher perceives the area important as a result of: (1) the diamond industry being historically a Jewish occupation; (2) it being Israel's chief export (24% of total Israeli export in 1996); (3) it being one of the few industries in which Israel is globally dominant; (4) the researcher viewing the area as fundamentally under-researched in comparison to other industries; (5) the diamond industry being fundamentally different from other industries and, so, is an interesting case to analyse; (6) the diamond industry is an important part of other industries, such as the Finance and Jewellery industry; and (7) the researcher viewing Israel, in general, as under-researched, compared to the disproportionate numbers of Jews and Israelis in academia, in relation to their relative size in the general population.

As the researcher learnt more on the subject, it became apparent that there is sparse academic research in the area. This lack of attention was puzzling as a result of the size of the

industry, the extensive use of diamonds globally, and the general tendency of actors to be interested in what is mystic, thus, the researcher thought that something must be missing. After talking to actors in the Israeli diamond Exchange, managers at DeBeers (Charterhouse), Goldsmith Livery in London, colleagues at City University Business School (CUBS), academics in Israel, and academics in the US who have published in the area (but mostly in other disciplines), it came to the researcher's attention that the area is fundamentally under-researched in proportion to its size and global importance. The researcher presumes that this interesting phenomena may be a result of the secrecy surrounding the industry and difficulty of access to sources of information, especially when it comes to strategy in the Israeli diamond industry.

With the help of the ABI Inform data base which contains over 1,000 academic journals, the researcher observed that Israel had been relatively under researched. For instance, between the years 1986 - 1997 Israel has been mentioned in the above data base 2,360 times, compared with 61,774 (3.8%) for the UK in all disciplines. The researcher is aware that, although the UK is a G7 country and globally more important than Israel in many domains, the researcher presumes that the difference depicted above is more than disproportionate, especially as a result of the global interest in Israel in the general media. In the researcher's view, leads to the need for further academic research on Israel as a geographic location. The following table (table 4-4) depicts a citation comparison between Israel and the UK in a sample of 10 major academic journals, and shows that Israel was mentioned 16 times compared with 111 for the UK (14%):

Israel/UK	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	Total
ASQ	0/1	0/1	0/0	0/0	0/1	0/0	0/1	0/0	1/0	0/1	0/0	0/0	1/5
AMR	0/1	0/0	0/0	0/0	0/2	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/4
AMJ	0/1	0/0	1/0	0/0	1/0	1/0	1/0	1/0	1/2	0/1	0/0	0/1	7/5
J. Of Mrkt.	0/0	0/0	0/2	0/0	0/0	0/0	0/1	0/0	0/1	0/2	0/1	0/0	0/7
J. Of Mgt.	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/0	0/0	1/1	2/2
HBR	0/3	0/0	0/5	1/2	0/1	0/1	1/1	0/2	0/1	0/1	0/3	0/2	2/22
SMJ	1/0	0/0	0/0	0/4	0/2	0/4	0/2	0/4	0/3	0/5	0/1	0/3	1/28
JMR	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/1
Org. Studies	1/8	0/5	0/6	0/5	0/0	0/1	0/3	0/2	0/0	3/3	0/2	1/2	6/37
Mrk. Sc.	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Total	2/14	0/6	1/13	1/11	1/7	1/6	2/8	1/9	2/7	3/13	0/7	2/10	16/111

Table 4-4: Citation Comparison

From visits to the Israeli diamond industry, while being an undergraduate student, the researcher observed actors' deep interest in what's new and different. This led the researcher to the hope that being a Jew, living outside of Israel and having no prior contact with, or bias towards, the Israeli diamond industry, would "open doors" for this doctorate thesis. The researcher thought that the Israeli diamond industry was a challenge befitting a person with his characteristics - to boldly go where few have gone before! To be at the cutting edge of an under researched industry was thought by the researcher to be a topic fit for a Ph.D. thesis.

4.5 The Research Parameters

The industry examined, in this doctorate thesis, was the Israeli diamond industry and the focal point is the Israeli diamond Exchange. The analysis was on the industry and firm level, focusing on Israeli polished diamond firms with export of US\$4m and above (1996) as the unit of analysis. The unit of analysis in this thesis, as in Uzzi's (1996, 1997) work, shifts the focus of inquiry from the qualities of the transaction to the qualities of the relationship.

There has been little research previously done in the area of the diamond industry, especially in the context of Israel, thus, there are few benchmarks with which to directly compare the findings of the exploratory propositions tested. The researcher found studies on the diamond industry in disciplines, such as Chemistry (Kolman, 1997; Todd, 1996; Skokov, 1997), Physics (Fox, 1997; Schrum, 1996; Zhang, 1996), Material Science (Rebello, 1995; Lee, 1996), Geology (Memmi, 1993); Electronics (Spencer, 1997; Leung, 1997; You, 1997); Law (Bernstein, 1992); and Optics (Schrum, 1996). However, in the areas of Management and Strategy (Spar, 1994), little or no research was found. The research that was found in the context of management, in many cases, lacked in focus (Bullen, 1995; Suntharothok, 1996) or was out of date (Pollak, 1975; Lenzen, 1970).

The lack of information on Israeli diamond exporters is acute, as a result of the polished

diamond exporting firms in Israel being privately owned, thus, they do not need to publish their financial statements, which is complemented by the intrinsic secrecy of the industry. The only official information available on Israeli polished diamond exporting firms is on those exporting in the value of US\$4m and over. The quantitative information available is of official polished diamond exports in terms of official export value (US\$). Information on firms, who are not official diamond exporters, is not available in any way or form, i.e. firms exporting under US\$4m in 1996. Thus, the researcher chose to study only the official diamond exporters. On the other hand, the researcher is aware of its vulnerabilities and reliability which will be discussed in further detail in the chapter on the amount, availability, and quality of information available on the Israeli diamond industry.

The aim of the researcher will be to interview diammantaires who are the owners of the Israeli polished diamond exporting firms. If the owners were not available, interviewing the senior operator of the firm is the next best substitute. The advantage of studying firms of this type, i.e family type, is that the senior operators/owners are most likely involved in all key aspects of the business and, consequently, have firsthand knowledge of the firm's strategy and administrative activities (Uzzi, 1996, 1997).

Three main parameters were used to define the population sample. These included the physical *location* of the firm (i.e. Israel), its *activity* (i.e. polished diamond exporters), and *export size/volume* (i.e export of US\$4m and above in 1996), thus, based on the above parameters, the population sampled was defined as:

The study sample comprises all the official Israeli polished diamond exporters who are physically located in the Israeli diamond Exchange and who exported US\$4m or above in 1996

In *parameter one*, by "Israeli", the researcher means all those firms who are physically

located in Israel, whether it be the head office, or subsidiary, without taking into account origin of the firm, thus, "Israeli" does not necessarily mean the firm operator's origin is Israel or it being a member of the Israeli diamond Exchange. "Israeli" means only the firm's geographic location and it being registered as a legal entity at the time of the study in Israel. According to available statistical data, in 1996 there were 908 polished diamond exporters located in Israel depicting 100% or US\$3.9bn of Israel's official export of polished diamonds globally (Israeli Ministry of Industry and Trade Statistics, 1997).

In *parameter two*, the activity - "polished diamond exporter", the researcher found that no data is available on firm turnover, profitability, or any other financial data on any Israeli polished diamond exporting firm. The only data available is the export value of official polished diamond exports, thus, all firms who only manufacture and sell locally, brokers selling locally, and firms/actors dealing in rough diamonds, were excluded from the sample because of the lack of information on such firms/actors.

In *parameter three*, size/volume - "exporting US\$4m and over" the researcher found that the only available data (i.e names of firms, addresses, and official exporter turnover) was on firms exporting polished diamonds in the value of US\$4m and over, in a given year, to any destination. These exporters are termed as "official diamond exporters". Most financial data on Israeli polished diamond exporters was received from the Israeli Ministry of Industry and Trade and The Israeli Diamond Institute. In 1996, there were 190 firms with polished diamond export a year of US\$4m and over.

In conclusion, as a result of the uniqueness of the Israeli diamond industry, the researcher would like to stress that the findings of this doctorate thesis are, most likely, industry specific (low external validity), thus, the utility of implementing the findings of this study on to other industries would most likely be limited in scope, although vital lessons can be learned on the dynamics of dense clusters and socially embedded exchange.

4.6 The Population Sampled

An Overview

In light of both the overall aims of the research, and on the basis of the four exploratory propositions postulated, the ideal sample would be the one that comprises of six population stratum of Israeli polished diamond exporters as published yearly by the Israeli Ministry of Industry and Trade in the official industry magazine called the "Hayahalom", under the title "List of Approved Israel Diamond Exporters". The following table (table 4-5) depicts the number of Israeli diamond exporters, by size of export (based on information from the Israeli Ministry of Industry and Trade):

Stratum	Size (US\$M)	1996	1995
1	50>	8	11
2	20 - 50	29	25
3	9 - 20	46	51
4	4 - 9	87	81
5	1-4	246	234
6	>1	492	545
	Total	908	947

Table 4-5: The Six Population Stratums

On the basis on the three stated research parameters, the researcher was able to determine the population stratum. The population sampled comprised of 908 Israeli polished diamond exporting firms in 1996. Out of the overall population of 908 firms in 1996, the researcher was able to screen and identify, based on the three stated parameters, 190 firms who had an export of US\$4m and over in 1996 of polished diamonds, and were physically located in the Israeli diamond Exchange. The 190 firms represented 21% (1996) and 20% (1995) of the Israeli diamond exporters in quantity (i.e 190/908), but it represented a colossal 80% (1996) and 75% (1995) of Israel's net official polished diamond exports a year, in value terms.

The researcher would like to highlight an inconsistency between the official statistics published by the Israeli Ministry of Industry and trade (table 4-5) and the researcher's findings. The table above illustrates that there are only 170 firms within the three stated parameters, while

the researcher in his fieldwork managed to identify 190 firms depicting an inconsistency of 20 firms. The researcher explains this inconsistency by the difficulty in attaining information on the Israeli diamond industry and its subjectivity. As a result of the sensitivity of the information the researcher did not query this inconsistency with the Israeli Ministry of Industry and Trade, but used 190 firms that were actually found to adhere to the three stated parameters.

The process of identifying the population to be sampled, focused around locating, examining, and transcribing all available data on to a database, from a multitude of available and reliable sources of information. The gathering of the information focused around the general literature available on the industry (i.e books, magazines, journals, and industry publications), practitioners, academics, government institutions - such as the Ministry of Industry and Trade, The Diamond Manufacturing Association, and the Israeli Diamond Institute. Furthermore, wherever possible, the information gathered was cross- referenced (triangulated) with other information sources in order to assess its credibility (Yin, 1994; Bonama, 1985; Jick, 1979). Finally, the population was benchmarked against the pre-defined population parameters of the study to confirm their adequacy to be included in the study. As a result of this extensive screening process, the researcher was satisfied that the targeted sample was identified leading the way to the preliminary stage of the research (see appendices two and three).

The decision to forego an in-depth pilot study, as defined by Hoinville et al (1978), was based on the loss of population elements and the introduction of a bias as a result of word of mouth between those in and out of the pilot study (the Israeli diamond industry is based on word of mouth so information is diffused rapidly). Hoinville et al (1978) claims that in many cases a pilot study between thirty and a hundred interviews is sufficient, thus, if the pilot research was to be implemented, the researcher concluded that it may skew the results more than it would benefit it. Given the loss of between 16 - 52% of the potential population to be sampled in the pilot study, was not deemed to be a viable course of action, thus, in order to pre-test the research in a

field setting, with minimal possible bias to the primary research, various actors within and without the Israeli diamond industry were interviewed to ascertain the comprehensives and phrasing of the questionnaire items (Bonama, 1985). The interviews led to several improvements in both the wording and the composition of the questions in the final questionnaire.

Sampling. Stratification is the process of dividing the population to be sampled into distinct groups and selecting a separate sample from each stratum. If a researcher chooses a separate sample sizes so that they are proportionate to the population of each stratum, the procedure is known as proportionate stratification (Hoinville et al, 1978). As a result of the need to study two small population stratum (for instance the population stratum exporting in the value of US\$50m and over, with 8 firms, and in the value of US\$20 - 49m with 29 firms), the researcher departed from a proportionate allocation of the sample. This is as such an allocation would yield too small a sample in those population stratum for separate analysis (Berger, 1983). The researcher, therefore, decided to over-represent some population stratum, by employing a larger sampling fraction than in the other population stratum. Variable sampling fractions were used so that more selections were made in that stratum than would be the case with proportionate stratification and a large enough sample for separate analysis is, thus, obtained from it (Jick, 1979).

The researcher will undertake a non - probability sampling method of quota sampling in each population stratum. Hoinville et al (1978) claims that the most commonly used non-probability method is quota sampling. In such an instance interviewers (in this instance the researcher himself) are supplied with quotas regarding the number of actors/exporting firms of various kinds that they must interview. Provided that the specification or quotas are fulfilled, the interviewers are free to interview whom they desire or can within the designated population stratum (Moser and Kalton, 1971; Saunders et al, 1997).

The researcher aimed at achieving 80-90% of population stratum one (around 7 out of the

8 possible firms) and two (around 22 out of 29 possible firms). Furthermore, the researcher was aiming at achieving around 50% from population stratum three (23 out of 46 firms) and four (43 out of 87 firms) resulting in a total of around 100 firms. Given the exploratory nature of the research questions as well as the constraints, such as time, researchers financial resources, and availability of information, inherent in the field research, the sample size of this doctorate thesis was not considered by the researcher as a significant limitation in interpreting the survey results.

After the researcher was satisfied that a representative sample could be achieved from each population stratum, there was a need to classify the sample into strategic groups (McGee and Thomas, 1986) for analysis. The categorisation was based on the type of polished diamonds the Israeli polished diamond exporters were transacting in. The only polished diamond price list existing globally is the Rapaport price list, which covers a wide range of polished diamonds in various sizes, qualities, clarities, and cuts (see case studies two and three for further details). Thus, strategic group one was defined as all the firms dealing with polished diamonds that were not covered by the Rapaport price list; strategic group two was defined as all the firms dealing with polished diamonds that were fully covered by the Rapaport price list; and strategic group three was defined as all the firms dealing with polished diamonds that were partially covered by the Rapaport price list.

4.7 Statistics

As claimed by Bonoma (1985) no one research tool is generically better than another. The validity leading to strengths and weaknesses of the research tools, implemented in any research, are a factor of how they are used in conjunction with other tools and the environment in which the research is undertaken (Jick, 1979). The researcher will use through SPSS a tool called Tuckey-HSD test (Honestly Significant Difference). The tool compares the means of a population sample divided into K stratum ($K \geq 3$). Tuckey-HSD's framework is designed to

test the null hypothesis of (Newbold, 1995):

$$H_0: \mu_1 = \mu_2 = \mu_3 \dots$$

The Tuckey-HSD is an analysis of variance. It is presumed that some variables in populations will be higher than the mean and some lower, thus, those differences will, in some cases, be positive and in other cases be negative. However, in assessing spread, the sign of the discrepancy of the observation, and the mean, is of no interest. In other words, variance of population variables is the average of those squared discrepancies. It provides a measure of spread and, it can be used to compare two or more population distributions (Newbold, 1995).

The test of equality of population means is based on a comparison of two types of variability. The first is variability about the individual sample means, with K groups of observations. It is referred to in SPSS as **variability within the groups** (SSW). Second, is the variability among the K groups. It is referred to in SPSS as **variability between the groups** (SSG). SSW and SSG can be used as the basis for an estimate of the common population variance. To obtain these estimates, the sum of squares must be divided by the appropriate number of degrees of freedom leading to the within group square means. This will depict an unbiased estimate of the population variance (MSW and MSG).

When the population means are not equal, the between group mean square does not provide an unbiased estimate of the common population variance. If the null hypothesis is true, it would be reasonable to expect these estimates to be quite close to each other. The greater the discrepancy between these two estimates, all being equal, the stronger would be the suspicion that the null hypothesis is not true. The test of the null hypothesis is based on the ratio of mean squares (in the case of this doctorate thesis the confidence level has been set at the 95% point).

$$F = MSG/MSW$$

If this ratio is quite close to one, there would be little cause to doubt the null hypothesis of equality of population means. However, if the variability between groups is large compared to the variability within groups is considerably different than one, the null hypothesis is rejected. In other words, if the variability around the sample means is small compared with the variability among the sample means, the researcher would be inclined to doubt the null hypothesis that the population means are equal. To further understand the mechanisms of Tuckey - HSD see appendices - eight and nine. In addition, the researcher has illustrated through an anova test (via SPSS) that the population variables examined in the field work are normally distributed, thus, allowing the use of the Tuckey - HSD tool (see appendix - nine). In addition, to increase the study's reliability, a reliability test through SPSS was undertaken, see appendix - nine (Nunnally, 1978; Churchill, 1979).

4.8 Criteria for Interpreting the Findings

The researcher would like to highlight the fact that export activity, in this doctorate thesis, is used as an indicator of an Israeli diamond firm's performance. The researcher presumes it a good indicator, as there is a minute local market for polished diamonds in Israel, thus, most diamonds in Israel are aimed for export resulting in a high correlation between export activity and firm turnover (for further detail see chapter three).

It should be clearly noted that, in the clear majority of cases, information on: (1) Israeli polished diamond exporters; (2) the global diamond industry; and (3) especially the Israeli diamond industry; is not readily available. Relatively little formal data is available on the diamond industry and access to it is usually limited in scope, or restricted all together (Spar, 1994). Therefore, most industry information was collected through various books, publications, industry experts and, most importantly through the survey and interviews conducted by the researcher himself.

The research methods that were utilised in this doctoral study were based on both quantitative and qualitative means of investigation (Jick, 1979). It was felt that, by combining these two different approaches through three case studies, the researcher would be able to provide a more accurate and well rounded analysis of the industry (Snow and James, 1994). This approach is depicted by the following quote: "Several observers have expressed concern that strategy researchers increasingly are using sterile data and that clear tendency toward analysis of secondary data has developed. As Mintzberg (1979) argued, effective theory building and subsequent testing require rich description. Using 'soft' data derived from field methods, investigators are better able to explain relationships among variables and set the foundation for prediction and subsequent testing." (Snow and James, 1994)

Quantitative Vs. Qualitative Research Approaches. The first reason for using a qualitative approach in this doctorate thesis, is the importance of the contextual elements needed in order to understand and analyse the industry (Berger, 1983). The actual knowledge of the workings of the dynamics involved in the Israeli diamond industry was insufficient, and thought by the researcher to be too subjective to allow for a pure qualitative approach (Bonama, 1985). Therefore, a mixture of qualitative and quantitative approach was adopted since it allowed for a more holistic approach (Jick, 1979). A qualitative study was needed, as this doctorate thesis involves human subjectivity of socially embedded exchange. The researcher tried to illustrate a contemporary representation of the Israeli diamond industry in its real life context, which is hard to study purely by quantitative means (Yin, 1989; 1994). The quantitative study was needed, in order to increase validity and make the research more stringent.

Therefore, the goals of the qualitative study in this doctorate thesis were: (1) to capture the frame of reference and definition of the situation of a given informant or interviewee, thus, to avoid standardised measurement procedures; (2) to permit a holistic examination of organisational processes; and (3) to elucidate those factors, peculiar to the case, that may allow

greater understanding of causality. The principle behind the qualitative approach is that it reflects most accurately the respondents perceptions of the events that took place in the industry (Snow and James, 1994) as illustrated in the following quote: "To operate in a qualitative mode is to trade in linguistic symbols and by so doing, attempt to reduce the distance between indicated and indicator, between theory and data, between context and action." (Van Maanen, 1979:520)

The goals of the quantitative study in this doctorate thesis were to: (1) build a strong framework for this doctorate thesis (Newbold, 1995); (2) increase construct validity, internal validity, and reliability (Jick, 1979); (3) define the cut-off point of economic success and failure (Nils-Eric and Slater, 1988) of Israeli diamond firms; and (4) quantitatively compare and contrast the three strategic groups.

The Research Questionnaire. The research questionnaire/interview was selected as the primary instrument to supplement the case study. The first part of the questionnaire was based on open ended questions inquiring about the characteristics of the interviewee. Questions like sex, age and education were asked (quantitative). This information is important as the Israeli diamond firms are family-orientated. The owner, who in most cases is also the managing director, is involved in all aspects of the business. The data collected measured what a respondent possessed rather than did. It was used to explore how demographics may affect a manager's perceptions of the business environment.

The second part of the questionnaire was the qualitative constituent of the questionnaire. It was based on open-ended questions grounded on work such as, Uzzi (1996, 1997) who studied the phenomena of social embeddedness in the New York garment industry. The aim was to better understand the dynamics of socially embedded exchange ingrained in trust in the context of the Israeli diamond industry. The data collected measured the respondent's attitudes about specific variables. The aim of the questions presented was to better understand the dynamics of

socially embedded exchange.

The third part of the questionnaire comprised of close ended bi-polar questions, based on a balance between Cavusgil and Kirpalani (1993) and the demands of the Israeli Ministry of Industry and Trade. Cavusgil and Kirpalani (1993) conducted a research into the factors of success or failure in 130 cases of international market entry, thus, the researcher examined its relevance to Israeli polished diamond exporters. The data collected was designed to capture respondent's attitudes, towards variables presented to affect export success. As Israel has no local market for polished diamonds, export success is fundamental for an Israeli diamond firm's survival. The following table (table 4-6) depicts factors found to be correlated with export activity leading to success or failure of exporting firms (see appendix one):

No	Factor	No	Factor
1	Consistent Quality	12	Lower price than competitors
2	Firm Reputation	13	Advertising
3	Meeting Delivery dates	14	Extended credit
4	Matching customer specifications	15	Assistance by government agencies
5	Personal visits by owner/director	16	Assistance by government
6	After sales service	17	Special discounts
7	Skills at negotiating	18	Frequent two-way communication with customers
8	Word of mouth between customers	19	Maintaining good relations with brokers
9	Advanced technology	20	Maintaining good relations with customers
10	Motivation of sales force	21	Maintaining good relations with suppliers
11	Contact at exhibition/fair		

Table 4-6: Factors for exporting firm success

Knowledge of the factors that determine business success for international market product entry is still rather sparse (Cavusgil and Kirpalani, 1993). From the literature review, the researcher noticed that considerable research had been undertaken on the factors that make for successful international marketing for large multinational corporations (MNCs). From these studies, the marketing success for large firms was based on: (1) high technology; (2) substantial research and development; (3) sophisticated marketing; and (4) advanced forms of organisational design.

These criteria are thought, by the researcher and Israeli diammantaires, as unrepresentative for small to medium firms that are prevalent in the Israeli diamond industry. Some researchers, for instance found, that size and exporting success were positively related to

export success (Withey, 1980). On the other hand, other researchers have argued that size was important only as it related to the abundance of resources in the organisation (Walters, 1985), thus, no uniform definition of export and its factors of success was found to exist (Cavusgil and Kirpalani, 1993).

After realising some of the factors that lead to success or failure of exporting firms, a measurement of what is success or failure of an Israeli polished diamond firm must be addressed. An analysis and justification of what should be the measure, or measures, of export success would be most helpful. For instance, when the researcher interviewed a diammantaire from the London diamond Exchange, success was defined as: "If I can feed my family, supply their needs, and the business continues to survive, is what I define as success". On the other hand, when the researcher interviewed diammantaires in Israel and asked them the same question, the response was very different. For instance a typical response was: "Success is when my firm has a massive growth in export turnover and/or profits and myself becoming a millionaire."

These very different answers illustrate the many different views of business success or failure predominant in the diamond industry (which may be prevalent in other industries as well), thus, evaluation regarding export success can be measured in a variety of ways. To illustrate the many points of view, it is useful to examine the criteria employed in the UK in selecting the Queen's Award to Industry for Export Activities. Up to 6 criteria could be employed (Cavusgil and Kirpalani, 1993):

- (1) Substantial and sustained increase in total exports over a 3-year period.
- (2) Substantial increase in the percentage of total export sales to total business over a period of 3 years.
- (3) Percentage of exports to total business considerably and consistently higher than the average for the applicant's industry sector.
- (4) Spectacular increase over a shorter period if there is a reasonable prospect that

performance can be maintained.

- (5) Breakthrough in a particularly difficult market.
- (6) The greatest value of export sales by any group or company in a given year.

In addition, the Israeli diamond industry through the Israeli Ministry of Industry and Trade presents awards to excellent Israeli diamond exporters. The following are the criteria for being considered for the Excellent Exporter Award (1996), but not all those who pass the criteria will receive an award. Only one award a year is given and in extreme cases, two per year (Israeli Ministry of Industry and Trade, 1996). Criteria are:

(a) For diamond manufacturers:

- 1. Exported in 1996 at least US\$12m
- 2. At least 7 years have past since receiving the excellence award
- 3. Has at least 25 workers in the last year
- 4. The factory has an efficient quality control and is working on R&D

(b) For diamond exporters who are not manufacturers:

- 1. Exported at least US\$25m of polished diamonds FOB in 1996
- 2. Increased its export in the last 3 years and in 1996 the export has increased by 10% in relation to 1995

Thus, success of an Israeli polished diamond firm will be defined as an official Israeli diamond exporting firm that increased its export turnover in the last 3 years and in 1996 export has increased by at least 10% in relation to 1995

4.9 Reliability and Validity of the Research

Various reliability and validity problems were encountered in conducting this doctorate thesis. The researcher found that information sources were not readily available as: (1) the Israeli diamond industry's natural tendency is to shy from the "lime light"; (2) there are difficulties in attaining reliable, if any, information on the Israeli diamond industry as a result of the lack of

written or tangible material; (3) firms involved are privately owned, thus, they do not need to publish financial reports; and (4) the ingrained secrecy of the industry, complemented by an incisive suspicion of “outsiders”, leads actors to divulge only minute information on the diamond industry, as a rule.

The tangible information available on official polished diamond exporters was, mostly, through the Israeli Ministry of Industry and Trade and from the Israeli exporting firms themselves. The researcher was aware of this information's vulnerabilities and strengths. Although information received from the Israeli Ministry of Industry and Trade and the Israeli Diamond Institute were defined as “official” Israeli governmental statistics, the meaning of the word “official” was ambiguous to the researcher. In other words, the researcher presumed that the “official” statistics were measured by a set yard-stick. On the other hand, official and firm information may have been compiled and presented to the researcher, to some extent, to promote Israel's image as a healthy and growing global diamond centre (see chapter five).

To deal with these reliability issues the researcher, to the best of his ability, triangulated and verified the information gathered, with industry experts. In addition, the quantitative information, gathered from the Israeli diamond firms through the questionnaires was cross-checked through SPSS to check its reliability. A reliable test examines if a similar test yields similar results when different actors administer it and when alternative samples are used; thus, when the conditions for making the measurement change, the results of the test should not. The reliability test examines the correlation between this test and all other possible tests containing the same number of items, which could be constructed from a hypothetical universe of items that measure the characteristics of interest. The reliability test tells the researcher how much correlation to expect between the test and all other possible tests measuring the same thing. It is the squared correlation between the score a person obtains on a particular test (observed) and the score he would have obtained if questioned on all the possible items in the universe (true score).

4.10 Preliminary Research

The decision to implement the research in a series of stages has been made primarily as a result of several mitigating factors which include: (1) the little information available on the industry and in the industry; (2) the secrete tendency of the industry researched; (3) the necessity of gaining the trust of key industry players; and (4) the limitations restricting the researcher, in terms of both time and financial resources available. Due to the problems encountered in conducting the study, there was a need to focus on realising one step at a time as a basis for the succeeding stage.

Stage One - Scanning the Diamond Literature. The first stage of the preliminary research was an in-depth scanning of the existing literature (Moser and Kalton, 1971). This preliminary stage was divided into two main parts. The first part involved an intense scan of the existing literature on the diamond industry focusing on Israel; the second part was involved in an intense scan of the academic literature on the theory and tools used in this doctorate thesis.

Most of the general material found in the area of the diamond industry was in novel form, thus, depicting biographic stories of the key players involved in the industry. Surprisingly little academic literature exists on the diamond industry generally and especially on the Israeli diamond industry, in the areas of sociology, organisational structure, management, and strategy. Most of the existing literature on the diamond industry, especially on the Israeli diamond industry, is vague in some parts and totally missing in others, painting the perceptions of the authors. Making sense and creating a coherent picture of the industry and so the initial writing of case studies one and two on the diamond industry was more complex than initially anticipated (see chapter five).

Stage Two - Scanning the Academic Literature. At the second stage of the preliminary research, a literature review of the phenomenon of networking, trust, reputation, social embeddedness, marketing and strategy, focusing on luxury goods, was undertaken (see chapters

two and three). Through this stage the researcher tried to understand the phenomenon of socially embedded exchange, link it up to the diamond literature review and methodology, build initial exploratory propositions and substantiate them through the literature review. The vast amount and scope of the non industry specific literature that was uncovered made it's screening a difficult and lengthy task. Finishing this part of the literature review led to the first stage of the preliminary fieldwork (stage three).

Stage Three - Fieldwork, Narrow the Scope of Inquiry. The context and analytical perspective of the full study remained to be defined and it was to this end that the third part of the preliminary research, i.e fieldwork, was devoted. Two stages of preliminary fieldwork were employed. The aim of each of the stages was to narrow the scope of the enquiry and understand the Israeli diamond industry better. Furthermore, it was also aimed at creating the links and trust with various actors within the Israeli diamond industry, creating the framework for the primary fieldwork. This part of the preliminary fieldwork was to spearhead into the diamond industry.

The researcher had three main options in which to conduct the field work (Yin 1985, 1994): (1) the written questionnaire; (2) the personal interview; and (3) the telephone interview. After notable deliberation and consultation, it was decided that a mail survey would initially be sent to potential participants followed by an open ended semi - structured interview undertaken by the researcher. Furthermore, the use of both qualitative and quantitative types of questions was thought to enable the researcher to capture more holistically the core behind the information gathered on social embeddedness (Jick, 1979; Snow and James, 1994) in the Israeli diamond industry. This is a crucial element in the analysis of the Israeli diamond industry as the illusion surrounding diamonds, and its context, is a key point of understanding the intricacies of the Israeli diamond industry (Spar, 1994; Bernstein, 1992; Benson, 1988).

The mailed questionnaire and the primary interview questions were conceived in both the English and Hebrew languages to help the interviewees and interviewer to communicate better.

The researcher presumes that communication is one of man's greatest enemy. Thus, having a bilingual questionnaire may give the respondents and the researcher the opportunity to conduct the interview in both the English or in the Hebrew language. This seemed to be advantageous as it reduced communication barriers. The translation between the languages was conducted by the researcher himself who is fluent in both languages, and then examined by other bilingual speakers within and without the industry. The researcher's choice of language was to make the questions as simple as possible in addition to making every effort to make the question wording as simple and user friendly (Yin, 1994).

Pre-tests of both the mailed and survey questionnaires were undertaken by industry experts and academics. The results of the pre-tests required the researcher to re-examine a number of elements in the questionnaire. The aim of the pre-test was to minimise any errors or faults within the questions, clarify any misunderstandings, add missing questions, and take out irrelevant or provocative questions of which the researcher was unaware (Bonama, 1985).

Along with the study sample, the supporting bodies were analysed and a sample of key actors of: (1) DeBeers; (2) CSO; (3) CSO brokers; (4) Israeli diamond bankers; (5) Israeli diamond Insurers; (6) The Israeli Diamond Institute; (7) The Israeli Ministry of Industry and Trade; (8) The Israeli Diamond Manufacturers Association; (9) Board of directors of the Israeli diamond Exchange; (10) diamond journalists; and (11) other industry experts was undertaken. The following table (table 4-7) illustrates some of the actors that were interviewed by the researcher in order to increase *validity* and *reliability* of the questions asked (Yin, 1994):

No	Name of participant	Position	Organisation
1	Mr. Efraim Raviv	Managing Director	Israeli Diamond Institute
2	Mr. David Bar-Haim	Deputy Managing Director	Israeli Diamond Institute
3	Ms. Marcelle Hadar	Public Relations Officer	Israeli Diamond Institute
4	Mr. Tzafrir Anbar	Director and Diamond Controller	Ministry of Industry and Trade
5	Mr. Hanoeh Bittelman	Deputy Controller of Diamonds	Ministry of Industry and Trade
6	Mr. David Jakubowicz	Deputy Director, Diamond div.	Ministry of Industry and Trade
7	Mr. Kassif Yehuda	Managing Director	The Israeli Precious stones and diamond Exchange
8	Mr. Zvi Shur	Managing Director	IsMDA
9	Mr. Samuel Shaham	Deputy General Manager	IsMDA

No	Name of participant	Position	Organisation
10	Mr. S Moosseri	Manager Diamonds Dept.	Union Bank of Israel
11	Mr. Moshe Berger	Managing Director	Willus Trading Co. Ltd.
12	Mr. Kosokaro Pinchas	Managing Director	Electronit (equi. manufacturer)
13	Mr. M. Tobias	Owner	Elijahou Lipszyc & Sons Ltd.
14	Mr. Chaim Even Zohar	Managing Director and Editor	Tacy Ltd. publisher of "Mazal U'bracha"
15	Ms. Shira Ami	Editor	"Hayahalom"
16	Mr. David Arad	Managing Director	Lawyer (former board member of Stern Ltd)
17	Ms. Lesley Coldham	Marketing Liaison Officer	CSO Valuations AG
18	Mr. Chris Walton	Director, Design and Technology	Goldsmiths Livery
19	Dr. Carla Millar	Director of Flexible Masters	CUBS
20	Prof. Chong Ju Choi	Head of Department SIB	CUBS
21	Dr. J B Kim	Researcher	CUBS
22	Mr. A Haberberg	Lecturer	Westminster University

Table 4-7: The Actors interviewed (Preliminary)

Letters of introduction and questionnaires were prepared, based on statistics from the Israeli Ministry of Industry and Trade. These statistics included a list of all the Israeli diamond exporters, physically located in the Israeli diamond Exchange, by size of exports. The cut-off point was at Israeli polished diamond firms exporting in the value of US\$4m and over (1996).

Initially, a total of 20 Israeli polished diamond exporters were approached. A letter delineating the aims of the research study, a questionnaire, and a request for an interview was sent directly to those firms. The addresses and a short profile was attained from another internal publication called Who's Who in the Israeli Diamond, Precious Stone, and Jewellery Industry (1997). The various lists attained for instance, from the Israeli Ministry of Industry and Trade comprised of 190 firms, which were divided by the researcher into four population strata of around 50 by size, of official polished diamond export, in terms of value. Five firms were randomly picked from each population stratum. The sample groups were categorised by 1996 export of: (1) US\$360 - 15 million; (2) US\$15.1 - 7.57 million; (3) US\$7.56 - 5.33 million; and (4) US\$5.28 - 4 million.

A five point bi-polar scale was implemented in the close - ended part of the questionnaire as it is probably the most frequently used, the easiest to understand and, generally, sufficient for most purposes (Saunders et al, 1997; Hoinville, et al, 1978). However, since a rating scale is not an absolute measure of attitude, but a way of placing responses in relative positions on a

dimension, it seems that there is no particular way of presenting scales that is intrinsically better than others (Newbold, 1995). The objective should be to find the way that discriminates most effectively between respondents. Thus, the architecture of the questionnaire was constructed to fulfil three independent aims: (1) to promote fluent questioning by interviewers; (2) to facilitate accurate and comprehensive recording of answers; and (3) to assist efficient and effective transfer of data into a machine-readable form for future computer analysis.

The questions in the second part of the questionnaire at this initial stage, were open-ended, designed to identify: (1) how important is trust, reputation and identity in socially embedded exchange; (2) how the operators/owners of Israeli polished diamond exporting firms understand the Israeli diamond industry; and (3) how to determine the framework of socially embedded exchange between customers, brokers and suppliers in the Israeli diamond industry. The answers to these questions were to form the basis of decisions concerning the context and the analytical perspective of this research, in order to proceed to the next stage.

Unfortunately no questionnaires were returned within two month of dispatching them. As a follow up, the 20 firms were contacted by the researcher through the telephone. Most firms claimed that they receive such letters on a daily basis and throw them out without reading them, while others did not even recall receiving such letters. It had been explained to the researcher that the Israeli diamond industry is secretive and wary of outsiders and as a result all attempts by outsiders to research the industry would be firmly rejected, see chapter five for further detail.

Stage Four - Fieldwork and Building Trust. The only option that remained open to the researcher was to go himself and try his personal "charm" accompanied by luck and see how one could penetrate such an "ivory tower" where few had succeeded before. The researcher flew to Israel, in the hope of being able to interview Israeli diammantaires in the Israeli diamond industry. The first stage was to get access to the Oppenheimer library in the Israeli diamond Exchange. In doing so, the researcher was hoping to find additional literature on the diamond

industry that was not available elsewhere, and to meet members of the diamond Exchange.

The library, although small in size, was rich in content as it was dedicated only to diamonds, gems and jewellery. As time went by, the researcher met officials from the Israeli Diamond Institute who introduced the researcher to the Israeli diamond controller, who later helped the researcher gain access to the Israeli polished diamond firms.

In this initial phase the researcher interviewed a number of Israeli polished diamond exporting firms (that were excluded from the primary research), and members of the surrounding organisations - such as, the Israeli Diamond Controller (Israeli Ministry of Industry and Trade) and the Managing Director of the Israeli Diamond Institute. The interviews, at this initial stage, were based on the questionnaires that were initially sent. At the end of each interview the researcher asked if the interviewees wanted to add anything else, which they usually did.

After returning to the UK, the first draft version of the primary questionnaire was prepared. It was based on the preliminary fieldwork in the Israeli diamond industry, for circulation to various individuals. The questionnaire was circulated between academics and diamond experts alike. 12 referees was undertaken and their remarks were implemented into the final version of the questionnaire. The referees' considerations included the questionnaire's content, its length, time required for completion, the wording of questions, and the language used. Overall, the feedback and responses received through these referees proved to be invaluable. The following table (table 4-8) depicts the referees involved:

No	Name of referee	Position	Organisation
1	Mr. Efraim Raviv	Managing Director	Israeli Diamond Institute
2	Mr. David Bar-Haim	Deputy Managing Director	Israeli Diamond Institute
3	Ms. Marcelle Hadar	Public Relations Officer	Israeli Diamond Institute
4	Mr. Tzafrir Inbar	Director and Diamond Controller	Ministry of Industry and Trade
5	Ms. Lesley Coldham	Marketing Liaison Officer	CSO Valuations AG
6	Prof. Chong Ju Choi	Head of the SIB dept.	CUBS
7	Dr. Carla Millar	MD of flexible Masters	CUBS
8	Mr. Chris Walton	Director	Goldsmith Livery, UK
9	Mr. Haim Even-Zohar	Chief Editor	Mazal U'Bracha
10	Mr. M. Tobias	Owner	Elijahou Lipszyc & Sons Ltd.
11	Dr. J B Kim	Researcher	CUBS

Table 4-8: Questionnaire referees

When the final draft of the questionnaire was completed a feedback and a reconfirmation of the final questionnaires and authorisation was undertaken in a short visit to the Israeli diamond Exchange, see Appendix two. Finishing the writing up of this part led to the final preparations for the preliminary fieldwork.

Stage Five - Getting Authorisation and Solving Bureaucratic Problems. The research questionnaire was selected as the primary instrument used to pose the research exploratory propositions to the sample chosen, in order to build the relevant case studies (Berger, 1983; Bonama, 1985; Snow and James, 1994). The questionnaire was addressed to the respective actors in the Israeli polished diamond exporting firms who were, in most cases, also the owners. The questionnaires were accompanied and conducted by the researcher himself. The Israeli diamond firm's addresses were extracted from numerous sources of information and entered into a database (see appendix four).

It was felt that, given the nature of the research, these operators/owners of Israeli polished diamond exporters would be the best sources to complete the questionnaires and provide the necessary data given the owner/operators' intimate knowledge of their respective firms and the environment in which they operate in (Uzzi, 1996, 1997). The co-operation of firm operators, owners and officials was not expected to be very forthcoming.

Furthermore, it was necessary first to gain potential interviewees confidence and interest in the project (Dess et al, 1995). For this purpose the researcher spent much time visiting various local officials, owners and operators of various Israeli polished diamond exporting firms. The researcher tried to make conversation in a way that would seem purposeful enough not to be wasting their time, but far enough away from the actual interest of the doctorate thesis so as not to queer the study by premature disclosure. Before the primary fieldwork could be undertaken, the official authorisation from the Managing Director of the Israeli Diamond Institute and head of security of the Israeli diamond Exchange was needed (see appendix two). Only after the

letters of authorisation from the above institutions were in the hands of the researcher, and his supervisor (Professor Chong Ju Choi) was satisfied with the preparations for the fieldwork, did the researcher fly to Israel to conduct the primary fieldwork.

Security problems had to be overcome as the researcher needed access to the four buildings of the Israeli diamond Exchange. In addition to access to the buildings, the researcher needed authorisation to move freely between the buildings. Only after intense security checks and intervention of the Deputy Diamond Controller did the head of security of the Israeli diamond Exchange grant the researcher free movement for the fieldwork. After gaining the trust of the Israeli diamond Controller and his team, the researcher was furnished with an office and an internal telephone. With a solid base within the Israeli diamond complex, the researcher was ready for the primary field work.

4.11 Primary Research

The questionnaire in the primary stage of the fieldwork was based on three parts. The first part was based on open ended questions. It inquired into the characteristics of the interviewee him/herself. The second part of the questionnaire was open-ended, inquiring into the framework of socially embedded exchange in the Israeli diamond industry. The third part of the questionnaire was closed-ended questions, inquiring into the views on factors of export success in the Israeli diamond industry, based on work such as Cavusgil and Kirpalani (1993).

The questionnaire was used in order to build the three case studies. Furthermore, the case study instrument was utilised as a means of investigation and correlation of the data gathered. The researcher constructed the case studies to form a cohesive understanding of the socially embedded exchange and business activity associated with Israeli polished diamond firms in a global environment, thus, the case study was chosen to capture the holistic nature of exchange in the Israeli diamond industry.

In summary, this chapter set out to outline the route a researcher must undertake, in order to finish the study with value to add to the existing body of knowledge. Along the way numerous obstacles and difficulties had to be dealt with and required a large amount of patience, persistence, and perseverance. At times the research was going well and at other times no light was seen at the end of the tunnel. However, the research design provided a guiding light that allowed the researcher to side-step problems and solve others in the hope of finding the shortest, and most efficient, routes with the least potential amount of problems.

5. The Amount, Availability, and Quality of Information

*"The secret of success is determination, expertise and investment of time." Anonymous
Diammantaire*

The four sample groups selected in this doctorate thesis were partially based on the availability and quality of information on them. This is a fundamental ingredient in terms of creating the necessary environment in bringing the exploratory propositions through to completion. The researcher assumed that, in the case of the Israeli diamond industry, the amount, availability and quality of information is an important area to discuss, thus, the researcher has dedicated an entire chapter to deliberate the key issues involved.

The researcher assumed that the lack of amount, availability and quality of information on the Israeli diamond industry may, for instance, be as a result of: (1) the Israeli diamond industry's natural tendency to shy from the "lime light"; (2) difficulties in attaining reliable, if any, information on the Israeli diamond industry as a result of the lack of written or tangible material; (3) firms involved being privately owned, thus, they do not need to publish financial reports. In addition, a special agreement between the Israeli diamond industry and the Israeli tax authorities exempts Israeli diammantaires from keeping standard financial statements; and (4) the ingrained secrecy of the industry complemented by an incisive suspicion of outsiders, leads actors to divulge only minute information on the diamond industry as a rule.

Furthermore, most of the general existing literature on the diamond industry, and especially on the Israeli diamond industry, is vague in some parts and missing all together other parts, portraying the perceptions of the authors. The few academic works on the diamond industry include: (1) Spar (1994) who critically analyses the global diamond industry. The book compares and contrasts the gold, silver, uranium and diamond cartel; and (2) Lisa Bernstein (1992) who compares the prevalent legalistic system with that of the oral contract prevalent in the diamond industry.

The researcher scanned the Ph.D. thesis data base that covers most of the US and European doctorate dissertations going back around 10 years and found no research in any disciplines, on the Israeli diamond industry. The researcher contacted other academics in Europe and the US, but found no researchers studying the diamond industry in the area of business.

On the other hand, an abundant amount of information on the diamond industry was found in other disciplines. For instance, the researcher found studies on the diamond industry in disciplines such as Chemistry (Kolman, 1997; Todd, 1996; Skokov, 1997), Physics (Fox, 1997; Schrum, 1996; Zhang, 1996), Material Science (Rebello, 1995; Lee, 1996), Geology (Memmi, 1993); Electronics (Spencer, 1997; Leung, 1997; You, 1997); Law (Bernstein, 1992); and Optics (Schrum, 1996). However, the areas of Management and Strategy (Spar, 1994), little or no research was found. The research that was found in the context of management was in many cases either of low academic quality (Bullen, 1995; Suntharothok, 1996) or out of date (Pollak, 1975; Lenzen, 1970).

The only official information available on the Israeli diamond exporting firms is their official export volume in value terms (US\$). Limited information was available on those firms who exported from Israel polished diamonds in the value of US\$4m and over (1996), thus, they are deemed official polished diamond exporters. Information on firms who are not official diamond exporters is not available in any way or form. In other words, no information was available on Israeli polished diamond exporting firms exporting under the value of US\$4m, or that have refused for various reasons to be included in the Israeli Ministry of Industry and Trade polished diamond export lists. No information exists on firm turnover, profitability, or even how much rough diamonds, individual Israeli exporting firms import into Israel. The only information on rough diamond imports into Israel was the official industry aggregate.

Difficulty obtaining information on the Israeli diamond industry started from the onset, with seemingly trivial information searches, such as the structure of the Israeli diamond industry,

to financial data on Israeli polished diamond exporting firms. The search for sources of information was a constant grinding process depicted by the researcher as a persevering uphill battle. For instance, the researcher tried to access the public newspaper clipping archive held in the Israeli diamond Exchange. In this archive all public diamond related writings published in the general Israeli newspapers are held. Unfortunately the researcher was refused access by its administrator, who claimed that such material is highly sensitive. The researcher was puzzled as it is comprised of an aggregate of publicly published information.

In another instance, when the researcher attempted to obtain information on the physical structure of the Israeli Diamond Exchange for instance, when the Israeli Diamond Exchange buildings were built and how many floors they contained, security was almost called in and only when the researcher's credentials were verified, did the actors being questioned, relax. In the end they could still not furnish the researcher with the information needed. To get such information the researcher needed to contact the contractor of the buildings and the local municipality to get some of the basic information sought.

Much of the industry's information was collected through various books, general publications such as industry specific magazines, industry experts and, most importantly, through the survey and interviews themselves. Therefore, the researcher sought every potential source of information. When located, it was carefully examined, and the information transcribed into the researcher's database.

The tangible information available on official polished diamond firms, was mostly through the Israeli Ministry of Industry and Trade. The researcher was aware of this information's vulnerabilities and strengths. Although information received from the Israeli Ministry of Industry and Trade and the Israeli Diamond Institute are defined as "official" Israeli governmental statistics, the meaning of the word "official" was ambiguous to the researcher. In other words, the researcher presumes that the "official" statistics are measured by a set yard-

stick. On the other hand, they may have been compiled to some extent to promote Israel's image as a healthy and growing global diamond centre.

There were those Israeli diammantaires and industry experts, who claimed that the "official" statistics under-represent real Israeli polished diamond exports. This was as a result of the fact that Israeli diamond exporters pay, in most instances, a percentage tax on export turnover and not necessarily on added value. For instance, there may be a case where an Israeli diammantaire made a loss and still had to pay tax in any given year, thus, this phenomenon may lead to a downward pressure on declaring "official" polished diamond export data. In another instance, in one of the initial interviews conducted by the researcher, an owner of an Israeli polished diamond exporting firm claimed that he intentionally under - represents polished diamond export sales to forego tax, as his financial leverage is low (uses his own money) and does not need external funding to run his business.

On the other hand, there are those who claim that "official" polished diamond export statistics over-represent real polished diamond export from Israel. The researcher concluded, from an interview with a key diamond banker that many Israeli diamond firms get overdraft facilities and loans from banks based, to a large extent, on the "official" value of polished diamond exports which the firm exports in any given year. Furthermore, a list of "official" polished diamond exporters is published yearly. Israeli diamond exporters are ranked by size of officially declared polished diamond export, in value terms, in a given year. Seemingly, a highly ranked Israeli diamond exporting firm adds to its reputation and prestige, thus, instituting a possible upward pressure of over-declaring. This may be instigated for instance, by selling polished diamonds officially on memo/consignment just before the official export lists are composed and calculated. Then returning the polished diamonds later to Israel, when the lists are closed. For instance, the researcher was present in a situation where a Belgian polished diamond exporter was caught exporting stones, i.e gravel, instead of polished diamonds, sealed by the

Belgium authorities. Industry experts told the researcher that this may have been in an effort to balance financial statements and/or inflate official polished diamonds exports in an attempt to increase the diammantaire's credit line in the bank.

On the other hand, the Israeli diamond controller claimed to the researcher that the Israeli "official" polished diamond export statistics represent real Israeli polished diamond exports, as the import and export taxes on rough and polished diamonds are very small. Hence, most imports are aimed for re-export and the fines for cheating on export and import taxes of polished diamonds in Israel are very high, thus, it seemed to him, not to be worth cheating by under - declaring. Hence, the researcher had to be satisfied with the "official" data as it was the only available quantitative data on the Israeli diamond industry. Furthermore, the researcher took great care in its analysis.

Due to the fact that all of the sampled Israeli polished diamond exporters are privately held firms, secondary sources of information for confirmation of reported data were unavailable or hard to attain. However, the researcher believes that the time, effort and co-operation extended by the operators/owners of the Israeli polished diamond exporting firms sampled, as well as the researcher's assurances regarding confidentiality and sharing of results of the study, enhanced the reliability of the information provided.

Getting access to the Israeli diamond Exchange complex was a bureaucratic undertaking in itself. Security problems had to be overcome as the researcher needed access to the four buildings of the Israeli diamond Exchange. In addition to access to the Israeli diamond complex, the researcher needed authorisation to move freely between the various buildings (see appendix - two). Only after intense security checks and intervention of the Deputy Diamond Controller (Israeli Ministry of Industry and Trade) did the chief of security of the Israeli Diamond Exchange, grant the researcher free movement between the various buildings for three months (i.e. the expected time frame of the primary field work).

The researcher would like to add that attaining any information on the Israeli diamond industry was painstakingly slow. There was a need to get access to various files, some of which, for instance, were in government archives and took weeks to retrieve, if ever! The researcher had no access to any digital databases, although there was one in the Israeli Ministry of Industry and Trade, Diamond division building. Therefore, all industry- related data in this doctorate thesis was compiled from various non-digital and scattered sources of information. The researcher would like to highlight the fact that in the majority of cases information, be it quantitative or qualitative, required to undertake this research, was not readily available to the general public, or accessible through on-line services such as computerised databases. All quantitative and qualitative data presented in this research was a result of laborious work going through various sources of information, while double checking it with industry experts and building personal contacts over time. The researcher would like to note that this situation is slowly improving but, in general, there was a critical lack of information in a computerised or organised format on polished diamond firms in Israel.

In seeking to rectify, to some extent, the shortage of digital data and manage the study, laborious work of data collection and introducing it into a data base (for instance, SPSS, Word, and Excel) was implemented. In return for much information given to the researcher, it was agreed that once it was in digital form, a copy should be handed over to the Israeli diamond Controller for further analysis and safe keeping.

The co-operation of firm managers, owners and officials was not easily forthcoming. As a result, it was necessary to first gain their confidence and interest in the study. For this purpose the researcher spent much time visiting various local officials, managers and owners of Israeli polished diamond exporting firms and industry leaders. The researcher was trying to make conversation in a way that would appear purposeful enough so as not to be squandering their time, but remote enough away from the factual interest of the study so as not to query the study

by premature disclosure.

Those firms that refused initially to be interviewed were sometimes coerced to give an interview as a result of the diamond controller himself, his deputy, the Managing Director of the Israeli Diamond Institute, or other operators/owners of Israeli polished diamond exporting firms. They tried to convince them of the research's merits and possible benefits to them. In other words the snowball effect was sometimes implemented in order to attain an interview. This was a fundamental requirement as a result of the reluctant, and in some cases paranoid, nature of the diammantaires in the Israeli diamond industry regarding divulging any information, especially to "outsiders", as the researcher is portrayed.

Some interviewees thought the research important for the success of the Israeli diamond industry, thus, they solicited their colleagues to grant the researcher an interview - hence, opening doors that otherwise would have been strenuous to access. In one extreme case, the researcher approached an Israeli diamond exporter who outrightly rejected an interview. The diamond controller's deputy could not budge the firm to grant an interview. As a result of another interview, where the diammantaire interviewed was a personal friend of the owner of the Israeli polished diamond exporting firm that refused an interview, an interview was granted hesitantly and with awe at the researchers persistence.

Much stamina and patience was needed in order to secure any information sources in the Israeli diamond industry, not taking into account their varying degrees of quality and reliability. Like almost all supply and demand situations, critical information gaps were hoped to be filled by a variety information sources starting for instance, from the Israeli Diamond Controller himself (Mr. Inbar) to academics, practitioners, archives, journals, and books.

The following is an overview of the tools that were used by the researcher to study the Israeli diamond industry and the problems the researcher encountered in relation to the amount, availability and quality of information available. *Interviewing* involves asking questions of those

who have information about a phenomenon that the researcher has not been able to observe directly. Interviews may require respondents, among other things, (a) to speak about themselves; (b) to inform on the attitudes and actions of others; (c) to recall events that have occurred in the past; and (d) to speculate about future situations. Interviewing typically involves less interaction with the situation than direct or participant observation, so objectivity may be easier to attain (Yin, 1994). Interviewing was viewed by the researcher as a method that relies heavily on the opinions, perspectives, and recollections of respondents. The major purpose of the interviews in this doctorate thesis, was to learn more about the contextual framework of the Israeli diamond industry and the structure of its social embeddedness.

Comprehensive and objective *documentary* information is likely to be very difficult to attain. This as a result of the Israeli diamond industry's characteristics. For instance, financial records, memoranda and formal studies are almost non-existent and are viewed as highly sensitive. As a result, the researcher focused on newspaper clippings and other articles that appeared in the mass media. Furthermore, the researcher would like to note that for case studies, the most important use of documents is to corroborate and augment evidence from other sources (Yin, 1994), thus, documents are helpful in: (1) verifying the content of what had been mentioned in the interview; (2) providing other specific details to corroborate information from other sources; and (3) inferences can be made from documents on specific events (Yin, 1994).

Archival records, for instance, firm records, survey data and personal records were analysed to support the researcher's interviews. The significance of archival information was to prepare the interview schedules, verify the correct spelling of titles, names and addresses. Furthermore, it was used to check the reliability of information derived from the interviews. The problem was that archival information, its availability, and its accessibility, was also limited in scale and scope. For instance, when the researcher tried to gain access to the Israeli diamond Exchange newspaper clippings data base, the researcher was rejected in the claim that it is

restricted and sensitive, although this data comes from the public domain.

Most research on the diamond industry in the area of business was found, by the researcher, to have one or both of the following flaws: firstly the research was on the macro level thus, had few practical implications. For instance, Michael Von Saldern (1990) wrote a Ph.D. thesis titled "Price Forecast for Rough Diamonds: A Non-linear Optimisation Model of Dominant Firm Behaviour", Colorado School of Mines. When talking to industry experts in Israel about this model, the researcher was told that it does not work in the field, thus, was seen of having little practical use. Furthermore, the researcher would like to highlight the fact that after talking to academics and industry experts in the field, to the best of his knowledge, this study is the first time that research on the Israeli diamond industry has been undertaken in the area of business.

The second common flaw was that the research found tried to cover too much thus, lacking in depth and level of analysis, again, with few practical and academic implications. For instance, the researcher found some postgraduate work on the diamond industry. To illustrate the point, Bullen (1995) wrote a thesis titled "The Diamond Industry of Botswana", University of Texas at Austin, which was on a very abstract level regurgitating existing information; and Suntharothok P (1996) who wrote a thesis titled "Strategic Analysis of Increase Sales and Creation of Interest in the Diamond Industry", The University of Birmingham, tried to cover too much, thus it lacked in depth and level of analysis, resulting in ambiguity.

It has come to the researcher's attention that once, every number of years, the Israeli diamond industry conducts a survey on itself. The survey covers, for instance, how many diamond cutting and polishing machines are used for rough diamond polishing, the location of the various diamond polishing and cutting factories, and how many diamond workers are involved in the manufacturing process. No questions are asked about how business is undertaken and ways to improve it. The researcher would like to note that the survey results are aggregated

and then published internally, without an in-depth analysis; and was told that this was done in order to ensure anonymity of the survey participants.

It seems that such research undertaken by the Israeli diamond industry is highly restricted and limited in scope, hence, it was of little academic use for this doctorate thesis. It was interesting to note that these survey results did not lead to any conclusions or recommendations, but just stated aggregated findings. Furthermore, from discussing the survey with industry experts, it seems that such surveys have little practical applications either.

In conclusion, this chapter highlighted the difficulties involved in attaining information on the Israeli diamond industry. The researcher dedicated a separate chapter highlighting the problems of the amount, availability, and quality of information as the researcher presumes that these problems, in this case, are profound, compared to other industries. It seems that these problems are to a large extent the underlying reasons for the lack and/or low quality of research in the area. Illustrating the problems in researching this area will, hopefully, help guide future researchers in following a safer route when furthering research on the Israeli diamond industry.

6. Survey Results

6.1 An Overview

As the competitive edge in the Israeli diamond industry seems to slip away and continues to erode taking with it jobs, taxes and the Israel's clout of being a global diamond leader, Israeli diammantaires are becoming more anxious about their future prospects. Hence, some Israeli diammantaires and industry experts welcomed this study, which they may have rejected in the past, thus, came about this research focusing on how socially embedded exchange affects the business activity of Israeli polished diamond firms. To the best of the researcher's knowledge this topic has never been undertaken before (wholly or in part) in the area of business on the diamond industry and the Israeli diamond industry in particular.

The researcher had no previous contact with actors in the Israeli diamond industry, except for the preliminary research. Lessons learnt from the preliminary research were implemented in the primary research. Furthermore, trust leading to access through governmental institutions such as the Israeli Ministry of Industry and Trade - the Diamond Controllers Office, and the Israeli Diamond Institute, was a gradual process that took more than a year to implement. Although these contacts did not promise accessibility to privately held Israeli polished diamond exporting firms, it was the only leverage that the researcher had to try to coerce operators/owners of the firms, in the population stratum to be sampled, to grant the researcher an interview.

6.2 Fieldwork, Conducting the Survey

Scanning the literature review, I found a lack of clarity about the process of actually building theory from cases. The case study methodology was found to be a

research strategy which focuses on understanding the dynamics present within single settings. Within-case analysis typically involves detailed case study write-ups for each site (Eisenhardt, 1989). These write-ups are often simply pure descriptions, but they are central to the generation of insight because they help researchers to cope early in the analysis process with the often enormous volume of data. However, there is no standard format for such analysis. The overall idea is to become intimately familiar with each case as a stand alone entity. This process allows the unique patterns of each case to emerge before investigations push to generalise patterns across cases. Hence, theory building process relies on past literature and empirical observation or experience as well as on the insight of the theorist to build incrementally more powerful theories (Yin, 1994; Bonama, 1985). However, there are times when little is known about a phenomenon. In these situations, case study research is particularly appropriate because theory building from case studies does not rely on previous literature or prior empirical evidence. In sum, building theory from case study research was most appropriate in the case of the Israeli diamond industry as it is in the early stages of research and as a result of the importance of holistic information in order to understand the prevalent business mechanisms.

The qualitative data is particularly useful for understanding why or why not emergent relationships hold. When a relationship is supported by quantitative data, the qualitative data often provide a good understanding of the dynamics underlying the relationship, that is, the “why” of what is happening. To increase the insight to the richness of the interviews I elaborated in the thesis on previously transcribed qualitative information gathered into the computer. The qualitative information emanated from two distinct sources. Firstly, it was gathered through the questionnaire itself. It enabled the researcher to record the attitudes and perceptions on the diammantaires interviewed.

Secondly, before and after the interviews, I recorded my perceptions of the surroundings in which the interviewee transacted. Variables such as the level of utilised technology (i.e. phone, fax, computer, electronic measuring equipment), looks and smells of the office were recorded. Furthermore, tones of voice and general feelings were recorded in order to furnish a more holistic view and a deeper analysis of contextual elements that were not possible to capture through the formal interview itself. In addition, after the interview, I recorded what other umbrella firms and institutions such as the Israeli Diamond Controller, his deputies, the Managing director of the Israeli diamond Institute, Insurance companies and banks said about each individual diammantaire interviewed. The qualitative information gathered was employed in case study two and three, building the first coherent holistic picture of the Israeli diamond industry.

A striking feature of research from case studies is the frequent overlap of data analysis with data collection and ongoing interactions with the interviewees (Eisenhardt, 1989; Snow and James, 1994). This point was illustrated by the fact that there was a need to create trust between the researcher and the Israeli diammantaires in order to research trust. Field notes, was an important means in this doctorate thesis of accomplishing this overlap. The field notes were an ongoing stream of conscience commentary about what was happening in the Israeli diamond industry involving both continuous observations and analysis. Overlapping data analysis with data collection not only gives the researcher a head start in analysis but, more importantly, allows researchers to take advantage of flexible data collection (Van Maanen, 1979). A key feature of theory building case research is the freedom to make adjustments during the data collection process. These adjustments can be the addition of cases to probe particular themes which emerge over

time in the research (Bonama, 1985; Eisenhardt, 1989) as illustrated in the flexible structure of this doctorate thesis.

Only after securing the official authorisation from Managing Director of the Israeli diamond institute (see appendix two) and the researcher's supervisor (Professor Chong Ju Choi) could the bulk of the field work begin. After gaining the trust of the Israeli Diamond Controller (Israeli Ministry of Industry and Trade), it was agreed that an office and an internal phone were to be furnished by the Israeli diamond Controller in his ministry. The researcher was supplemented by forwarding letters from the Managing Director of the Israeli Diamond Institute (Mr. Raviv) and from the Diamond Controller, Ministry of Industry and Trade (Mr. Inbar) in the hope that it would help gain access to the Israeli polished diamond exporting firms. In the end the letters were never used as some operators/owners of the sampled firms saw it as a threat.

Interviews were conducted on the same-day basis as operators/owners of the Israeli polished diamond exporting firms were not willing, in most cases, to schedule an interview more than 24 hours in advance. This fact illustrated the highly irregular nature of the Israeli diamond industry. The operators/owners of the Israeli polished diamond exporting firms, in many instances, did not have a fixed schedule. They came and went from their office as they pleased. Buyers and brokers just dropped in to do business without scheduling an appointment. One polished diamond exporter told the researcher in an interview that selling diamonds is built on the same model or framework as selling pickles in the market place. The only difference is the volume of money that exchanges hands. Furthermore, the researcher noticed that, in most cases, exchange in the Israeli diamond industry and the relationships between diammantaires are tense and socially embedded.

In most cases interviews were scheduled in the morning for the afternoon and in extreme cases a five minute notice was given saying, for instance, "I'm eating lunch now, come now or call me again in two weeks' time when I get back. I'll see if I have time then". In many cases interviews were rescheduled in the last minute or begun and then interrupted, as a result of a customer or supplier just walking in and interrupting the interview. In some cases the researcher was permitted to view how polished diamond transactions were conducted. This gave the researcher a more holistic understanding of the relationships and workings of exchange between various diammantaires in the Israeli diamond industry. Therefore, the researcher spent much time on the telephone trying to convince operators/owners of Israeli polished diamond exporting firms to grant an interview or in trying to reschedule an interview.

All the 190 official Israeli polished diamond exporting firms, in population stratum one to four, were approached in a random order, but in such a way keeping to the quotas targeted in the methodology chapter. Those firms that refused, initially, to be interviewed were sometimes coerced to give an interview as a result of the diamond controller himself, his deputy, the Managing Director of the Diamond Institute, or other operators/owners of Israeli polished diamond exporting firms, convincing them of the researcher's merits. This was a necessity as a result of the reluctant and, in some cases, paranoid nature of the actors in the Israeli diamond industry to divulge any information, especially to "outsiders". As some interviewees thought the research important for the success of the industry, they called their colleagues and introduced the researcher, thus, opening doors that otherwise would have been difficult to access.

Many firms could not grant an interview to the researcher in the time frame allowed. Some of the head offices of the Israeli diamond exporting firms refused them

permission to give an interview. This was illustrated for example, by a Japanese polished diamond exporting firm located in Israel, initially consenting to grant the researcher an interview and the next day cancelling. In addition, some firms were just registered in Israel without a physical office. Therefore, the researcher was able to interview 100 of the 190 official Israeli polished diamond exporting firms (53% of the official Israeli diamond exporting firm population) only within the limitations discussed above.

Interviews were not tape recorded as the researcher sensed that interviewees were less likely to open up and, in most cases, refuse the interview altogether if they were taped, thus, interview quotes presented by the researcher represent verbatim responses that were recorded by hand. Many quotes were verified for their accuracy by repeating in the interview what the researcher had written. Notes from each interview were rewritten immediately after the interview, to ensure the accuracy of the note taking while still fresh in the researcher's memory. Additional notations of the researcher's perceptions of the interview and its surroundings were added giving a more holistic perspective of content for latter analysis.

Each time the researcher arrived home, the interviews conducted were rewritten on the computer, analysed, and the quantitative component codified and entered into the computer, first into excel and later into SPSS. The qualitative part of the interview was transcribed into MS Word. Essentially this initial analysis searched for patterns across respondents and to fine-tune the next interviews. The qualitative work demanded deep understanding of the industry in order to analyse it correctly, thus, other academics and industry experts were consulted in order to get a more holistic understanding of the phenomena researched.

The researcher sampled (see table 6-1) 7 exporting firms in stratum 1 (88% of the population stratum), 20 exporting firms in stratum 2 (77% of the population stratum), 20 exporters in stratum 3 (49% of the population stratum), and 53 exporting firms in stratum 4 (47% of the population stratum). Although many Israeli diamond exporting firms (almost all 190 polished diamond exporting firms) were contacted, as a result of their reluctance to be interviewed, physical, time and money constraints, only 100 privately held Israeli polished diamond exporting firms were interviewed. The researcher presumes that such a sample is representative of the population of Israeli official polished diamond exporters as a whole, and was within the sample size aimed in the methodology chapter.

To strengthen the findings from the sample of the Israeli diamond exporters, the researcher sampled the various supporting institutions and firms, as defined in the methodology. The Following table (table 6-1) depicts the four sampled population stratum, the number of actors/firms interviewed, and the coverage of the sample in relation to the population stratum:

Group (Export US\$m)	Actual No.	Population	Actual %	Aimed %
S 1 (50+)	7	8	88	80 - 90
S 2 (20 - 50)	20	26	77	80 - 90
S 3 (10 - 20)	20	41	49	50
S 4 (4 - 10)	53	115	47	50
Total	100	190	53	50

Table 6-1: The Sample from the Population Stratum

After the population of the official Israeli diamond exporting firms was sampled, as defined in the methodology chapter, the researcher re-grouped the sample by the type of wares or polished diamonds which Israeli polished diamond exporters export. The following table (table 6-2) depicts strategic group one which deals in polished diamonds that are tacitly priced (not covered by the Rapaport price list), strategic group two which

deals in explicitly priced polished diamonds (that are fully covered by the Rapaport price list), and strategic group three which deal in polished diamonds that are a mixture of the two (partly covered by the Rapaport price list):

Strategic Group	No. of Firms
One	10
Two	37
Three	53
Total	100

Table 6-2: Strategic Groups

6.3 The Summary of the Findings

Although the strategic groups concept was first introduced by Hunt (1972), the underlying theory was not completed until the work of Porter (1979). Porter (1979) defined a strategic group as a set of firms within an industry that are similar to one another and different from firms outside the group on one or more key dimensions of their strategy. It seems that research was mostly concerned with effects of competition among groups on profitability (Dranove, 1998). The literature review indicated that strategic group identity seems to derive from a set of mutual understandings among members, rather than from the shared understandings that underlie organisational identity (Peteraf and Shanley, 1997). Grouped actors have come to understand the behaviours of other members and the underlying logic of their decision making through interaction (Cool, 1985; Des and Davis, 1984). In economics terms, this is akin to firms having the ability to predict one another's reaction functions (Fiegenbaum, 1987).

Despite the recent interest in the strategic implications of interfirm networks, there remains a need for better theories of how strategic groups evolve and change over time (Madhavan et al, 1998). Specific industry events provide opportunities for firms to attempt to improve their positions in their industry network. Some industry events, such

as fundamental regulatory reform or radical technological change such as the introduction of the Rapaport price list and the Diamond link in the diamond industry, potentially change the basis of competition in the industry (Bernstein, 1992). This will have an observable impact on the network of relations and the formation of strategic groups within the industry. Firms may find that they need access to a different set of resources than provided by their current partners (Peteraf and Shanley, 1997). They may then be prompted to initiate a new set of relationships with a different set of partners. Thus, some industry events will be followed by substantial change in the industry's network structure. This point was illustrated in the six evolutionary stages of the Israeli diamond industry, analysing different models of exchange.

The literature review indicated that networks seem to evolve in response to key environmental events. Identifying the potential impact of an event in this way alerts managers to the evolutionary nature of their industry networks, and provides guidelines for strategic management. Madhavan et al (1998) claim that the structure of interfirm relationship networks changes in potentially predictable ways over time and in response to specific industry events. A dynamic perspective, as illustrated in this doctorate thesis on interfirm networks, demonstrated that networks change over time and new strategic groups evolved as the networked actors took advantage of opportunities to improve their competitive advantage. I would like to note that strategic groups at a given point in time is a 'snapshot' that shows interactions as they currently exist. Industry environments, however, vary widely and will evolve over time. Groups need not persist for the whole duration of a firm's or an industry's lifetime and their effect on firms may be temporary.

Strategic group research has often restricted its analysis to stable time periods. In dynamic and highly competitive environments, such as the Israeli diamond industry, the

management of firms may find it less desirable to act alone, but instead engage in collective strategies with other group members (Astley and Fombrun, 1983). Peteraf and Shanley (1997) claim that groups are more likely to be important for firm performance during periods of industry instability than can stem from the lack of legitimacy, innovation, new entry, or deregulation. Identifying group effects requires the researcher to develop measures of strategic group interaction that vary in the data (see methodology chapter for further discussion). One approach recommended by Dranove et al (1998) was to utilise a more behaviourally orientated variable that captures the patterns of interactions within a group such as the level of social embeddedness in exchange.

Strategic groups are often defined, as illustrated in the literature review, as sets of firms with similar strategies, or as a group of firms isolated by common mobility barriers (Peteraf and Shanley, 1997; Cool, 1985; Des and Davis, 1984). Furthermore, studies of managerial cognition suggest that managers tend to view their industries in terms of group of firms (Madhavan et al, 1998). Recently, strategic groups research has come under significant criticism. A lack of theory regarding how groups are formed, how they evolve, or how they influence outcomes has produced profound disagreement about how these groups should be studied (Robinson and McDougall, 1998; Dranove et al, 1998). This doctorate thesis was an attempt to bridge some of these theoretical and methodological research gaps.

It is claimed that strategic groups exist if characteristics of the group affect firm performance independently of firm level and industry level effects (Dranove et al, 1998). In other words, a strategic group exists if the performance of a firm in the group is a function of group characteristics, controlling for firm and industry characteristics (Peteraf and Shanley, 1997). Group level effects change the behaviours of members from what

they would be in the absence of the group. To illustrate the point, I used an example borrowed from Dranove et al (1998). Consider a set of manufacturing firms that are distinguished from other firms in their industry by their reliance on oil for power instead of gas. The reliance on oil is not a meaningful basis for grouping if oil is procured in a competitive input market. This is as the use of oil is a firm level characteristic, and the price of oil is independent of any group level interactions. From the literature review, it seemed that existing empirical methodologies might define firms as a part of a strategic group wrongly (Dranove et al ,1998; Peteraf and Shanley, 1997). In this instance, knowledge of the group adds nothing to the understanding of firm profitability, as if oil prices increased, all firms would experience a reduction in profits. On the other hand, suppose that firms use enough oil so that if they were to bargain as a group, they could obtain a better price. In this case, the nature of their strategic interactions would affect performance and so would constitute a true strategic group.

Effective collusion need not be explicit (Peteraf and Shanley, 1997). A number of implicit co-ordinating mechanisms may also raise profits. Examples include pricing rules of thumb, price posting, and price leadership by a dominant firm. The key to each of these mechanisms is that firms base their own decisions and actions on their observations of others in the group (Dranove et al, 1998). This point is further illustrated in the context of the Israeli diamond industry. Strategic group one, whose polished diamonds are not covered by the Rapaport price list use the price rule of thumb and price posting. As a result of their highly networked structure they collaborate on various fronts of the value chain but with trusted "insiders" only. This fact, as illustrated in this doctorate thesis, has an effect on group performance. Strategic group two, whose polished diamonds are fully covered by the Rapaport price list use strict pricing rules as published in the public

domain. They collaborate together in order to influence the Rapaport price list which in itself is dependent on information from those diammantaires. Thus, an empirical approach for establishing the existence of strategic groups, as illustrated in this doctorate thesis, is to demonstrate that group level strategic interactions affect firm performance (Peteraf and Shanley, 1997). This is, essentially, what has been missing from prior work on the performance effects of strategic groups (Dranove et al, 1998) and what this doctorate thesis, in part, was trying to bridge.

Furthering the discussion in the literature review, the researcher would like to highlight that mobility barriers are important to the maintenance of profitability differentials in strategic groups for two main reasons (Dranove et al, 1998). First, they retard imitation of group level actions and attributes, thus dampening competitive forces from outside the group. Second, mobility barriers serve the role of delineating the boundaries of the group and increasing the stability of the group over time. Mobility barriers need not be long-lasting to provide a basis for strategic groups (Peteraf and Shanley, 1997). Their value will almost certainly depreciate over time, as technology develops, market dynamics change, and competitors imitate successful strategies. This implies that strategic groups may be more or less identifiable at different times and that the advantages afforded by groups will be temporary. If firms use different distribution and marketing channels, then it is possible that mobility barriers protect firms in each group from incursions, since economies of scale in distribution and brand name development may limit the ability of new firms to compete with incumbents. Dranove et al (1998) claim that if researchers find that group-level characteristics and strategic interactions do not influence performance, then this will demonstrate that, by their definition, strategic groups do not exist. The research on the Israeli diamond industry has

illustrated that strategic groups appear to affect profitability when they are the product of strategic interactions among the member firms. In other words, the research confirms Dranove et al's (1998) definition of strategic group and the fact that they exist in the Israeli diamond industry. The following table (table 6-3) summarises the differences found between the various strategic groups.

In line with the methodology chapter, the researcher transcribed all the quantitative information from the interviews/questionnaires conducted in the fieldwork into SPSS. A Tuckey - HSD toolpack was utilised to analyse the data gathered. The Tuckey - HSD is based on the principle that the greater the discrepancy between the variance within and between the tested strategic groups, all being equal, the stronger would be the suspicion that the null hypothesis is not true. The test of the null hypothesis is based on the ratio of mean squares between and within groups. In the case of this doctorate thesis the confidence level has been set at the 95% point, thus, if this ratio is quite close to one, there would be little cause to doubt the null hypothesis of equality of population means. However, if the variability between groups is large compared to the variability within groups and is considerably different than one, the null hypothesis is rejected. In other words, if the variability around the sample means is small, compared with the variability among the sample means, the researcher would be inclined to doubt the null hypothesis that the population means are equal.

Furthermore, the researcher analysed the previously transcribed qualitative information gathered into the computer. The qualitative information emanated from two distinct sources. Firstly, it was gathered through the questionnaire itself. It enabled the researcher to record the attitudes and perceptions on the diammantaires interviewed. Secondly, the researcher before and after the interview recorded his perceptions of the

surroundings in which the interviewee transacted. Variables such as the level of utilised technology (i.e phone, fax, computer, electronic measuring equipment), looks and smells of the office were recorded. Furthermore, tones of voice and general feelings were recorded in order to furnish a more holistic view and a deeper analysis of contextual elements that were not possible to capture through the formal interview itself. In addition, the researcher recorded what other umbrella actors such as the Israeli Diamond Controller, his deputies, the Managing director of the Israeli diamond Institute, Insurance companies and banks said about each individual diammantaire interviewed. The qualitative information gathered is employed in case study two and three.

The quantitative findings utilised in case study three extracted from SPSS using the TUCKEY - HSD are presented in the following table (table 6-3). In the table the reader is able to note the average found in each strategic group and if the difference found between the averages is significantly different at the 95% level.

var	Variable \ Group	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
1	Importance of quality Mean Tuckey-HSD test F - test	1.60 <i>no two groups are significantly different at the 0.05 level</i> 0.1917	1.54	1.90
2	Firm Reputation Mean Tuckey-HSD test F - test	1.00 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.1917	2.35	1.52
3	Meeting Delivery Dates Mean Tuckey-HSD test F - test	1.90 <i>no two groups are significantly different at the 0.05 level</i> 0.2500	2.19	1.87
4	Matching Cust. Specifications Mean Tuckey-HSD test F - test	2.80 <i>no two groups are significantly different at the 0.05 level</i> 0.9482	2.65	2.69
5	Personal Visits Mean Tuckey-HSD test F - test	2.30 <i>no two groups are significantly different at the 0.05 level</i> 0.5752	2.32	2.56

var	Variable \ Group	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
6	After Sales Service Mean Tuckey-HSD test F - test	2.40 <i>no two groups are significantly different at the 0.05 level</i> 0.7607	2.70	2.69
7	Skills at Negotiating Mean Tuckey-HSD test F - test	3.30 <i>no two groups are significantly different at the 0.05 level</i> 0.2803	2.57	2.92
8	Word of Mouth between cust. Mean Tuckey-HSD test F - test	2.76 <i>no two groups are significantly different at the 0.05 level</i> 0.2153	3.60	2.83
9	Advanced Technology Mean Tuckey-HSD test F - test	3.80 <i>no two groups are significantly different at the 0.05 level</i> 0.3504	2.81	3.75
10	Motivation of Sales Force Mean Tuckey-HSD test F - test	2.00 <i>no two groups are significantly different at the 0.05 level</i> 0.6945	1.95	2.15
11	Contact at exhibition/fair Mean Tuckey-HSD test F - test	4.60 <i>group two is significantly different from group one at the 0.05 level</i> 0.0126	3.49	3.90
12	Lower price than competitors Mean Tuckey-HSD test F - test	3.30 <i>group three is significantly different from group one and two; and group one and two are significantly different at the 0.05 level</i> 0.0000	1.62	2.31
13	Advertising Mean Tuckey-HSD test F - test	4.90 <i>group two is significantly different from group one at the 0.05 level</i> 0.0163	3.65	4.13
14	Extended Credit Mean Tuckey-HSD test F - test	2.20 <i>no two groups are significantly different at the 0.05 level</i> 0.5089	2.49	2.67
15	Assistance by Gov. Agencies Mean Tuckey-HSD test F - test	4.70 <i>no two groups are significantly different at the 0.05 level</i> 0.5396	4.73	4.52
16	Assistance by Government Mean Tuckey-HSD test F - test	5.00 <i>no two groups are significantly different at the 0.05 level</i> 0.5973	4.81	4.79
17	Special Discounts Mean Tuckey-HSD test F - test	3.70 <i>no two groups are significantly different at the 0.05 level</i> 0.2351	3.16	3.63

Table 6-3: The Findings (TUCKEY - HSD)

Var	Group Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
18	Freq. comm. with cust. Mean Tuckey-HSD test F - test	1.00 0.0084	2.05 <i>group one is significantly different from group two and three at the 0.05 level</i>	1.77
19	Good Relations with Brokers Mean Tuckey-HSD test F - test	1.30 0.0000	2.65 <i>group two is significantly different from group one and three at the 0.05 level</i>	1.87
20	Good Relations with cust. Mean Tuckey-HSD test F - test	1.00 0.0000	2.03 <i>group two is significantly different from group one and three at the 0.05 level</i>	1.06
21	Good Relations with Suppliers Mean Tuckey-HSD test F - test	1.00 0.0000	2.32 <i>group two is significantly different from group one and three at the 0.05 level</i>	1.40
22	Age Mean Tuckey-HSD test F - test	48.90 0.1595	42.44 <i>no two groups are significantly different at the 0.05 level</i>	45.92
23	Sex Mean Tuckey-HSD test F - test	1.00 0.2988	0.97 <i>no two groups are significantly different at the 0.05 level</i>	0.90
24	Education Mean Tuckey-HSD test F - test	12.00 0.8558	12.50 <i>no two groups are significantly different at the 0.05 level</i>	12.39
25	Time in Business Mean Tuckey-HSD test F - test	29.70 0.0003	15.95 <i>group two is significantly different from group one and three at the 0.05 level</i>	23.17
26	Time Member of Isr. Exchange Mean Tuckey-HSD test F - test	22.30 0.0103	10.54 <i>group two is significantly different from group one at the 0.05 level</i>	14.37
27	Worked for another dia. firm Mean Tuckey-HSD test F - test	0.50 0.8643	0.42 <i>no two groups are significantly different at the 0.05 level</i>	0.43
28	From a diamond family Mean Tuckey-HSD test F - test	1.00 0.0002	0.39 <i>group two is significantly different from group one at the 0.05 level</i>	0.34

Table 6-3: The Findings (TUCKEY - HSD)

Var	Group Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
30	Family members follow Mean Tuckey-HSD test F - test	0.60 <i>no two groups are significantly different at the 0.05 level</i> 0.2370	0.61	0.76
31	Years Firm Operating Mean Tuckey-HSD test F - test	7.60 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0288	17.96	18.65
32	Years in the Firm Mean Tuckey-HSD test F - test	7.10 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0455	12.01	14.40
33	Are you a manufacturer Mean Tuckey-HSD test F - test	0.70 <i>no two groups are significantly different at the 0.05 level</i> 0.7957	0.81	0.98
34	No. of Factory Workers Mean Tuckey-HSD test F - test	26.60 <i>no two groups are significantly different at the 0.05 level</i> 0.6094	66.08	109.34
35	No. of Office Workers Mean Tuckey-HSD test F - test	5.00 <i>no two groups are significantly different at the 0.05 level</i> 0.2505	9.56	14.81
36	No. of Subcontractors Mean Tuckey-HSD test F - test	0.60 <i>no two groups are significantly different at the 0.05 level</i> 0.8144	1.70	1.97
37	Do you advertise Mean Tuckey-HSD test F - test	0.20 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0010	0.80	0.61
38	Average US\$/Year Mean Tuckey-HSD test F - test	0.65 <i>no two groups are significantly different at the 0.05 level</i> 0.1203	12.68	11.78
39	How Many Years Mean Tuckey-HSD test F - test	2.40 <i>no two groups are significantly different at the 0.05 level</i> 0.2252	6.60	6.38
40	Do You Visit Shows Mean Tuckey-HSD test F - test	0.20 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.0000	0.88	0.53
41	Time/Year Mean Tuckey-HSD test F - test	1.10 <i>no two groups are significantly different at the 0.05 level</i> 0.5254	1.86	2.17

Table 6-3: The Findings (TUCKEY - HSD)

Var	Group Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
42	How Many Years Mean Tuckey-HSD test F - test	3.80 <i>no two groups are significantly different at the 0.05 level</i> 0.7066	4.81	5.34
43	Do You Exhibit in Shows Mean Tuckey-HSD test F - test	0.10 <i>group two is significantly different from group one at the 0.05 level</i> 0.0056	0.74	0.49
44	Time/Year Mean Tuckey-HSD test F - test	0.40 <i>no two groups are significantly different at the 0.05 level</i> 0.2790	1.08	1.19
45	How Many Years Mean Tuckey-HSD test F - test	1.10 <i>no two groups are significantly different at the 0.05 level</i> 0.4064	1.26	1.83
46	Any special Polishing/Cuts Mean Tuckey-HSD test F - test	0.10 <i>no two groups are significantly different at the 0.05 level</i> 0.4121	0.11	0.04
47	Do You Use/Have Email Mean Tuckey-HSD test F - test	0.20 <i>no two groups are significantly different at the 0.05 level</i> 0.1027	0.41	0.22
48	Do You Use/Have HomePage Mean Tuckey-HSD test F - test	0.20 <i>no two groups are significantly different at the 0.05 level</i> 0.1630	0.35	0.12
49	Are You a CSO Site Holder Mean Tuckey-HSD test F - test	0.20 <i>no two groups are significantly different at the 0.05 level</i> 0.8530	0.28	0.24
50	Do You Have an Export Dept. Mean Tuckey-HSD test F - test	0.00 <i>group two is significantly different from group one at the 0.05 level</i> 0.0013	0.59	0.36
51	Success Rate Mean Tuckey-HSD test F - test	0.10 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0094	0.49	0.23
52	Export (US\$) Mean Tuckey-HSD test F - test	8.92 <i>no two groups are significantly different at the 0.05 level</i> 0.3394	17.07	27.08

Table 6-3: The Findings (TUCKEY - HSD)

Using SPSS it was found that the information gathered in the fieldwork was 74% reliable (see appendix four for further explanation) which was found to be in line with main line research (Nunnally, 1978; Churchill, 1979). This test measured if a similar test, when different actors administer it leads to similar results. This test is important as a result of the irregular nature of diammantaires in the Israeli diamond industry.

In line with the literature review and industry experts it was expected that the findings emanating from strategic group one would be positioned relatively on one extreme side of the scale presented by the researcher's questionnaire in relation to strategic group two. It was further expected that the findings emanating from strategic group three would be positioned in between the two strategic groups. This was as strategic group three was viewed on average to be a composite of the two distinct exchange mechanisms. Surprisingly this was not necessarily the case. In some instances, as predicted the findings were positioned in between the two strategic groups, but in other instances it was positioned outside group one and two. Analysis, implications and discussion of the findings are elaborated further in case study two and three and then combined in the conclusions.

In conclusion, the selection of suitable candidates for building the case study required careful assessment as the researcher strived for a well balanced group of Israeli diamond firms from population stratum one to population stratum four. Yet, the researcher would like to note that one of the key determining factors of selection to be included in the case study was the willingness of the Israeli polished diamond exporting firms to participate in the creation of the case studies.

7. Israel and its Economy

"Its an old saying that Israel's diamond industry emerges strengthened by every crisis ... with new forms of marketing supported by the highest technical skill of the workers and the growing use of the world's finest technological equipment constituting a realistic part of my general optimism regarding the future of our trade."

Anonymous Israeli Diammantaire

7.1 An Overview

Business Culture. Israel is a young country that has not had the time to mould a united culture (Rosenblat and Bilha, 1996). Every couple of years there is a new influx of immigrants to Israel (Aharoni, 1993; Harel, 1986; Caiden, 1970). This influx, to some extent, destabilises the cultural melting vat and so the whole process starts again. Israel does not have a single culture, and so it is very hard to categorise its culture in the normal sense (Ficher and Shavit, 1995).

Since the establishment of the state of Israel in 1948, its work culture was embedded in a socialistic ideology, promoting values such as employment security, employee rights and employee participation in decision-making (Ficher and Shavit, 1995). The public sector in Israel was seen by many as taking a heavier burden of social responsibility than the private sector. The Israeli work culture is shaped by several, sometimes conflicting, cultural sources: (1) a Middle - Eastern culture, characterised by an emphasis on bargaining skills and minimal concern for rules and order; (2) Jewish philosophy, characterised by future orientation, intellectualism and non-mediated approach to God; (3) the ghetto culture, characterised by entrepreneurial orientation, focusing on the dominance of internal rules over external ones; (4) bureaucratic heritage of the British police rule (mandate), characterised by a no-nonsense emphasis on rules and administrative order; and (5) naive socialism, characterised by a preference for collective, over human, nature and environmental events (Caiden, 1970). All five backgrounds have been claimed to be responsible for the evolution of the modern Israeli work culture (Rosenblat and Bilha, 1996; Schnitzer, 1988; Shainberg, 1987). Since its inception, Israel has absorbed 2.4 million immigrants, over 3.5 times the number of Jews living in the country since its inception

(Israeli Central Statistics, 1996).

Out of this variety of cultural backgrounds, three main attributes of the Israeli work culture have emerged: first, is a tendency towards collectivism. Hofstede (1980) and Ficher and Shavit (1995), in a large comparative empirical study of a multinational high-tech firm, found that Israeli employees were collectivists rather than individualists. They characterised the Israeli culture as collectivist, high on involvement and affiliation, low on privacy and secrecy. They found Israeli culture high on collective responsibility, self-criticism and openness; secondly, is the tendency towards improvisation. Weinreb (1987) and Aharoni (1993) found that Israeli employees tend to initiate and to improvise in problem-solving situations more than their American counterparts; and thirdly, there is a tendency towards low social distance (Hofstede, 1980). Other related attributes found, were informality and disregard for rules.

The Israeli economy consists of three main sectors: the private sector, the public sector, and the Histadrut, General Federation of Labour in Israel (Aharoni, 1993; Weinreb, 1987; Szenberg, 1973). The *public sector* owned industries that are of particular importance to national security, comprising industries such as aircraft, military equipment, communications and petrochemicals. The *Histadrut* encompassed trade unions, business organisations and services such as health care, pension funds and vocational training. A unique feature of the Histadrut is its double function as the representative of both employers and employees in the form of labour owned enterprises. The original purpose of this unusual combination was to create a non-exploitative work culture that promoted a social mission of co-operation. It aspired to better the working conditions of Israeli workers and to counter work alienation (Mannheim, 1984). The *Private sector*, is a mesh of cultures and is seen by many as the most innovative sector. It consists, for instance, of computer and electronic firms. It encompasses all the sectors that are not public or part of the Histadrut establishment.

Israel has generally two opposed ideologies. One is the socialist - Kibbutz ideology and

the other is the capitalist - urban ideology. A Kibbutz is a communal settlement based on socialistic ideology and collective values (Rosenblat and Bilha, 1996). There is no private ownership and no differential reward system. All Kibbutz members share the same facilities, including dining room, laundry, cars, and education. Democracy is exercised by an organisational structure, which puts the highest authority concerning all Kibbutz matters in the hands of the general meeting, in which every member has a vote. As opposed, individuals in the urban setting live their lives independently, mostly in family units. Each person or family has its own resources and is responsible for decisions concerning the creation and consumption of resources.

The Economy. A new economy in Israel began to take shape in the 1970s, with the birth of the high-tech industry nurtured, to a large extent, by the private sector outside the traditional state/labour union establishment (Ficher and Shavit, 1995; Aharoni, 1993; Harel, 1986). This new economy gained ground in the middle of the 1980s as the government took steps to stabilise the economy by putting the brakes on chronic hyper-inflation. The process moved a step further with the liberalisation of the capital and foreign currency markets at the end of the 1980s, which marked the beginnings of the government's privatisation drive (Even-Zohar, 1997c).

Drawing on the high academic skills of Israeli's universities and motivation of its population, a world-class technology - initially based on the armaments industry - was developed within a remarkably short time (Ganitsky, 1989; Manheim, 1984). The same was true in electronics, avionics and a multitude of other technologies. The army spelled out its needs and the local industry delivered the product.

The Israel of the 1990s is a long way from its old image of an economy enmeshed in tired socialism, isolated from the world and beset by war and terrorism. Israeli firms had become more adept at using one of Israel's unique advantages, it is one of the few countries in the world that enjoys free trade agreements with both the US and Europe as depicted in the following

quote from the researcher's interview: "The diamond business is fascinating in its own right, and not only from the commercial view...business stretches over the entire globe. Contact with the different types of customers is most interesting."

For half a century, Israel has been isolated from its neighbours and had to forge its economic alliances overseas. It could not trade with major countries in Asia, Eastern Europe, or the developing world. Therefore, by default, the European and American continents became its major and sole export markets and trade partners. For instance, Israel has been a member of GATT since 1962. In 1975, Israel reached a Free Trade Area agreement with the European Community. In 1992 Israel signed a Free Trade Area agreement with EFTA countries. Following the peace agreement between Israel and Jordan, Gulf countries declared the abolition of the secondary and Tertiary boycott on firms dealing with Israel. Initial steps are now (1997) being taken towards establishing economic relations with Qatar and Oman. The following table (table 7-1) depicts key economic indicators on the Israeli economy :

	1992	1993	1994	1995	1996	1997*
GDP	6.8%	3.4%	6.5%	7.1%	4.4%	3.7%
GDP per capita	3.2%	0.9%	4.0%	4.4%	1.8%	1.4%
Consumer Price Inflation	9.4%	11.2%	14.5%	8.1%	10.6%	8.5%
Average population (K)	5,149	5,261	5,390	5,540	5,670	5,800
Unemployment rate (%)	11.2%	10.0%	7.8%	6.9%	6.4%	7.0%

Source: Ministry of Industry and Trade, 1996

* Forecast

Table 7-1: Israeli Key Economic Indicators

7.2 Israel and it's Economy

7.2.1 Israel's governing Structure

The Israeli Government. In the state of Israel, as in other democratic nations, the democratic rule is rooted in the following principles and institutions: (1) basic laws which lay down the order of government and the citizens' rights; (2) the holding of elections to the house of representatives (Kneset) and to municipal councils; (3) a central government and local authorities set up, based on the principle of the rule of the majority, with the rights of the minority guaranteed by law; (4) the principle of the separation between the legislative branch,

the executive branch, and the judiciary branch, to which the institution of state control has been added; and (5) freedom of the press.

The elections in Israel are general, equal, and secret. On the national level they are held at least once every four years and, on the municipal level, at least once every five years. Every party running for election presents a list of candidates. The number of candidates entering the house of representatives is proportional to the percentage of support the list receives. Every citizen over the age of 18, whose name appears in the list of voters, may vote. The following figure (figure 7-1) depicts the Israeli governing structure:

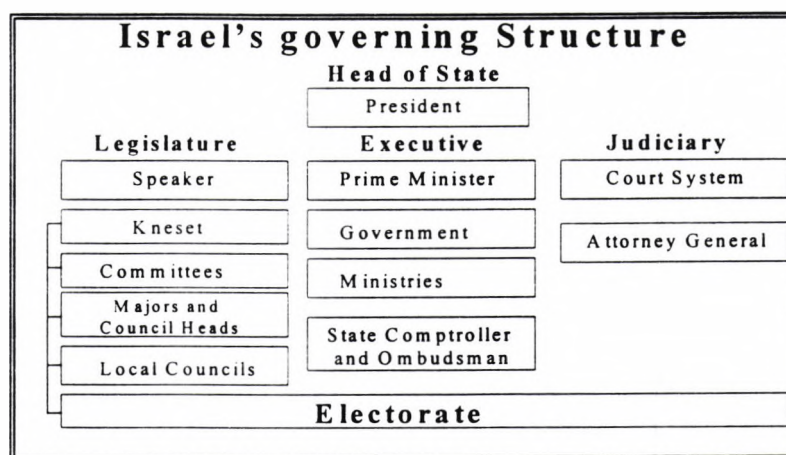


Figure 7-1: Israeli Governing Structure

Based on Israeli Ministry of Industry and Trade Statistics, 1996

The President, Israel's head of state, is elected to a five year term by a majority of the Knesset in a secret ballot. The President signs every law enacted by the Knesset, and treaties and agreements with foreign countries that have been ratified by the Knesset (even though he has no control over its content). The Knesset is the house of representatives of the State of Israel. The Basic Law states that the seat of the Knesset is Jerusalem and that, upon election, it will have 120 members. The President opens the first session of a new Knesset. The Knesset members declare their allegiance, and the speaker of the Knesset and his deputies are elected. The Knesset fulfils its functions by means of two arms: the plenary in which all the Knesset members sit; and the Knesset committees. The plenary holds debates within the framework of legislation, government statements, motions for the agenda, motions of no-confidence, and questions.

Deliberations usually end with a vote.

The Judicial System. The courts in Israel deal with cases of persons charged with a breach of the law. The cases brought to the courts are of two types: criminal cases and civil cases. A criminal case is one involving a transgression of the social order, and its intention is to punish the offender, if his guilt has been proved. In a civil trial there is no punishment, but a duty to pay a fine. There are three main types of courts: The Magistrate courts, which have the authority to try light and intermediate offences, or civil cases in which the sum claimed is no higher than US\$300,000; the District courts, which try serious offences, and civil cases in which the sum claimed is over US\$300,000; and The Supreme Court, which sits in Jerusalem and hears appeals for verdicts given by the district courts and also, to hear appeals by persons who feel that they have been wronged by one of the State authorities or the statutory bodies.

7.2.2 Israel's Economic Relations

Israel and the EU. On the 20th of November 1995, a new trade treaty between Israel and the European Union was signed (Israeli Ministry of Industry and Trade Statistics, 1996). The agreement replaced the 1975 agreement between Israel and the European Union. The treaty's purpose was to provide a framework for political dialogue, and to strengthen economic relations between the EU and Israel. The accord expands the parameters of the existing free trade zone by, updating rules of origin and making them more flexible, granting easier access to public and government acquisition markets and simplifying trade conditions. Further, Israel has been accepted as a full member of the EU's Fourth Framework Research and Development program (FFRD). Israel is one of only two countries, the other being Switzerland, that are not EU members but have the right to take part in EU R&D projects. The agreement allows Israeli firms to participate in EU R&D tenders.

Israel and the US. Israel concluded a Free Trade Area Agreement with the US in

September 1985, covering trade with special provisions for protection of agricultural products (Israeli Ministry of Industry and Trade Statistics, 1996). The two governments proclaimed that they desire to promote mutual relations and further the historic friendship between them. The US is recognising that Israel's economy is still in a process of development and so wishes to contribute to the "harmonious" development and expansion of world trade. The agreement claims that the two countries wish to establish bilateral free trade between the two nations, through the removal of trade barriers, and so promote co-operation in areas which are of mutual interest.

Israel and its Close Neighbours. Following the peace agreement between Israel and Egypt (1979), both countries have established trade and economic relations. The peace agreement led to the beginning of bilateral trade between Israel and its Arab neighbours. Succeeding the peace agreement with Jordan (1994), both countries have concluded a trade agreement that grants reciprocal customs concession and so further reduces Israel's economic isolation. The implementing of Palestinian self government in Gaza Strip and Jerico area (1994) led to reaffirming the determination to put an end to decades of confrontation and to live in peaceful coexistence, mutual dignity and security, while recognising both side's legitimate and political rights. As a result of this ongoing process, the Gulf countries declared the abolition of the secondary and Tertiary boycott on companies dealing with Israel, which has lead to re-establishment of political and economic ties with other nations.

7.2.3 The Importance of Export to the Israeli Economy

As Israel has very few natural resources and is heavily dependent on imports, foreign currency is a critical issue for its economic stability. As a result of the large turnover of foreign currency of the diamond industry in value terms, it is crucial for the economy's independence and the Israeli's central bank foreign currency reserves (Shur, 1996; Schnitzer, 1983, 1988;

Shainberg, 1987; Harel, 1986). The following table (table 7-2) illustrates Israel's total exports and imports in value terms by regions:

Year	1996		1995		1994		1993	
Country	Import	Export	Import	Export	Import	Export	Import	Export
Europe	18,017	7,986	17,445	7,432	14,901	6,020	12,514	5,514
Latin America	254	502	238	454	250	404	202	319
Africa	389	388	412	349	325	283	326	264
Asia	3,047	4,118	2,840	3,800	2,293	3,177	2,042	2,510
UK	2,649	1,336	2,340	1,156	2,057	850	1,773	816
U.S.A	5,983	6,282	5,281	5,736	4,272	5,277	3,643	4,622
Japan	1,105	1,217	939	1,316	964	991	1,048	769
Total	29,949	20,510	28,338	19,028	23,701	17,005	20,518	14,825
Balance	-9,439		-9,310		-6,696		-5,693	

Source: The Israeli Economy at a Glance, MIT, 1996

Table 7-2: Israeli Export by Regions (US\$m)

The Following figure (figure 7-2) depicts the comparison between the total Israeli export growth and that of the diamond industry. It is interesting and important to note the close correlation between the two curves which highlight the importance of the diamond industry to the Israeli economy.



Israel is becoming less isolated as a result of the peace process with its neighbours, but still relies on foreign aid from the US and is in short supply of foreign currency. Electronics is Israel's biggest export (27% of total export in 1996), while diamonds is second (24% of total export in 1996). The following figure (figure 7-3) depicts Israeli exports segmented by industrial sectors:



The following table (table 7-3) depicts a more detailed break down of Israeli exports by industrial branch over three years and the percentage of total export that it represents. The researcher notes that the Israeli diamond industry was Israel's second largest export in 1996, thus, an important area of research for the Israeli economy.

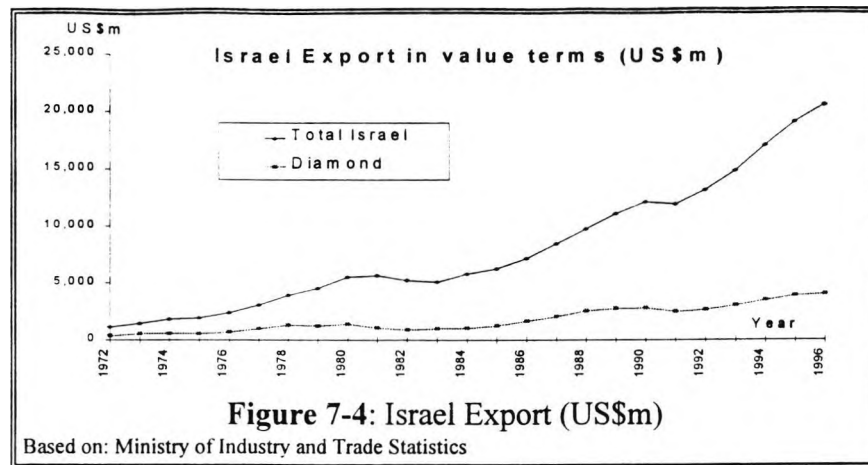
Exports	1996		1995		1994	
	US\$m	%	US\$m	%	US\$m	%
Citrus	180	0.9	200	1.0	126	0.2
Other Agricultural	621	3.0	540	2.8	468	2.8
Polished Diamonds	5,260	25.6	4,922	25.9	4,374	25.8
Other Industrial Exports	13,050	63.6	12,322	64.8	11,272	66.4
Rough Diamonds	949	4.6	755	4.0	526	3.2
Software & Programming	413	2.0	287	1.5	198	1.4
Total	20,510	100	19,028	100	17,005	100

Based on The Israeli Economics at a Glance (1996), MIT

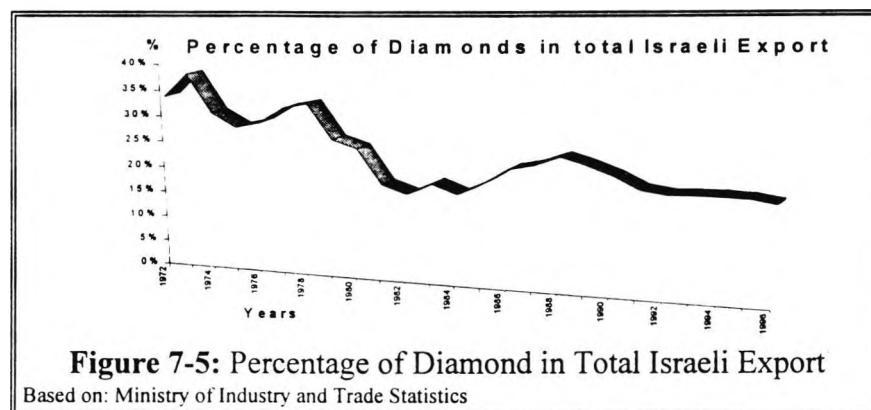
Table 7-3: Export of Goods (Gross)

7.3 Israel and Diamonds

Israel is heavily dependent on foreign currency for its survival as exports and imports are a central element in the country's financial system. The Israeli diamond industry is an industry devoted distinctly for export as there is a negligible local market for diamonds. Therefore, the diamond industry in Israel is important for the Israeli economy, largely because it attracts foreign currency. The following figure (figure 7-4) illustrates Israeli total and diamond exports over the years (Israeli Ministry of Industry and Trade Statistics, 1996):



In addition, the following figure (figure 7-5) depicts the importance of diamonds as an integral part of Israeli export over the years (i.e diamond exports divided by total export). It is possible to note a gradual decline of diamond exports as a percentage of the total exports:



The following figure (figure 7-6) illustrates the value added of the diamond industry, to the Israeli economy over the years. From the following figure it is possible to note a drastic increase in the value added element of the Israeli diamond industry in the late 1980s and then a gradual decline until present.



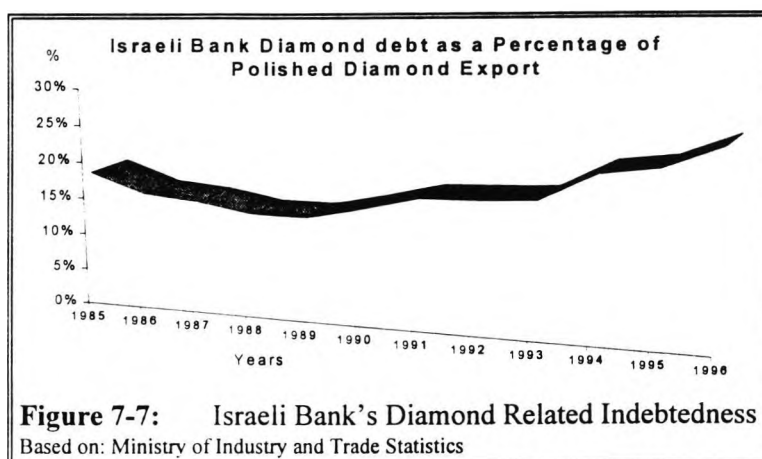
The Israeli diamond industry does not only have a direct economic contribution on the Israeli industry, but also an indirect contribution. For instance: (a) tourism, based on industry experts, it is estimated more than 6,500 foreign buyers and their families visit Israel annually. They spend money on air transport, land transport, accommodation, food, and leisure. A modest estimation by industry experts claimed that this factor contributes around US\$21m per annum excluding non-business related tourism that is estimated at around US\$10m per annum; (b) banks and insurance firm's diamond related profit is claimed to be around US\$20m per annum with around a third of the profits staying with Israeli firms and the rest going to foreign firms (Even Zohar, 1997c), thus, it represents a contribution of around US\$6.6m. Israeli banks play a crucial role in financing the Israeli diamond industry and it is heavily indebted to them. It is thought that the profit of the Israeli banks in the diamond industry is around 6% on debt (c) communication, the income from diamond related telecommunication is estimated at around US\$3m; and (d) foreign relations, a large number of diammantaires are dispersed around the globe and are connected by economic and social ties to Israel promoting other business related exchange with Israel. No expert was able to give the researcher a value estimate, but they all agreed that it is a contributing factor to the Israeli industry as a whole, thus, the importance of the economic ties for the Israeli economy emerging from the diamond industry. It is not easy to measure in economic terms, but is nevertheless fundamental for the success of the Israeli industry as a whole. The foreign debt of diammantaires to Israeli banks (1996) is depicted in the following table (table 7-4):

Bank	Market Share (%)	US\$m	Local Currency in US\$m
Union Bank	32	339	
Discount Bank	27	285	
Mizrachi Bank	14	146	
FIBI	10	89	22
Leumi Bank	17	182	2
Sub total	100	1,041	22
Total		1,063	

Table 7-4: Israeli Diammantaires Indebtedness (1996)

Based on: Ministry of Industry and Trade, 1996 and Even-Zohar, 1997c

The following figure (figure 7-7) illustrates the Israeli diamond indebtedness as a percent of the bank's turnover over the years. The figure depicts a gradual rise in diamond related indebtedness. This rise depicts the increased leveraging of diammantaires in recent years and the high diamond-related exposure that Israeli banks are undertaking as a result of the need to give customers extended credit lines to be competitive in the increasingly competitive markets.



Israel produces 65% round cut diamonds, 27% fantasy cut diamonds and 8% small diamonds in medium to large sizes of above average quality (Ministry of Industry and Trade Statistics, 1996). The Israeli diamond industry is highly seasonable with an average of 30% of polished diamonds sold before Christmas. This is illustrated in the following table (table 7-5):

	1994				1995				1996			
	US\$m	%	Carats	%	US\$m	%	Carats	%	US\$m	%	Carats	%
Jan.	303.884	8.78	326.872	9.08	381.367	9.91	385.767	10.0	399.721	10.0	418.106	10/8
Feb.	282.678	8.17	315.912	8.77	346.356	9.00	343.649	8.90	344.587	8.61	345.442	8.91
March	281.436	8.14	291.953	8.10	323.674	8.41	308.737	8.00	348.210	8.70	323.680	8.34
April	261.663	7.56	281.749	7.82	265.768	6.90	276.018	7.15	255.858	6.39	262.149	6.76
May	306.953	8.87	334.193	9.28	319.980	8.32	294.420	7.62	346.137	8.65	318.986	8.22
June	249.248	7.21	260.471	7.23	287.215	7.46	314.179	8.14	262.784	6.57	232.648	6.00
July	343.892	9.94	375.756	10.4	438.646	11.4	447.498	11.6	431.067	10.8	429.381	11.1
Aug.	188.657	5.45	202.194	5.61	178.167	4.62	205.571	5.32	195.824	4.89	181.391	4.67
Sept.	219.850	6.35	229.710	6.38	343.369	8.92	333.593	8.64	388.362	9.70	369.446	9.53
Oct.	420.115	12.1	439.431	12.2	309.563	8.04	343.369	8.89	421.300	10.5	407.827	10.5
Nov.	368.360	10.6	338.794	9.41	409.388	10.6	384.507	9.96	376.564	9.41	366.576	9.45
Dec.	232.276	6.71	203.962	5.66	244.739	6.36	222.973	5.78	231.316	5.78	222.345	5.73
Total	3,459,012	100	3,600,997	100	3,848,232	100	3,860,281	100	4,001,730	100	3,877,977	100

Based on: The Israeli Ministry of Industry and Trade statistics

Table 7-5: Israeli Monthly Export of Polished Diamonds

It is important to note that the commitment to keep one's word, based on hundreds of years of tradition, is part of a heritage that has been passed from one generation to the next in the

diamond industry (Bruton, 1981). According to legend, the expression “mazal u’bracha” originated in the 12th century and was a symbolic representation of two brothers of the Maimon family (Benson, 1988). The word “mazal” (luck) refers to David Ben Maimon, a precious stones trader and the word “bracha” (blessing) symbolises Rabbi Moshe Ben Maimon. Legend has it that Maimonides asked his brother to conclude all of his business and trading transactions with these two words. The first time that mazal U’bracha was mentioned in reference to the diamond trade was in the diary of Glikel of Hamlin (1645 - 1724).

The researcher would like to note that Israel is a small country and is the only Jewish state. It is a country situated in the Middle East. It is technologically and socially advanced and can almost be categorised as a European country (Manheim, 1984). Israel's greatest resource are its people. Small in size, the country is home to a widely diverse population from many ethnic, religious, cultural and social backgrounds. Of its 5.5 million inhabitants (1996), almost 82% are Jews, 16% are Arabs and 2% are comprised of Druze, Circadian and other small communities. (Israeli Central Statistics, 1996). The society is relatively young (median age is around 27 years), characterised by social and religious commitment, political ideology, economic resourcefulness and cultural creativity. All of these characteristics contribute to the dynamic momentum of Israel's continuing development (Rosenblat and Bilha, 1996). Each new wave of immigration brings its own culture, thus, until present day, it is possible to find in Israel remains of almost all the founding cultures. One thing keeps this cultural ”melting vat” from exploding - Israel is the only Jewish homeland. This view is illustrated in the following quote from its researcher’s interview: “Being an observing Jew and from a Zionistic family, it is understandable that we wanted to move part of our activity to Israel and contribute to its growth”.

8. Case Study One: The Global Diamond Industry

Many Hollywood examples promote the elusiveness and the importance of owning a diamond. Thus, analysing the diamond industry without mentioning Fleming's story "Diamonds are Forever", which reached the silver screen in 1971 promoting the illusion and prestige of diamonds would be a grave injustice. In addition, Shirley Bassey's version of the theme song, of the same title, achieved similar success over radio waves. Based on the novel by Anita Loos, the saucy musical "Gentlemen Prefer Blonds" with its hit song "Diamonds are a Girl's Best Friend" still serves as an anthem of sorts at endless trade gatherings.

8.1 An Overview

Diamonds were first mined in India some 2,800 years ago. It has been estimated that India's entire production, during a period of about 2,500 years, was a mere 10 million carats (Epstein, 1982). In other words, an average of 4,000 carats per annum which, by today's standards is a negligible production rate. Rough diamond sales presently exceed 10 million carats per annum (Paribas Capital Markets, 1996). Some believe that diamonds initially, were not regarded as gems, but as strange and shining stones with amazing properties which resisted all attempts to be cut or fashioned (Davies, 1984; Freedman, 1980; Lenzen, 1970). The diamond's unique hardness gave rise to the belief that it possessed magical properties, conferring power, courage and toughness on its fortunate owners (Freedman, 1980). For more than 2,000 years, it was principally used as a talisman, which would be worn in its uncut state exclusively by kings and rulers (Memmi, 1993; Schumach, 1981; Pollak, 1975). The first successful attempts at cutting diamonds, carried out in the 14th century, brought its legendary invincibility into question, and its importance as a talisman diminished (Ghaswala, 1987). However, through cutting, its hidden beauty began to emerge, and its reign as the king of gems began.

In 1725, diamonds were discovered in Brazil and, for 130 years, Brazil remained the world's chief supplier (Green, 1981). Then, in 1867, a find led to the development of the South African diamond fields (Gregory, 1962). In turn, it led to the discovery of the source rock, where diamonds could be found (Kimberlite), and ultimately to the formation of De Beers and to the establishment of a Central Selling Organisation (CSO) and its affiliates. Throughout this century, major diamond fields have been located and exploited in Sierra Leone, Namibia,

Angola, Zaire, Tanzania, Russia, Botswana, Canada, and Australia.

The earliest records of diamonds are biblical. For example, Exodus XXVIII, 18 and XXXIX, 11; Jeremiah XVII, 1; Ezekiel III, 9 and XXVIII, 13; and Zechariah VII, 12 (Tolansky, 1962). In Exodus, the diamond (*Jahalom*) is mentioned twice as being one of the twelve precious stones which are engraved in the breastplate of the High Priest. These biblical references to diamonds are all of curious interest, for they show that even during very early times, the diamond was considered to be a valuable gem and was recognised as being a hard stone. Diamond rarity as a gem and its hardness are dominant features in the whole history of diamonds (Ghaswala, 1987). The following table (table 8-1) depicts some of those biblical references:

Location	Quote
Exodus XXVIII, 17 - 18	<i>Then mount four rows of precious stones on it, in the first row there should be a ruby, a topaz, and a beryl. In the second row a turquoise, a sapphire, and a diamond</i>
Exodus XXXIX, 10 - 11	<i>Then mount four rows of precious stones on it, in the first row there should be a ruby, a topaz, and a beryl. In the second row a turquoise, a sapphire, and a diamond</i>
Jeremiah XVII, 1	<i>The sin of Judah written with a pen of iron and with the point of a diamond</i>
Ezekiel III, 9	<i>I will make you a forehead like the hardest stone, (diamond) harder than flint</i>
Ezekiel XXVIII, 13	<i>You were in Eden the garden of god, every precious stone adored you, ruby, topaz, emerald, chrisolite, onyx, Jasper, diamond, turquoise and beryl</i>
Zechariah VII, 12	<i>They made their hearts harder than flint (diamond) and would not listen to the law</i>

Table 8-1: Biblical references

In 1997, the CSO had to deal with a multitude of problems such as the “defection” of Russia, Australia, Canada, and Zaire (as a result of a coupe) from the single marketing channel; the improvement of synthetic diamond manufacturing; and legal inquiries such as those in the US and South Africa into diamond dealings. As the Chinese proverb says “shall we live in interesting times”.

8.2 The Fundamentals

A diamond, as DeBeers’ advertising claims, “is forever”. “Forever”, that is unless a blowtorch is put to it, which would, as a result, make it burn like coal. Nor would a diamond

survive a strike from a hammer, which would make it shatter like glass into hundreds of shards. "Forever" would also exclude a possible collapse of the diamond monopoly held by DeBeers.

The name diamond, comes from the Greek word *Adamas* which signifies invincibility, unconquerable or the master (Lenzen, 1983). Essentially, a diamond is a form of carbon that has crystallised under intense pressure and temperature. Diamonds in their formation stages are structurally unstable when exerted with pressure from the earth's surface (Memmi, 1993). Diamonds slowly revert back to their stable form of graphite, before they can rise to the surface or be extracted. Kimberlite rock which bears diamonds from the depth to the crust of the earth travels to the surface quickly (at around 30Km/hour) in order that the rough diamonds can be preserved (Pollak, 1975). These kimberlite trails are known in the industry as pipes. In their uncut state, diamonds are often rather dull and uninteresting stones.

It is important to note that diamonds, as gems, are not treasured due to the fact that they are scratch proof, or even because they glitter, or are considered an eternal store of value, immune from the vagaries of economic rise and decline (Saldern, 1990). In fact, industry experts claimed that diamonds are plentiful and would be cheap if not for the global cartel operated by DeBeers, which has managed to artificially keep diamond prices up since 1934 (Davis, 1984). It is claimed that diamonds give its bearer the value of an image, thus, a type of social status depicting one's success to those seeing it worn (Suntharothok, 1996). Diamonds are portrayed as the most abiding symbol of enduring love, as a result of a strong advertising campaign by DeBeers from the mid 1930s.

The weight of a diamond is measured in carats. A carat is one fifth of a gram (Epstein, 1982). The word "carat" derives from the carob tree, whose seeds, being regular in weight, were used by merchants to weigh their diamonds in ancient times (Tolansky, 1962). The carat is the universal unit of weight for diamonds. The custom of the diamond trade is to price diamonds in US dollars, so that for rough and polished diamonds the common denomination is US dollars

per carat (US\$/C).

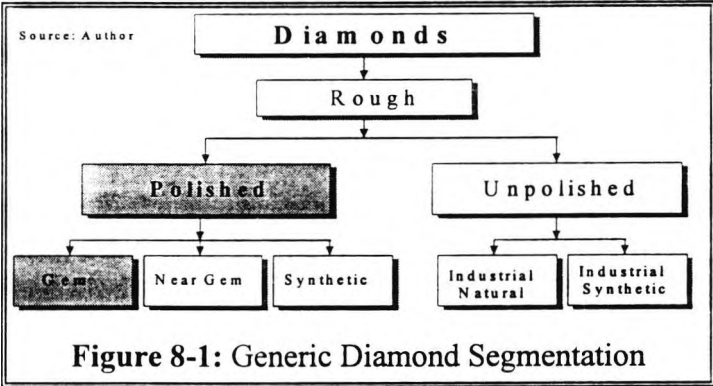
A polished diamond's quality and value are determined by the four C'S (Freedman, 1980): Firstly, *Carat weight*. Large diamonds, are much more valuable than small ones because they are much rarer. This is the reason why a diamond weighing 1 carat will be disproportionately more expensive than two diamonds of similar quality weighing half a carat each. Secondly, *Colour*, is significant. Colourless diamonds are much more valuable than those of a yellowish or brownish hue, the exception is pink, which is extremely rare (Scriven, 1997; Suntharothok, 1996; Szenberg, 1973). Ideally diamond would be without any colour at all. Thirdly, *Clarity*, is important. The fewer flaws, or inclusions the better. A diamond would ideally have no inclusions, or at least none that can be seen under a 10x magnification. Such diamonds are termed flawless, or loupe clean. Fourthly, is the quality of the *cut* or workmanship of the polished diamond.

The diamond market is fundamentally segmented into two main parts based on the diamond value chain (figure 8-6). The first consists of all polished diamonds and the second consists of all the unpolished diamonds. Rough diamonds are extracted from natural deposits, but not yet processed in the sense of cutting and polishing (Green, 1981). Polished diamonds, on the other hand are processed diamonds, meaning cut and polished, in order to bring out the best possible qualities of the stone (Lenzen, 1970).

The polished segment can then be segmented further into three additional segments. Firstly there is the gem and near gem quality segment that the researcher will focus on in this doctorate thesis. Secondly there is the industrial diamonds, a segment that will simply be touched upon, as it is out of the scope of this doctorate thesis. Thirdly, there is a controversial and, in some instances, negligible segment of polished synthetic diamonds, which is deemed out of the scope of this doctorate thesis.

Unpolished diamonds or rough diamonds can also be segmented into two generic

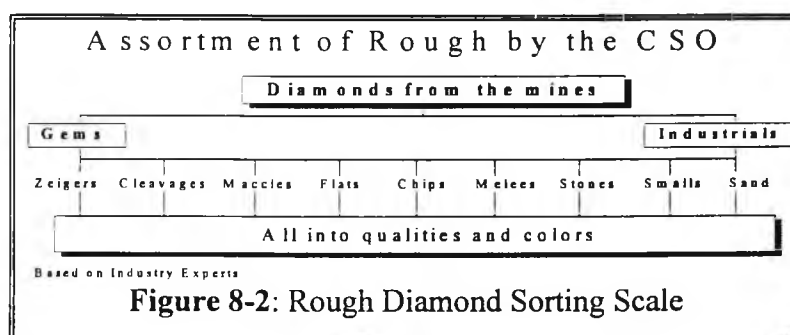
sections. The first of these would be naturally occurring diamonds of low quality known as boart and the second would be synthetic diamonds of low quality made in a laboratory. As a result of the limitations of this thesis, focus will be placed on polished diamonds of gem to near gem quality. The following figure, (figure 8-1) depicts the generic segmentation of the diamond market:



Gem and Near Gem Quality. Diamonds of gem quality are different from most other minerals, in that they are not homogeneous, such as snow flakes (Benson, 1988; Bruton, 1981; Tolansky, 1962). Such diamonds are classified and valued individually (Paribas Capital Markets, 1996; Spar, 1994; Economist, 1992b; Epstein, 1982). Industry experts claimed, in the researcher’s interviews, that different diamonds of the same price are not necessarily tradeable substitutes. Each diamond when looked through under a magnifying glass, has a personality of its own (Spar, 1994; Bernstein, 1992; Freedman, 1980). Thus, unlike other commodity products, such as gold and silver, it does not have a standardised unit price (Spar, 1994; Saldern, 1990). On the other hand, there are those diammantaires who see diamonds as commodities with a fixed price and quantity. This is because one can purchase almost any particular diamond on the 4C scale from almost any diammantaire.

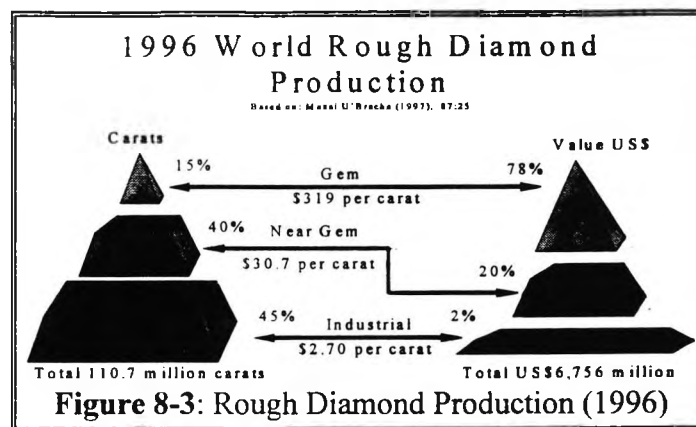
Hence, the service provided, reputation of the actors involved, and price, is the key to any exchange in the diamond industry. Despite the various technical aids, diamond valuation, according to the CSO and the researcher’s observations, is still a highly subjective and a skilled matter (Ghaswala, 1987; Bruton, 1981).

There are over 5,000 sorting categories of rough and polished diamonds (Green, 1981). To be of gem quality, the rough diamond must be above a certain criteria on the 4Cs scale, usually around flat size. The following figure (figure 8-2) depicts an outline of a generic sorting scale of rough diamonds by size:



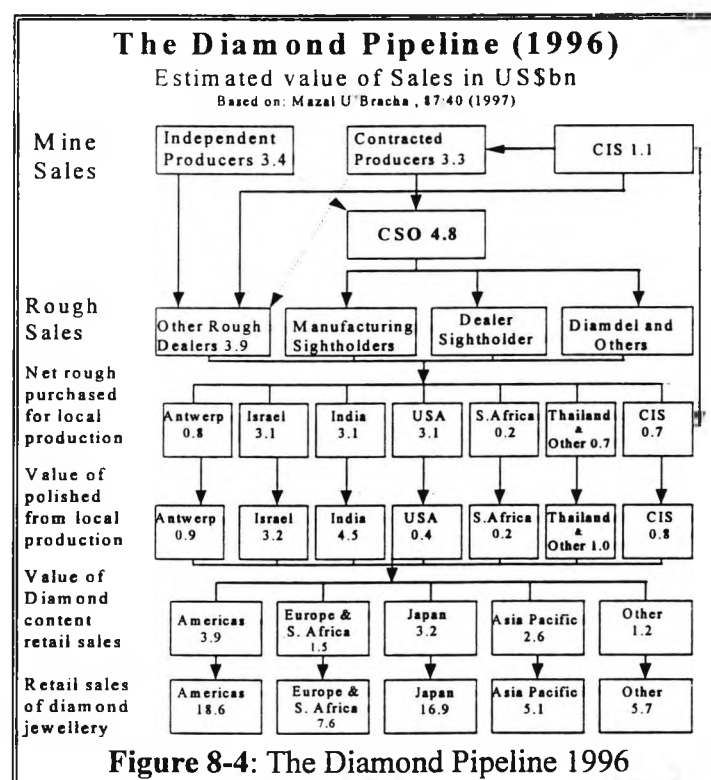
In order to produce a standard brilliant cut polished diamond from a rough diamond, there is normally a loss of just over 50% of the raw material during the shaping and polishing of the diamond (Memmi, 1993; Economist, 1992b; Epstein, 1982). Given the wide variety of diamond cuts, diammantaires in the various cutting centres tend to be specialised. In buying rough diamonds, there is a natural tendency to be as selective as possible (Paribas Capital Markets, 1996). At the same time a diammantaire also likes to have a regular source of supply in order to keep his factories going without interruption. During the researcher's interview, the CSO claimed that if manufacturers were free to pick and choose, the best rough diamonds would disappear and the less saleable would either not be sold or would have to be substantially discounted.

High quality rough diamonds are relatively scarce (Even-Zohar, 1997a). It accounts for 10% of the market for diamonds by volume, but accounts for over 50% of the market value terms. In order not to be left with stocks of unsaleable diamonds, it seems in the diammantaire's interest to sell diamonds in the form of a mixture. The following figure (figure 8-3) depicts the world's rough diamond production in carats and value by the generic segmentation based on figure 8-2:



The diamond industry is characterised by its intricate web-like structure (Hocking, 1973). All parts of the value chain are tightly interlocked with one another and tightly controlled by the DeBeers group. In terms of supply, the six main supply centres are: Belgium, Israel, India, USA, South Africa, and Russia. Then demand for diamonds mostly derives from the US, Europe, Japan, and Asia Pacific.

While diamonds of gem and near gem quality are highly esteemed for many sentimental reasons, diamonds of inferior aesthetical appearance are nevertheless valued for their hardness as well as for their heat conductivity (Fox, 1997; Lee, 1996; Memmi, 1993; Lenzen, 1970). The following figure (figure 8-4) depicts the estimated value of the diamond value chain in US\$ in 1996.



Industrial Diamonds (Natural and Synthetics). Diamonds of low quality in terms of the 4Cs, are categorised as industrial or boart. A diamond is sometimes used in its natural form and sometimes ground into a powder to coat, for instance, cutting disks. Industry experts claimed that industrial diamonds are an essential part for industries that need grinding, grooving, cutting, sharpening, etching, and polishing (Tolansky, 1962). A diamond's hardness can not be matched by any other material and so has numerous applications in industry (Ghaswala, 1987). Its price is fundamentally lower than that of gem quality as depicted in figure 8-4. This is because such diamonds are not considered as scarce and are not as tightly controlled as are gem quality diamonds produced by the single marketing channel of DeBeers (Even-Zohar, 1997a). Their price depends on the market demand and supply function (Saldern, 1990).

Industry experts claimed that, as a result of technological advances, it is possible to make diamonds economically in laboratories (for instance Skokov, 1996; Todd, 1996; and You, 1997). DeBeers claimed, in an interview, that it was unfeasible to create gem quality diamonds artificially. On the other hand, they claimed that it was feasible to create industrial grade diamonds artificially. Industry experts informed the researcher that DeBeers and its associates have been making gem quality synthetic diamonds since the middle 1960s, something which is strongly denied by DeBeers. Due to the fact that this is a highly controversial and delicate matter, the researcher has decided that this area will be out of the scope of this doctorate thesis.

The process of creating a diamond in a laboratory is brought about by exerting a pressure of a million pounds per square inch on graphite, whilst the material is heated to 2500 - 3500 degrees Fahrenheit (Fox, 1997; Lee, 1996; Bruton, 1981). The result, theoretically, would be a 0.5 mm synthetic diamond. During an initial interview at DeBeers, the researcher has been told that DeBeers holds many of the patents for synthetic diamond manufacturing.

Using the word "synthetic" for artificially composed diamonds is not necessarily precise, as synthetic materials by definition are a man-made compound, imitating a natural compound

(Lee, 1996). In the case of diamonds, natural compounds are used, and the only thing that is synthetic is where and how it is created. Synthetic diamonds roughly dominate 80% of the industrial market (Paribas Capital Markets, 1996; Economist, 1992b; Saldern, 1990), but these man-made diamonds, as DeBeers claims, have not yet gained inroads into the diamond gem quality market.

The market for industrial diamonds is characterised by low entry barriers, many non aggregated co-operating producers, and product homogeneity, leading to a highly competitive market (Bullen, 1995; Harel, 1986; Szenberg, 1973). DeBeers does not control the industrial diamond marketing channels (DeBeers annual report, 1996), therefore, industrial diamond prices are on average 10% of those of gem quality diamonds (Even-Zohar, 1997a).

The Main Production Processes of Polishing Diamonds. The main production processes in transforming rough diamonds to polished diamonds, consists generically of the following sequence of operations (Lenzen, 1970): (1) Cleaving; (2) Sawing; (3) Bruting or Girdling; and (4) Polishing.

Cleaving is a technique used mainly for large diamonds and especially for those misshapen ones that unfortunately can not be sawed (Lenzen, 1970). In cleaving, the diamond is cemented to the top of a dop, a brass cup is used to hold the rough diamond and a groove is made by a small pointed diamond set in another dop. A steel blade is placed in the groove and struck with a wooden mallet. In this way, it is possible to trim those portions of the diamond that contain flaws, or to separate a large rough diamond into pieces. This process is quick, yet risky since an ineptly directed blow may fracture or shatter the rough diamond (Shainberg, 1987; Pollak, 1975; Tolansky, 1962).

Sawing is more economical and involves fewer risks (Shor, 1993; Lenzen, 1983; Schumach, 1981). It is the procedure whereby the uncut rough diamond is divided into roughly two halves. During this operation, the rough diamond is secured in a metal dop which is then

clamped into an arm which rests on top of the spinning blade. The disc can saw through a one carat rough diamond in 3 - 4 hours, and throughout this process, 3 - 4% of the rough diamond is lost (Lenzen, 1970).

In the bruting or girdling operation, the corners and edges of a rough diamond are rounded away to give the diamond the desired shape. The diamond is cemented into a dop mounted on a revolving axis. Another diamond set into another dop and attached to the end of a long stick, is pressed against the rotating stone by a bruter (manual or automated). The diamond is thus worn down by friction (Saldern, 1990).

Diamonds are polished using a special polishing technique (Lenzen, 1970). The diamond is set into a dop and held (manually or automated) against a horizontal running disc, called a scaife. The scaife is coated with a compound of boart (industrial diamonds) and oil. The boart wears the stone down, thus forming a flat surface (facet). The position of the rough diamond is reset for the cutting of each facet (Tolansky, 1962). During such a process, the stone loses around 25% of its weight (Lenzen, 1970). The top main facets are polished to begin with then, in turn, the bottom main facets and then the top and bottom corner facets will be polished. Thus, the conventional brilliant or full cut has between 57 - 58 facets (Economist, 1992b; Ghaswala, 1987; Bruton, 1981).

8.3 The Evolution of the Diamond Industry

The Beginnings of The Diamond Industry as it is Today. Rhodes arrived in South Africa in 1871 and went to work with his brother on the DeBeers' diamond mine in Kimberly (Gregory, 1962). After a short but unsuccessful venture into mining, it was discovered that more money could be made through servicing the needs of the miners rather than through the extraction of the diamonds themselves (Pallister et al, 1988; Kvint, 1993; Hocking, 1973). Rhodes initially looked after the miners working in the area, by supplying ice cream and water to offset the heat

of the sun. He soon realised that as a result of the depth of the mines, they would fill up with water in the winter and would therefore need to be pumped dry. Consequently, he bought the only steam pump in South Africa available at that time and shipped it to Kimberly (Jessup, 1979). As a result of the high pumping charges and the limited cash available to the miners, Rhodes started taking stakes in small mines (Pallister et al, 1988; Jessup, 1979; Gregory, 1962). By 1876 Rhodes had gained control of most of the land around Kimberly and merged his interests with those of two other syndicates. This led to the formation of the DeBeers Mining Company in 1880 (Pallister et al, 1988).

Over the years, Rhodes moved to acquire more property interests in the vicinity of Kimberly until 1887, when a stalemate was reached (Roberts, 1987). Another mining entrepreneur, Barney Barnato, had purchased a large number of claims under the name of Kimberly central and was attempting to move to underground mining rather than open pits (Kvint, 1993; Hockings, 1973). Since both entrepreneurs needed the same mine, both actors came to an arrangement of share swapping, instead of going into a bidding war. Thereafter, Rhodes used his control of the diamond market to depress the prices of Barnato's shares, which he bought coercively through subsidiary companies (Pallister et al, 1988; Gregory, 1962). In 1888, Rhodes gained control of Kimberly central and, consequently, a merger between the two companies became imminent.

In 1917, after Rhodes' death, Ernest Oppenheimer arrived in South Africa leading the Anglo American corporation that initially displayed an interest in gold mining (Gregory, 1962). As time progressed Oppenheimer bought shares in DeBeers and was offered a seat on the board of directors. Oppenheimer gradually purchased more shares and with the support of the Rothschilds, was elected chairman in 1929 (Jessup, 1979).

The diamond industry, as it is today, evolved from Rhodes to the ever strong Oppenheimer family whose control of the diamond industry, through various firms such as

DeBeers, the CSO, the Anglo-American company, offshore companies such as Minoroco Ltd., remains legendary (Paribas Capital Markets, 1996; Economist, 1992b).

Jews and Diamonds. The syndicate in London to which Rhodes contracted to sell DeBeers' entire production of rough diamonds in 1893, was made up of 10 firms (Roberts, 1987). All these firms were interconnected by marriage and family ties and all were owned by Jewish merchants (Pallister et al, 1988). The fact that Jewish firms completely dominated the distribution of diamonds at the end of the nineteenth century was not surprising (Szenberg, 1973; Shor, 1993).

For a thousand years, diamonds, gems, and jewellery had been almost entirely a Jewish business. It was a natural enterprise for the Jews scattered throughout central Europe to deal in diamonds, since Jews were money lenders (Harel, 1986). It was one of the few occupations permitted to the Jews and, as a result, they had to concern themselves with assessing, repairing and selling jewellery that had been offered to them as collateral for loans (Shainberg, 1987).

The cutting and polishing of diamonds was one of the few crafts in which Jews were permitted, by the medieval guilds in Europe, to participate (Schnitzer, 1988; Szenberg, 1973). For most Jews during this period, they did not have the choice of dealing with money lending and all that it encompassed. If they desired to have an occupation, it had to be either gem polishing or money lending. In either case, both options dealt with diamonds (Shainberg, 1987).

Jews, as far back as the middle ages, had been attracted to the diamond trade since the diamond routes followed the major cities in which Jews lived (Shainberg, 1987). The Jews were concentrated in cities which were liberal and allowed Jews to cut and polish diamonds freely (Grief, 1989, 1994). Most of these Jews were Sephardic (Spanish and Portuguese) as a result of the expulsion of Jews during the time of the Inquisition (1492) and Portugal (1582).

As far back as the 18th Century, the poorer Ashkenazi Jews, who composed the main workforce, were establishing businesses of their own (Pallister et al, 1988; Pollak, 1975). By the

19th Century, they rivalled and even surpassed the Sephardic Jews in the trade. As Holland was tolerant of Jews and had liberal labour unions, it swiftly became a diamond polishing centre dominated by Jews (Shainberg, 1987). Ethnic conflicts were prevalent as many diamond workers were not Jewish. The largest of these being the conflict on the formation of a trade union movement which had only one Jew among its 200 members (Bruton, 1981).

The competitive nature of cutting and polishing diamonds, and their low transport cost, resulted in diamonds being polished where skills and/or technology were highest or where labour costs were lowest (Spar, 1994; Economist, 1992b; Saldern, 1990). In turn, this led to diamond centres in countries in which not a single diamond was mined (Economist, 1992b).

Diamonds are the most concentrated and easily portable form of wealth known to man (Saldern, 1990; Freedman, 1980). It is an easily transportable means of wealth in case of persecution for instance, one can easily fill a matchbox with over a million dollars worth of diamonds. Hence, the reason why diamonds became a logical means of storing and preserving wealth for Jewish people, who for centuries lived in constant fear of expulsion from their homes (Shor, 1993). This point is at present, highlighted in terms of the connection with the Swiss banks, the Holocaust, and Jewish bank accounts (Tidhar, 1996). Jews who were in fear of persecution by the Nazis put all their wealth into Swiss banks, much in the form of gold and jewellery.

De Beers, Anglo American and the CSO. The DeBeers corporation is only one strand of an intricate corporate web (Economist, 1992b). All firms in the web are tightly interlocked with one another and tightly controlled by their own upper management, as well as by the guiding demands of the Oppenheimer family (Pallister et al, 1988). It seems that ultimate control over all the firms remains firmly in the hands of E. Oppenheimer & Sons, a privately held family concern (Paribas Capital Markets, 1996).

The DeBeers web is a cartel in structure through its single marketing channel in the

global diamond industry (Spar, 1994). This type of market structure arose as a result of actors realising that it was possible to improve their own interests by co-operating. Together it is possible to dominate the market and dictate the price that consumers must pay (Paribas Capital Markets, 1996; Economist, 1992b; Saldern, 1990). The problem in such an arrangement, is the difficulty which lies in maintaining such co-operation (Economist, 1992a). This is because a single firm can increase its short term profits at the expense of the group, as seen in the OPEC case. Fundamentally, a strong core needs to be established to regulate such an organisational structure. This is a fundamental aspect in the gold, uranium, oil, and silver market that have similar market structures to the diamond industry, but depict no collaboration (Spar, 1994). It seems that they lack that strong core.

The Central Selling Organisation (CSO) forms the core of DeBeers marketing hand and the cartel enforcer (Spar, 1994; Economist, 1992b; Pallister et al, 1988). The CSO was formally established in 1934 and based in London, where it has remained ever since (Roberts, 1987). Sales of the CSO in 1996 reached around US\$5bn (DeBeers annual report, 1996). The following table (table 8-2) illustrates the CSO's sales of rough diamonds in value for the last ten years:

Year	Sales (US\$m)	% Change
1986	2.557	
1987	3.075	20.58
1988	4.172	35.67
1989	4.086	-2.10
1990	4.167	1.98
1991	3.927	-6.11
1992	3.417	-12.98
1993	4,366	27.77
1994	4,250	-2.66
1995	4.531	6.61
1996	4,834	6.69

Based on DeBeers annual reports

Table 8-2: Sales of Rough

In order to ensure that the diamond market is managed effectively, DeBeers has a large information gathering organisation that determines which grades and qualities of diamonds are in demand and which are in excess in the market (Paribas Capital Markets, 1996). It uses

information from the market to change the composition of the types and quality of diamonds which it offers to a selected list of diamond dealers at its ten annual "sights". This is so that the market does not become over supplied with any particular type of diamond (Economist, 1992b).

Sights and Sight Holders. On a specific date 10 times a year DeBeers sends invitations to the building at Charterhouse Street in London, which comprises the headquarters of the CSO, to some 250 chosen clients worldwide (Pallister et al, 1988; Jessup, 1979; Gregory, 1962). In pre-sorted "shoe boxes" remain almost all the rough diamonds that will eventually be sold through the CSO as engagement rings and other jewellery to dealers and manufacturers throughout the world (Freedman, 1980). These invitations, called a sight, are where rough diamonds are distributed to dealers and manufacturers. It involves the transfer of a preselected number of diamonds from the DeBeers stockpile to the diamond cutting and polishing industry around the world. This type of marketing is known in the industry as single channel marketing (Economist, 1992b).

There are three main types of sight holders (Bruton, 1981). Firstly, there is a *manufacturers sight* who is not allowed to sell any of the rough diamonds in their rough form. An actor with a manufacturer sight must add value to the diamond, in order to be able to sell it. Secondly, there is a *dealer sight* with the same rights as a manufacturers sight but, in addition, with the option of selling the diamond in its rough form, for instance at cost plus without any added value. Thirdly, there is an *industrial sight*, where low grade rough diamonds or boart are offered mostly for industrial purposes, but some of them find themselves siphoned to the Indian diamond centre for polishing, called Indian goods.

Before each sight takes place, the CSO has to decide how many diamonds of each quality will be distributed in all (Economist, 1992b). Then it decides how this supply will be divided up among the different sight holders. A staff of economists and researchers is employed by the CSO to take stock of crucial indicators, such as the rate of family formation in countries like the US

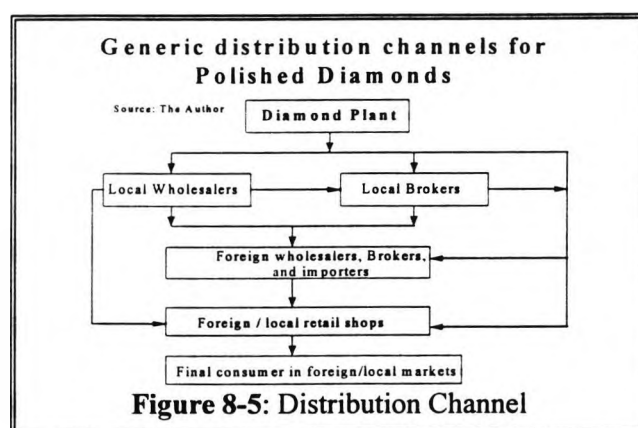
and Japan, economic conditions in each country, and the amount of income after tax that might be available to diamond markets (Davies, 1984). From this data, the demand for diamonds is determined. Next, market analysts calculate the number of diamonds that jewellery stores, wholesalers, diamond cutters, and dealers already have in inventory - in other words, in the pipeline. From this data the quality and quantity of rough diamonds offered is extrapolated, resulting in the aggregate quantity and quality of the rough diamonds which sight holders will find in their "shoe boxes" (Paribas Capital Markets, 1996).

Sight holders receive their rough diamonds through five main CSO brokers in London, who act as intermediaries between the CSO and the sight holders. The five main diamond brokers are: Hennly, Nagel, Bonas, Morgan, and Rothschild, all of which have offices within Charterhouse. Sight holders submit requests to the CSO for the number and types of rough diamonds they want but are, usually under supplied by the CSO (Szenberg, 1973). This, the CSO does, in order to keep the market "starved" for rough diamonds and to ultimately absorb diamonds that find themselves in the market not through the single marketing channel (for instance, via Russia). The quantity supplied to each sight holder is determined by the CSO's view on what are the sight holder's needs (Economist, 1992b). This framework also serves as a way of expressing past loyalty to the CSO (Spar, 1994).

For the major diamond dealers, the objective is to increase the allocation of high quality diamonds that they receive in their allocation at each sight. Since the number of rough diamonds a dealer and manufacturer receives, roughly determines the volume of business, it is the quality and quantity of rough diamonds, which determines profitability (Freedman, 1980). Thus, the allocation of diamonds is a crucial factor in terms of surviving in the diamond business (Paribas Capital Markets, 1996; Economist, 1992b; Shur, 1996).

There are five main rules of conduct with the CSO and its sight holders (Hocking, 1973; Gregory, 1962). The *first* rule is that there must be no dispute over price and the whole

allocation must be purchased, or not at all. If a sight-holder rejects an allocation offered, he may then not be invited to subsequent sites. Only the price of exceptionally large rough diamonds can be negotiated to a certain extent. The *second* rule is that the CSO can change the price of rough diamonds to sight holders at will, without any advance notice (Jessup, 1979). The price that the CSO charges its clients is different between the various clients, but is believed to be usually below the wholesale market price for rough diamonds. The position and profitability of sight holders is presumed to be favourable compared to non-sight holders (Pallister et al, 1988). It is important to note that even when wholesale diamond prices are depressed, sight holders are still expected to pay the fixed price (which may be above the prevailing market prices of the time), as a prerequisite for being admitted to future sights (Saldern, 1990). Thus, in market recessions, sight holders are used as market stabilisers. The *third* rule is that no client may resell the diamonds in their "shoe box" in their uncut form without special consent from the CSO (i.e a dealer sight). The *fourth* rule is that clients will supply DeBeers with whatever information it requires in order to assess the diamond market. The *fifth* rule is that of maintaining external secrecy regarding the doings of the CSO and its affiliates (Spar, 1994; Bernstein, 1992). The following figure (figure 8-5) illustrates the generic distribution channel of polished diamonds:



Pricing in the Polished Diamond Industry. The control over the number of diamonds entering the market has enabled the CSO to maintain an orderly increase in the price of rough

diamonds, since it gained control of the diamond distribution channel in 1931 (Paribas Capital Markets, 1996; Spar, 1994; Economist, 1992b). The following table (table 8-3) illustrates recent conservative estimates of average price increases of rough diamonds:

Date	Average Price Increase %
April 1986	7.5
November 1986	7.0
September 1987	10.0
May 1988	13.5
March 1989	15.5
March 1990	5.5
February 1993	1.5
November 1995	5.0
July 1996	3.0

Source: DeBeers annual reports 1986 - 1996

Table 8-3: Average Price Increase 1986 - 1996

There are basically three types of prices in the diamond industry for polished diamonds, in contrast to rough diamonds: (1) asking price - this is when an actor goes to a diamond centre and asks for information on prices: (2) transaction prices - these are hard to establish as actors may purchase goods on credit and keep the facts of the transaction secret. The transaction prices can vary tremendously; and (3) bid prices - these are also difficult to establish, as actors do not announce how much they are willing to pay in the diamond industry, or even how much they have already paid. Therefore, determining the prices of polished diamonds, for instance, in the Rappaport price list, is not an easy task and highly subjective.

The CSO Marketing Channel. The CSO handles an estimated 75% of world rough production by value (Paribas Capital Markets, 1996). It is based in Switzerland and London and controlled by DeBeers. The CSO fulfils three main functions (Green, 1981). *Firstly*, to purchase rough diamonds from producers and "rogue" dealers. It then markets these rough diamonds through the single marketing channel, taking into account supply and demand functions. *Secondly*, it maintains financial resources to operate a buffer stock mechanism in order to increase stability in the global diamond market (Economist, 1992b; Saldern, 1990; Szenberg, 1973). *Thirdly*, it advertises and promotes jewellery sales of polished diamonds and sales of

industrial diamonds, around US\$200m per annum in 1996.

The CSO claims that no single producer is capable of fulfilling all the requirements of any single cutting centre (DeBeers annual report, 1996). It therefore claims that it has developed an expertise in balancing supply with demand. Furthermore, the CSO claims that it has the financial strength to hold rough diamonds temporarily out of the market in times of over supply (Jackson, 1996; Paribas Capital Markets, 1996; Economist, 1992b). The following figure (figure 8-6) depicts the diamond value chain based on the CSO and DeBeers views of the industry:

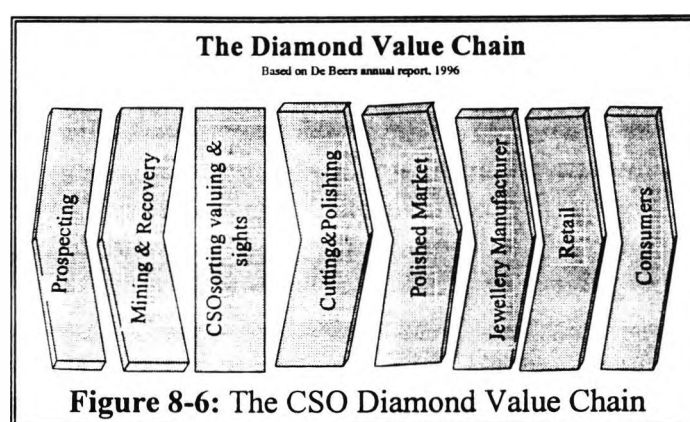


Figure 8-6: The CSO Diamond Value Chain

The CSO is trying to discourage the recycling of polished diamonds which is a common feature, for instance, of the gold market (Spar, 1994; Saldern, 1990). It is partly achieved by the fact that one will buy at the retail price and sell at the wholesale price (Saldern, 1990; Szenberg, 1973). The magnitude of this gap is calculated to be around 400%. Furthermore, the promotion that a diamond is "forever" dissuades the possibility of mass recycling (Spar, 1994). This problem is important as industry experts have calculated that the amount of diamonds in consumers' hands is equal to around 100 years of mining at the present production rates (Paribas Capital Markets, 1996). The possible increases in polished diamond supplies, stemming from recycling and the liquidation of accumulated inventories, are more difficult to control and can occasionally be disruptive to the CSO's supply and demand function. This may bring the CSO supply and demand function out of equilibrium (Szenberg, 1973). In addition, industry experts claim that it seems that one is sentimentally attached to their diamonds. Thus, to get one to

recycle polished diamonds requires a greater price increase than is needed, for instance, with gold and silver before one will part with it (Saldern, 1990). Here lies one fundamental difference between diamonds and other luxury goods, such as silver and gold. Silver and gold generally lack the high sentimental value associated with diamonds (Spar, 1994).

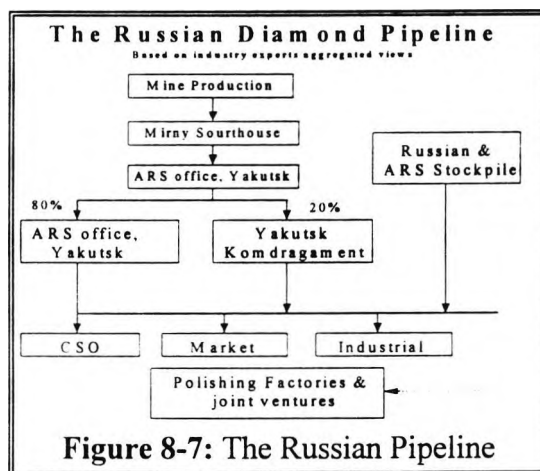
Most diamonds are recycled due to divorces and deaths in the family, and not because of changes in price, income, or fashion and fads (Saldern, 1990). Thus, recycled diamonds represent a steady source of supply which is incorporated into the CSOs demand and supply function (Szenberg, 1973). However, because of the lack of fluctuations and its small magnitude, recycled diamonds do not distort the demand function reached by the CSO (Paribas Capital Markets, 1996; Economist, 1992b).

The CSO regulates the distribution of rough diamonds through long term quasi exclusive contracts with most of the major rough diamonds producers (the Economist, 1992a; Bernstein, 1992). It is ostensibly committed to providing guaranteed cash flow and price stability during periods when demand is weak and, in most cases, producing stability and little incentive or opportunity to defect in times when demand is strong (Spar, 1994). It is generally believed that rough diamond prices would be lower and the market more volatile if the CSO did not exist (Tidhar, 1996). For example, in 1981 (and again in 1997), Zaire decided to market its production of rough diamonds independently. As a result the price of boart, the lowest grade of industrial diamond most common in Zaire, fell from US\$3 per carat to less than US\$1 per carat (1981). Industry experts claim that this was a CSO retaliation.

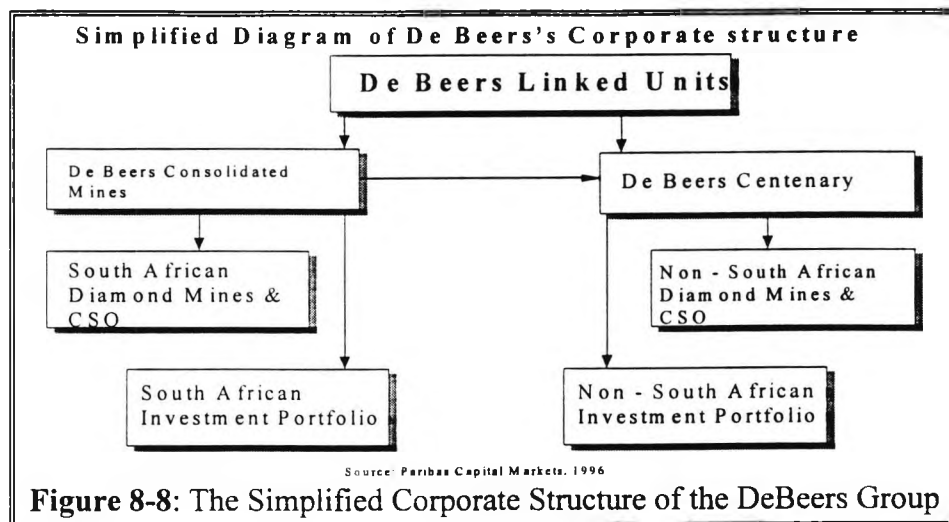
The CSO stockpile, while normally acting as a stabilisation mechanism, can be used to discipline dissident producers attempting to gain market share by defecting from the cartel (Economist, 1992b; Saldern, 1990). On the other hand, the defection of such producers as Argyle (Australia), Zaire, and Yakutia (Russia) should have brought the prices of diamonds tumbling down, but oddly enough it did not (Economist, 1992a). A point that needs to be looked into in

further research.

Russia is a dominant player in the supply side of rough diamonds and a major “rogue” in the eyes of the CSO (Spar, 1994; Economist, 1992b). Thus, the Russian diamond pipeline is important in order to understand the dynamics of the global diamond industry. The following figure (figure 8-7) illustrates the Russian (ARS) diamond pipeline:

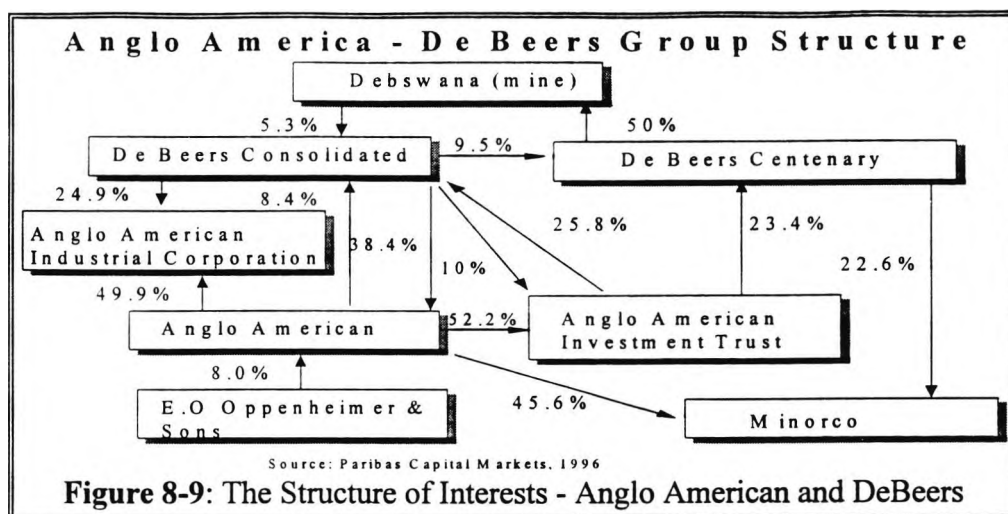


DeBeers. DeBeers has for the most part of its existence operated under a relatively simple corporate structure (Paribas Capital Markets, 1996). The changes in DeBeers relationship with the Anglo American and the inception of the CSO in the 1930s created a more complex structure (Hocking, 1973). In 1990 this relationship was further complicated by the split of DeBeers in to two separate firms, DeBeers Consolidated Mines and DeBeers Centenary (Paribas Capital Markets, 1996; Spar, 1994; Economist, 1992b). This split was considered necessary, due to fears that South Africa would descend into crisis and that the transfer of power from the white minority to a full democratic multi-party state would take years of bloodshed rather than months of relative peace (Jackson, 1996; Economist, 1992b). It was believed that this would lead to the threat of nationalisation and expropriation of key assets. This split effectively left DeBeers' Consolidated Mines owning all of the South African assets and De Beers Centenary, registered in Switzerland, owning all of the interests outside South Africa (Paribas Capital Markets, 1996). The following figure (figure 8-8) illustrates DeBeers simplified corporate structure:



The structure of the CSO constitutes the most complicated part of the DeBeers group (Pallister et al. 1988). This is due particularly to the wide range of different stakeholders in the various trading firms that make up the organisation web. Perhaps one of the most interesting points to note about this is that neither DeBeers Consolidated Mines nor DeBeers Centenary appear to own the majority of shares in any of the major trading firms in the group (Paribas Capital Markets, 1996). Both then, avoid being known as subsidiaries and their corporate structure can, in turn, remain partly concealed (Economist, 1992b). DeBeer's broad spread of investments outside the diamond industry has been regarded by DeBeers as a means of strengthening its earnings and asset base, thereby, enhancing the stability of the diamond trade (DeBeers annual report, 1996).

Founded in 1917 the Anglo American (AAC) has been, and is still, considered as South Africa's premier mining finance house and an essential part of the DeBeers group (Pollak, 1975). It has played a leading role over the years in the development of South Africa's economy (DeBeers annual report, 1995). The AAC is more widely known for its substantial investment in gold and diamonds, but it has increasing interests in firms covering, for instance, a wide range of metals, minerals, steel, pulp and paper, chemicals, food, electronics, and motor manufacturing (Spar, 1994; Bruton, 1981). The following figure (figure 8-9) illustrates a simplified corporate structure of DeBeers and the Anglo - American Company:



Unlike many other actors in dominant market positions, such as Microsoft, which actually produces its own products and then distributes and sells them world-wide, DeBeers does not have full or a dominant control of the international diamond supply (see table 8-8). This is because there are many other producers, such as the Australians, and Canadians, who are not a part of the single marketing channel (Paribas Capital Markets, 1996; Economist, 1992a, 1992b).

DeBeers claims that its fee for carrying out its control and marketing in the diamond industry amounts to around 10% of the price of rough diamonds produced and sold to it by contracted producers (Jackson, 1996; Davies, 1984). This fee is partially used to carry out the firm's massive promotional campaign of around US\$200m a year in 1996 and to maintain its information channels.

These information channels led DeBeers to its understanding of market needs, so that different qualities and sizes of rough diamonds can be released onto the market without overstocking any one type of diamond. In addition, part of the fee is used to finance the stocking of rough diamonds bought by DeBeers, in order to maintain control of the market. Furthermore, Paribas capital markets (1996) claims that DeBeers may be using some of those funds instead of promoting the diamond industry for exploration programmes, to discover new Kimberlites, so that new sources of supply can be found.

It is difficult to determine diamond prices from mine to market because of the secretive

nature of the diamond industry, the individual characteristic of each rough diamond, and various taxation policies (Even-Zohar, 1997c; Economist, 1992b; Saldern, 1990). Looking to the future, there is little doubt that the squeeze between strong demand and falling supply will lead to higher prices in the diamond market and lower margins (Paribas Capital Markets, 1996). The difference between the diamond market and that of any other commodity, is that DeBeers controls over 50% of the potential supply of gem quality diamonds through its diamond mines in South Africa. This means that the firm sets the price for the market, rather than having to accept the free market price for its product (Spar, 1994).

Diamond valuation is a subjective process (Bernstein, 1992). The value of a rough diamond depends on the value of the polished diamonds that can be manufactured from it (Bruton, 1981). Since diammantaires usually cut and polish diamonds differently, the value added in the manufacturing process varies widely (Lenzen, 1970). In contrast to rough diamonds, those polished are valued differently as a result of different estimates of market demand and the ability to detect flaws in diamonds. In other words, a diammantaires experience and professionalism. The following quote from an interview summarises the need for diamonds: "The diamond business is concerned with fulfilling a deep psychological need. Diamonds are pure luxury, offered for the most part as a gift of love, and as a symbol of permanence in human relationships. In some parts of the world diamond also symbolises achievement and success. Many other luxury products such as cars, overseas holidays, and bigger and better houses compete vigorously for market share, but a diamond remains the ultimate gift, to a loved one, or to oneself that lasts forever".

There is little relation between the retail price of polished diamonds and its resale value or manufacturing costs (Jackson, 1996; Spar, 1994; Saldern, 1990; Lenzen, 1970). This maybe, to some extent, because the consumer is ignorant of the valuation process of polished diamonds (Mackay, 1980). In this way, the consumer must, effectively, take the price, which the retailer

charges, for granted. The retail price of the polished diamond itself depends on the retailer's mark-up and the level of demand (Economist, 1992b) which is claimed, by industry experts, to be in the region of 300%. On the other hand, the price of rough diamonds is essentially set by DeBeers. However, strong long term growth depends upon developing new markets for diamonds, such as China and the former Russia republics (Paribas Capital Markets, 1996).

8.4 Diamond Demand

8.4.1 An Overview

Many actors are curious as to why no big diamond producing countries have a significant cutting and polishing industry. Antwerp, Tel Aviv, Bombay and New York, the four big cutting and polishing centres, do not produce a single diamond (Economist, 1992b). The answer lies in the fact that diamond cutting is a fashion business, dominated by small family owned firms with a keen instinct for what the market wants (Dubois and Duquesne, 1993). It is also a business which is claimed to operate on fine margins (Even-Zohar, 1997a; Bernstein, 1992). For instance, if an Israeli cutter loses half a percentage point more of a rough diamond than planned in the polishing process, he may make no profit on that particular diamond (Even-Zohar, 1997c).

An important point to note about the demand for rough gem quality diamonds is the fact that it represents a derived demand (Saldern, 1990). A rough diamond is only required for the sake of its final product. This will effectively be a cut and polished diamond usually set in a piece of jewellery (Pollak, 1975). Polished diamonds are traditionally purchased for three main reasons: (1) adornment and conspicuous consumption; (2) store of value; and (3) keepsake. Generally, several of these motivational factors are present when diamonds are purchased and manifest themselves in products such as wedding related jewellery, luxury jewellery, other occasion jewellery, and loose diamonds. It is important to note that around one-third of all retail diamond sales consists of wedding related jewellery (Paribas Capital Markets, 1996; Saldern,

1990). As a result demand is highly influenced by the number of marriages around the world.

Purchases of luxury jewellery depends primarily on the amount of disposable income available to the customer (Dubois and Duquesne, 1993). The demand for jewellery is affected by the price of related goods, since diamonds compete against or complement other luxury goods, such as gems and fashionable cloths (Saldern, 1990). The consumption of other diamond jewellery, for instance, non-wedding and non-luxury diamond, mainly consists of casual jewellery worn by women and increasingly by men for daily occasions. Investment orientated purchases of diamonds was popular in the late 1970's, when good quality diamonds reached extraordinarily high price levels (Economist, 1992b). During the global recession of the early 1980s, this demand dwindled. and even the most recent price increases have not rekindled the same kind of investment orientated demand as experienced previously (Paribas Capital Markets, 1996). Cut and polished diamonds rarely provide a satisfactory rate of return (Saldern, 1990). Furthermore, in times of uncertainty, diamonds still remain an important medium for capital flight, as they retain their value across international boundaries and are easily transportable (Shainberg, 1987). In general, investment demand can nowadays be described as marginal (Paribas Capital Markets, 1996).

The final level of consumer demand for diamonds remains very difficult to determine (Saldern, 1990). This is not only because of the long product value chain for the production of diamonds, but also because of the loss of diamond during the cutting and polishing process (Economist, 1992b). Therefore, while global diamond production is in the region of 110m carats/year (1996), the level of gem production is approximately under half of this figure in terms of carats, although substantially more in terms of value (see figure 8-3). Given that at least 50% of a diamond would be left on the cutting room floor, saleable cut and polished diamonds are likely to be in the order of 20 - 25 million carats a year (Paribas capital markets, 1996). The following is a short overview of the main demand centres for rough and polished diamonds in

the world:

8.4.2 The Main Demand Centres

The local diamond Exchanges provide the framework within which diamond prices are determined. Thus, the diamond trade is centred mainly around the diamond Exchange (Ghaswala, 1987). Two types of firms operate on the demand side of the diamond industry (Tolansky, 1962). The first is the integrated manufacturer who produces polished diamonds, employs craftsmen in his own plant to saw, cut, and polish diamonds and then sell the finished products. The second, is the subcontractor who produces polished diamonds to specific requirements. He never takes title to the goods which are being processed and is never involved in the marketing of the polished diamonds. On the other hand, such a subcontractor in some cases may also produce goods for his own account (Harel, 1986). The researcher would like to note that there is no operation in the entire fabrication of diamonds that cannot be farmed out to subcontractors.

Belgium. Antwerp began to flourish only in the late 19th century, when Askenazi Jews arrived from central Europe and built the city's diamond Exchange (Bruton, 1981). The city's Jewish population plummeted from 50,000 to 800 during World War II. During that time the fine craft of cutting and polishing diamonds fled Belgium for good (Green, 1981). Twenty years ago Antwerp had managed to attract a full time diamond manufacturing workforce of around 20,000 (Shainberg, 1987).



Towards the end of the 1990s, the entire national diamond manufacturing workforce totals less than 4,000 and is still falling (Paribas Capital Markets, 1996). Industry experts interviewed, claimed that the Belgium centre is almost totally dominated by DeBeers cutters and polishers. Over the years, Antwerp has lost its market position in manufacturing to lower wage cost countries, principally Israel, Russia and India, which aggravated its situation as a cutting

centre even more (Economist, 1992b). The ageing workforce and its declining numbers with high wage costs and the strength of the Belgian franc have made the industry less competitive (Saldern, 1990).

Antwerp is still the world's leading rough and polished diamond dealing centre with regard to foreign trade turnover (Paribas Capital Markets, 1996). There are many industry experts, that the researcher interviewed, who see Antwerp as a source of "laundering" money and "grey" export of rough diamonds. It is believed that bank lending to the sector in Belgium exceeds \$1.2bn a year (1996). The following table (table 8-4) depicts Rough imports and polished exports:

US\$m	1995	1996	1997 (6 month)
Rough Imports	6,263	7,144	3,815
Polished Exports	4,845	5,224	2,519

Based on Rapaport price lists 1995 - 1997

Table 8-4: Belgium Rough/Polished Diamond Imports/Exports 1995-1997

Israel. Since many of the diammantaires in Europe were Jewish, the British mandated territory of Palestine (Israel) became a natural focal point for the displaced industry during World War II (Shainberg, 1987). The birth of the new Israeli industry began in 1939, just on the outset of World War II with the influx of Jews to Palestine (Ami, 1990a). Throughout the 1980's, the Israeli industry has diversified from its role as a major, small low quality diamond manufacturing centre, to become a leading manufacturer of commercial large quality diamonds (Tidhar, 1996). There are roughly 10,000 workers cutting diamonds in Israel (1996), of whom approximately half are in Ramat Gan, a suburb of Tel Aviv (Israeli Ministry of Industry and Trade statistics, 1996).



By the end of the war, Palestine had become the world's largest manufacturing centre for diamonds, in terms of quantity if not quality (Szenberg, 1973). After World War II, the rise of the Palestinian diamond industry caused considerable concern in the more traditional cutting

centres such as Belgium and Holland. Thus, as industry experts claim, DeBeers decided that the only prudent policy for the cartel was to re-establish Antwerp as the world's manufacturing centre. Antwerp was, after all, less than an hour's flight from London and the dealers there had a long history of collaboration with the DeBeers cartel.

Israel has adjusted to low cost competition by focusing on automation and technical skills and is also an important trading and manufacturing centre for other precious stones - notably emeralds. Thus, there is scope for the country to develop as a "one stop" shopping centre for trade buyers. In contrast to Antwerp, the bulk of the Israeli polished sales by value have derived from domestic manufacturing rather than from international sources.

India. India has benefited more than any centre from the global trend in demanding cheaper and smaller diamonds in the past decade (Ghaswala, 1987). Low wage costs, anomalies in the rupee financing system, and access to subsidised finance made Indian goods extremely competitive. Thus, Indian diamond manufacturers were able to offer low prices complemented by very long credit terms to buyers (Paribas Capital Markets, 1996).



Due to a lack of central control of "Indian" goods, prices of these goods, small near gem quality polished diamonds, go up and down like any other commodities (Economist, 1992b; Saldern, 1990). Industry experts claim that the Indian firms, who are accustomed to high volume, low margin and rapid return type manufacturing, may be more satisfied with extracting lower quantity and margins from a rough diamond in comparison to other diamond centres.

Presently, the Indian diamond Exchange is being built at Bandra-Kurla in Mumbai. The diamond Exchange will be a massive structure costing around US\$235m and housing around 2,500 offices of diamond exporters. It will encompass all the facilities required for diamond trade and export based on the Israeli model (information extracted from the Indian diamond Exchange's home page). The following table (table 8-5) illustrates official Rough imports and

polished exports from India:

US\$m	1995	1996	1997 (6 month)
Rough Imports	3,217	3,138	2,273
Polished Exports	6,529	6,384	4,465

Based on Rapaport Price Lists 1995 - 1997

Table 8-5: India Rough/Polished Diamond Imports/Exports 1995-1997

USA. The New York diamond manufacturing industry has specialised in cutting and polishing of large and high quality diamonds (Spar, 1994; Bernstein, 1992). American diamond manufacturers have, over the years, maintained their reputation for quality, service and reliability (Paribas Capital Markets, 1996).



There was a greater emphasis on promoting and marketing of polished diamonds in the New York trading centre (Economist, 1992b). Its aim was to encourage diamond buyers to visit New York and to outflank the competition from Antwerp and Israel. This centre is more geared to selling as opposed to actual diamond cutting and polishing, since the US has the largest domestic market for diamonds in the world (see figure 8-3). The following table (table 8-6) illustrates official polished imports and polished exports of diamonds from the US:

US\$m	1995	1996	1997 (6 month)
Polished Imports	5,334	5,839	3,155
Polished Exports	2,010	2,180	1,162

Based on Rapaport Price Lists 1995 - 1997

Table 8-6: USA Rough/Polished Diamond Imports/Exports 1995-1997

8.5 Diamond Supply

8.5.1 An Overview

With the exception of minor alluvial producers in Western Africa, the mining of diamonds represents a highly capital intensive venture (Paribas Capital Markets, 1996; Economist, 1992b). Consequently, fixed costs represent a large portion of total cost making the supply curve for rough diamonds fairly price inelastic (Saldern, 1990). This is dependent, however, on prices remaining above variable costs otherwise diamond mines would close. This

unresponsiveness of supply to short term price changes is amplified by the fact that the development of new diamond mines requires a substantial lead time so that the investment decision is based more on long rather than short-term trends (Pallister et al, 1988).

It is claimed, that the production beyond the turn of the century depends upon four distinct factors (Paribas capital markets, 1996): (1) the *state of the global economy*. As any recession will undoubtedly lead to swings in the demand for diamonds leading to the possible re-imposition of the CSO production quotas on rough diamond production; (2) *the political and economic situation* in Russia and South Africa would be a significant factor, as this will determine how quickly the remaining and undoubtedly rich potential of the country's natural resources will be utilised; (3) the decision to be announced by Argyle as to whether it will proceed to *underground mining* or cease production at around the year 2003; and (4) the success of the *exploration* carried out around the world is a fundamental point in terms of future sources of supply.

It is thought by industry experts, that notwithstanding the new mines in Canada, the future diamond supply is on a declining trend (Saldern, 1990). This is related to the downturn in output in Australia and Russia which will potentially more than offset new Canadian Production (Paribas Capital Markets, 1996). Further increases in production will come mainly from the sea (DeBeers annual report, 1996). In contrast, synthetic diamonds are more abundant than in the past and it is believed that this trend will continue (Jackson, 1996). As a result of the claimed high costs to produce gem quality diamonds at present, its production is not feasible, but in boart or industrial quality it is economical. DeBeers is investing millions of dollars in R&D and intellectual property right to further the process of manufacturing synthetics (DeBeers annual report, 1996).

By announcing non-negotiable prices and manipulating supply and demand through stockpiling and advertising activities, the CSO acts as a global price setter and not a price taker

(Economist, 1992b; Saldern, 1990). While the CSO, in effect, guarantees minimum revenues to the producers and thus significantly reduces their downside market risk, it also retains the right to enforce production quotas and increase the indirect fees it imposes on manufacturers, for instance, the global, generic advertising fee for polished diamonds.

Botswana, Russia, South Africa, Angola, Namibia, Australia, and Zaire are the top seven diamond producing countries, accounting for more than 80% of the world's rough diamond supply by value (Bullen, 1995). Diamonds are also mined in Brazil, China, Ghana, Guinea, India, Indonesia, Ivory Coast, Liberia, Sierra Leone, Tanzania, Venezuela and Zimbabwe (DeBeers annual report, 1996), but these are relatively small mines and will not be addressed in this doctorate thesis.

8.5.2 The Main Demand Centres



South Africa. During the 1870s and 1880s the Northern Cape of South Africa experienced an unprecedented rush to the newly discovered diamond fields (Gregory, 1962). The first mine to be operated by DeBeers, and which was really the foundation of DeBeers, was the mine at Kimberly in the Northern Cape Province of South Africa in 1871 (Hocking, 1973). Soon the terrain was transformed into a landscape of pits which became deeper and deeper, as diggers dug their way into the rock which they knew contained diamonds. Eventually, claims literally collapsed into one another as a result of over crowding, and the mines grew larger (Pallister et al, 1988). From this rush, only two firms emerged as dominant in the area: The Kimberly Central Mining Company and the DeBeers Mining Company, which had been named after the DeBeers brothers, on whose land the first diamond rush had taken place (Economist, 1992b).

The consolidation of the two firms in March 1888 resulted in the creation of DeBeers Consolidated Mines Limited (Pollak, 1975). The amalgamation of these two mining firms is claimed to have made it possible to design and conduct mining operations systematically and

economically ever since. Furthermore, it laid the foundation of the principle of the single channel marketing, which existed then through what was known as the "London Syndicate" (initially named the Diamond Trading Company and then renamed the Central Selling Organisation).

Since then, many mines have been in operation, although the level of reserves are now deteriorating as a result of over mining (Economist, 1992b). The most recent mine to have been brought to production, is the major Venetia mine. The massive cash flow generating potential of diamond mines, has been displayed by the ability of DeBeers to recoup all of the capital outlay on the deposits, in a relatively short time (DeBeers annual report, 1996). At present, according to industry experts, DeBeers diamond mines in South Africa are operating below their capabilities (Paribas Capital Markets, 1996). The main mines are Finsch, Premier, Kimberly, Namaqualand, Venetia, and Koffiefontein. DeBeers Marine has increased its activity in offshore drilling and recovery methods.

Russia. Many claim that the world's "ignorance" of Russia is still based on the misinformation that was drummed home in endless news bulletins about the errors of Communism (Paribas Capital Markets, 1996; Economist, 1992b). It seems that Europe and the US are still, to a large extent, distrustful of anything that is Russian (Even-Zohar, 1997a).



Diamonds were first discovered in Russia in the Yakutia region (1829). However, it was the need for locally produced diamonds during the Second World War that encouraged the beginning of active exploration in the early 1940's (Economist, 1992b). Russia is one of the worlds largest diamond producers (miners) of rough diamonds and has been, as experts claim, the source of much of DeBeers "thorn in its side" in the past few years. This has arisen because of large and uncontrolled sales from the country's rough diamond stocks and as a result of it not adhering to the cartel's regulations.

One of the problems with the analysis of the Russian diamond industry is that there is very little information published and very few officials willing to be interviewed (Paribas Capital Markets, 1996). This is thought to be because diamonds remain under the control of the state. All production and reserve information is deemed to be a state secret which is supplemented by the natural tendency of the industry to concede information, leading to its scarcity (Even-Zohar, 1997a).

The first contract between the USSR and the DeBeers group was signed in 1959 and covered the export of all the country's gem quality diamonds. This contract lasted until 1963 when the highlighting of apartheid and the USSR's desire to cultivate African relationships forced it underground (Hocking, 1973). Contracts were later re-negotiated through an English company, namely City - West East in 1976 (Pallister et al, 1988). The Russians could then sell to an English firm which had no apparent connection to DeBeers, except a contract to supply the CSO with diamonds that it bought from the USSR. This enabled the USSR to claim that it had no trade agreements with any South African companies.

On July 1990 the Russians and DeBeers completed their negotiations on a new diamond sales agreement. Unlike previous agreements, this was to last for five years, from the first of January 1991 to the 31st of December 1995, and was accompanied by a US\$1bn loan from the DeBeers group to the country (Paribas Capital Markets, 1996). The contract was then extended for another year and then terminated at the end of 1996 as a result of leakages, estimated at over US\$1bn. The situation was further aggravated by Russia supplying low quality rough diamonds to the CSO through the trade agreement (DeBeers annual report, 1996). For a whole year no agreement existed between DeBeers and Russia until the 27th of July 1997, when an agreement was finally signed. The agreement approved of the continued co-operation between the two giants. In it, Russia agreed to sell around US\$500m worth of rough diamonds a year, through the CSO, at a mutually agreed price.

Almazay Rossil - Sakha (ARS) manages and operates Russia's diamond mines (Economist, 1992b). Almazay is the anglicised version of the Russian word meaning diamond in its rough state. The other key players in the Russian diamond industry are the Ministry of Finance and the Ministry of industry. As the Russian diamond structure is constantly changing, it is hard to determine who will be the dominant actors in the future (see figure 8-7). In order to aid funding requirements, ARS has appointed National Westminster Bank to lead a new US\$500m facility (1996). It is suspected by many in the industry that the loan would be difficult for National Westminster to organise until the sales agreement or relationship with the CSO is resolved (Paribas Capital Markets, 1996). Without the agreement, it is thought that ARS will not be able to guarantee sufficient value cash flows to service the loan. Thus, until the facility is arranged, industry experts claim that ARS's mining capability will continue to deteriorate (Economist, 1992b).

The Republic of Yakutia is the main source of the bulk of Russia's rough diamonds, comprising most of the country's production. The most important mines in Yakutia are the Mir, Zarnitsa, Aykhal, Internationalnaya, Udachnaya, and Sitykanskaya mines.

Canada. For years, analysts have predicted that Canada will eventually play an important role in diamond production (Economist, 1992b). In spite of this optimistic outlook, no diamonds have been commercially mined to date. On the 5th of November 1991 Dia Met Minerals announced that it had discovered 81 small diamond deposits in the frozen area of Quebec. At present there are five main pipes that are included in the mining plan. Dia Met Minerals and its partners have announced that DeBeers will not succeed in winning the contract for the CSO in Canada (Paribas Capital Markets, 1996). Thus, Canada has joined the ranks of Australia in opting out of the CSO's single marketing channel. It was presumed that the Canadians consider this to be an important point as a result of the US Anti trust laws and its bad experiences, in the past, in collaborations with DeBeers (Spar, 1994).





Angola. Apart from Russia, Angola has been another problematic country for the CSO. This is due to the high quality and value of the rough diamonds mined in the country. This is as a result of the wide fluctuations in the export of rough diamonds as a result of the country's instability. This was in response to the 20 year old civil war which has enabled illegal diamond smugglers to continue digging and trading without control (Paribas Capital Markets, 1996).

Angola in 1997 was forecasted to produce two million carats of gem quality diamonds annually (Israeli Ministry of Industry and Trade statistics, 1997). The high levels of illicit exports and imports to Antwerp and Amsterdam have succeeded in destabilising, to an extent, the CSO's single marketing channel (Paribas Capital Markets, 1996). DeBeers has difficulties in restricting this illicit exports and imports of diamonds as a result of the large number of small firms and actors involved. These small exporters can find relatively large quantities of diamonds in river beds which they sell on to smugglers, and which then find their way into Belgium (Economist, 1992b).

The illegal prospectors as of 1994 have been claimed to be under control (DeBeers annual reports, 1996) and this has brought some order and stability to the diamond industry in Angola. Some of the most promising areas, which have hardly been explored, are the country's "six kimberlite regions". Among the first foreign mining companies to exploit Angola's vast high-quality diamond resources since the 1994 peace agreement, is the Canadian company Diamond Works (Paribas Capital Markets, 1996).

Zaire (Congo). Diamonds were first found in Zaire in 1907 but commercial production did not commence until 1913 (Economist, 1992b). Little is really known about the current state of the diamond industry in Zaire (Bullen, 1995). This is hardly surprising, considering the wide ranging political and economical problems plaguing the country (Paribas capital markets, 1996). Most of the diamonds mined in Zaire are of industrial quality, better



known in the industry as boart and only about 5% are of gem quality. Most of the diamonds are mined in the central Kasai region by small scale diggers. Diamond mining is the country's third largest export (Economist, 1992b). Zaire is less of a problem for the CSO than Angola, which does not extensively control the flow of industrial diamonds.

Australia. Australia is the world's largest diamond producer by carats, but a low value mine in monetary terms (Economist, 1992b). The initial discoveries that led to the development of the Argyle mine in the Kimberly region of Western Australia were made in 1978. The mine started production in 1985 with a forecasted life expectancy of 20 years (Paribas Capital Markets, 1996). The overall quality of the diamonds is low and they have either a strong pink or brown hue. This has been utilised by the promotion of Champagne and Cognac polished diamonds to describe the colour of some of the diamonds produced (Even-Zohar, 1997a).

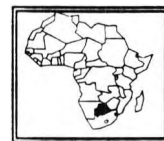


On the 30th of June 1996, Argyle pulled out of the CSO single marketing channel mechanism, in the hope of increasing its profit margins (DeBeers annual report, 1996). It was thought that it could be possible to achieve higher revenues per carat by virtue of not having to subsidise its low quality production from its higher grade output. In addition, Argyle will not have to "suffer" the 10% effective commission charge that the CSO extracts for carrying out the marketing of the Argyle rough diamonds. Argyle represented some 6% of the CSO's intake of rough diamonds in 1996 (DeBeers annual report, 1996).

Namibia. Namibia is highly dependent on rough diamond exports and does not have any diamond polishing facilities in the country (Economist, 1992b). In 1994 Namibia and DeBeers reached a production agreement in which the two sides entered into a 25-year partnership giving the Namibian government a percentage of pre-tax distribution profit (Paribas Capital Markets, 1996). Thus, all Namibian rough diamonds are channelled through the CSO. The three main mines are, Auchas, Elizabeth Bay, and Channels. Namibia is rich in



marine mining and vast resources are invested in this through the DeBeers group who is claimed to have the necessary technology (DeBeers annual reports, 1994, 1995, 1996). Diamond smuggling is still a major problem for Namibia, but is kept under tight control (Economist, 1992b).



Botswana. Botswana is heavily dependent on rough diamond exports for its economic survival (Bullen, 1995). Botswana is the world's second most important producer of gem quality diamonds, accounting for around 25% of world sales of gem quality rough diamonds by value (Paribas Capital Markets, 1996). Diamond exports account for about 60% of the governments revenues and 70% of its foreign exchange (Bullen, 1995). Debswana, a joint venture between DeBeers and the government of Botswana operates three mines: Jwaneng, Orapa, and Ltlhakane. Thus, all Botswana's diamonds are channelled through the CSO (Economist, 1992b).

Others. As a result of the many diamond producing countries and the limitations of this doctorate thesis, some diamond producing countries will not be discussed such as (based on DeBeers annual reports, 1996) China (estimated at 1m carats per annum, 1997), Ghana (estimated at 300K carats per annum, 1997), Guinea (estimated at around 130K carats per annum, 1997), Indonesia (estimated at around 50K carats per annum, 1997), Ivory Coast (estimated at around 200K carats per annum, 1997), Sierra Leone (estimated at around 300K carats per annum, 1997), Tanzania (estimated at around 100K carats per annum, 1997), Venezuela (estimated at around 500K carats per annum, 1997), and Brazil (estimated at around 350K carats per annum, 1997). The following table (table 8-7) summarises the major diamond producers:

Producer	CSO	Comments	Factories
Australia	No	Cheap industrial goods partially sold through an Argyle sales office in Antwerp. CSO handles 75-80% of its production. The cutting and polishing factory in Perth is very small and specialised. Large, low value production requiring buffer stock management.	1
Canada	No	For years, analysts have predicted that Canada will eventually play an important role in diamond production. In spite of this optimistic outlook, no rough diamonds have been commercially mined to date (1997).	0
Zaire	Yes	Large, low value production requiring buffer stock management and market intervention.	0
Botswana	Yes	The country is dependent on diamond mining. Mutual co-operation between DeBeers and Botswana.	3
Russia	Yes	Believed to be the largest producer by value. CSO has an exclusive contract for rough diamond exports and holds rough collateral against an outstanding \$1bn loan advance. 5% of rough exports are sold by tender to invited dealers. There is a substantial local cutting industry. CSO probably handles over 50% of Russian diamond production but owing to Russian secrecy this is difficult to verify. Over US\$1.5bn in hard currency enters Russia as a result of diamonds. Diamonds are a priority industry. Long established CSO links.	9
S.Africa	Yes	Historical and pivotal role of DeBeers in diamond mining and trading in South Africa; significant growth in production is expected with the new Venetia mine coming on stream.	20+
S.America	No	Fragmented Brazilian, Venezuelan and Guyanese alluvial production. Extensive smuggling. Small cutting industry in Brazil. Independent marketing is the norm, but government wishes to stem high fiscal losses through illicit diggings.	10+
Angola	Yes	Endiama operates a sales agency in Antwerp. CSO probably handles around 70% of total production, if extensive smuggling is taken into account. Needs technical assistance and capital to develop diamond deposits; intervention against smuggling has been implemented.	0
Namibia	Yes	The country is dependent on diamond export revenues; long established DeBeers investment in Consolidated Diamond Mines; needs assistance in developing deep sea marine production	0

Based on: The Economist (1992b)

Table 8-7: Major Diamond Producers: Marketing Arrangements

To conclude, the goal of DeBeers and its Central Selling Organisation as illustrated in their annual reports, is to restrict the number of rough diamonds released on to the market in any given year, thus, to perpetuate the illusion of diamonds as a scarce and valuable commodity. These control mechanisms include official price lists, production quotas and a central distribution network which, according to Spar (1994), keeps prices and demand high even though overall diamond supplies are growing. The following table (table 8-8) summarises the global production of gem and near gem rough diamonds (excluding industrial diamonds):

Country (US\$m)	1992	1993	1994	1995	1996
Angola	1,100	130	270	2,700	3,600
Australia	18,100	18,800	19,500	18,300	18,897
Botswana	11,200	10,300	10,550	11,500	11,000
Brazil	653	1,000	300	700	700
Central Africa Republic	307	370	400	400	350
China	200	230	230	230	230
Gabon	400	400	400	400	400
Ghana	104	106	118	126	125
Namibia	1,520	1,120	1,312	1,382	1,300
Russia	9,000	8,000	8,500	9,000	9,250
Sierra Leone	180	90	155	113	162
South Africa	4,600	4,600	5,050	5,070	5,360
Venezuela	302	145	203	229	230
Zaire	8,930	2,010	4,000	4,000	3,000
Other	305	277	463	608	813
Total	56,000	47,600	51,400	54,800	55,400

Based on: Based on Rapaport September 5, 1997 & Israeli Ministry of Industry and Trade statistics

Table 8-8: World Production of Gem and Near Gem Diamonds

It is believed, by industry experts, that the diamond market will soon be squeezed between a slow decline in output and rapidly increasing demand from the "Tiger" nations. These countries were becoming the powerhouse of the world economy (Chen, 1995). The huge populations in the Tiger economies were believed to provide significant scope for continued growth in diamond demand into the next century. Furthermore, the recession in the US and Europe in the early 1990s, world demand for diamonds, led by strong Far Eastern demand outside Japan continued to climb. Although present indicators illustrate otherwise, industry experts and diammantaires were adamant of the view above.

9. Case Study Two: The Evolution and Limits to Trust - The Case of the Israeli Diamond Industry

"When one recalls the centuries-old link between Jews and diamonds one should not be surprised that Israel has become the world's foremost diamond producer. The Jewish scientific mind and commercial ingenuity have found their expression in the country's diamond industry in the most admirable way." Israeli's President Katzir at meeting of the board of directors of the Israeli diamond Exchange (March, 1976):

9.1 An Overview

Social Capital. Trust and reputation are important areas to research as it is viewed as an important concept by academic researchers, business practitioners and consultants (Hosmer, 1995) in facilitating successful exchange. Trust and reputation are an essential part of all socially embedded exchange relations (Sitkin and Roth, 1993; Gulati, 1985) and so is an essential part of this thesis. It is one mechanism by which actors may reduce the complexity of exchange through the market. It may enable actors to mutually establish specific expectations about future behaviour of others, especially when high levels of uncertainty exist. However, one must remember that it has limitations (Sitkin and Roth, 1993). It can break down after repeated abuses. Its holistic quality enables actors to continue to recognise fundamental breaches, that can change trust to mistrust over time (Uzzi, 1997; Chen, 1995).

Social capital, in exchanges, can be a source of competitive advantage (Fombrun, 1996). For instance, the primary outcome of social capital is that it promotes access to privileged and difficult to price resources that enhance competitiveness (Bernstein, 1992). Therefore, it is important because it increases an actor's access to resources and may strengthen one's ability to adapt to unforeseen circumstances that may be difficult to achieve through arm's length ties (Uzzi, 1997). It is therefore not the presence of trust that is distinctive in the Israeli diamond industry but, rather, the depth and nature of its social embeddedness (Bernstein, 1992; Spar, 1994).

It seems that social capital is presently being more extensively, and intensively, researched than ever (Barney and Hansen, 1994; Nooteboom, 1996; Fombrun, 1996). The increasing interest coincides with the increasing global interest in the proliferation of various forms of co-operative economic exchange between firms (Khanna et al, 1998; Ring and Van de Ven, 1992). Since the inception of the Israeli diamond industry, Israeli diammantaires have been faced with dynamic and complex environments (Spar, 1994; Bernstein, 1992; Benson, 1988). Trust can play a critical role practically in every stage of exchange in the diamond trade. The role of trust is fundamental in facilitating exchange in the Israeli diamond industry but, on the other hand, it may have critical limitations as will be illustrated in this chapter. This chapter builds a framework based on the Israeli diamond industry that explains the dynamics of trust in exchange. This framework is based on a mixture of field and desk research; and encompasses disciplines such as management, sociology, law, and organisational theory.

Kramer and Tyler (1996) claim that in many instances, exchange occurs among actors who have a long history of exchange and who operate within a stable social network. Hence, social networks such as in the Israeli diamond Exchange can exert formal and informal control over one's behaviour, making untrustworthy behaviour costly (Choi et al, 1995). Social capital is built over time and deteriorates if not utilised often enough (Kramer and Tyler, 1996; Fombrun, 1996). It is based, to a large extent, upon the quality of past relations (Gulati, 1995), making the historic co-evolution of organisational behaviour and organisational structure highly interlinked and relevant in illustrating the formation of trust and its limitations in the Israeli diamond industry.

Jews and Diamonds. Jews and their connection to diamonds originated from their exile to Babylonia, which followed the destruction of the First Temple (586 BC). It marked the beginning of the Jewish Diaspora. There, Judaism began to develop a religious framework and a way of life outside the land of Israel (Shainberg, 1987). Survival and spiritual identity,

complemented by teaching of norms and values with sufficient vitality, was a fundamental part to maintain the Jewish identity. Those centres scattered globally became socially linked through intermarriage, family ties, emergent trust, mobility and trade (Grief, 1989, 1994).

Following the various expulsions of Jews from the Land of Israel, the Jews were dispersed to other countries, mainly in Europe, North Africa, and the Middle East (Szenberg, 1973). Over the centuries, they established many large Jewish communities all over the world. They experienced long periods of growth and prosperity. On the other hand, they were also subjected, at times, to harsh discrimination, brutal programs and expulsion. Each wave of persecution and violence strengthened the Jews' identity and ability to adapt to dynamic environments (Shainberg, 1987), thus, making them highly networked survivors and relatively united people stemming from a type of herding process emanating from the continuous uncertainty in their environment (Schelling, 1978).

In addition, discrimination led many Jews to the belief in the concept of the ingathering of the exiles, and inspired actors to return to their ancestral homeland of Israel (Harel, 1986). Hence, the Zionist movement, founded at the end of the 19th century, transformed the concept into a way of life. The state of Israel translated it into law, granting citizenship to every Jew wishing to settle in the country (Caiden, 1970). For instance, an Israeli diamondaire claimed in an interview: "With the help of the Israeli government we immigrated to Israel. It took us several years to integrate into Israeli society ... as now we have become Israelis, it is only natural that we in turn should help in the absorption of newcomers".

For a thousand years, diamonds were almost entirely a Jewish occupation (Spar, 1994; Bernstein, 1992). It was not out of choosing. It evolved from the fact that cutting and polishing of diamonds was one of the few crafts that Jews were permitted to participate in, by the medieval guilds in Europe (Shainberg, 1987). For most Jews there was no choice in those days but to deal with money lending and all that it encompassed (Grief, 1994). If a Jew wanted an occupation, it

had to be either gem polishing or money lending. In either case, both options dealt with diamonds.

As money lenders Jews dealt with assessing, repairing and selling diamonds and jewellery that was offered as collateral for loans. The importance of the diamond trade is illustrated in the following quote from an Israeli diammantaire in the researcher's field work: "Even at the age of 14, it was quite clear to me that I was going into diamonds. On completing secondary school, I started working in our family enterprise. One year later I started studying economics for the sake of an academic education, but I soon found out that work in diamonds could not be combined with university studies. I gave up the latter to devote all my time and efforts to diamonds".

Jews accommodated successfully the trade in polished diamonds (Green, 1981). The trade in polished diamonds was fundamentally important for a Jew's survival as diamonds are the most concentrated and easily portable form of wealth known to man (Freedman, 1980). Thus, it is an easily transportable means of wealth in case of prosecution (Shainberg, 1987). For Jews, who lived for centuries in constant fear of expulsion from their homes, diamonds became a logical means of storing and preserving wealth. The fact that Jews were globally scattered and highly networked, added to their probability of business success in the diamond trade (Grief, 1989, 1994).

Israel and Diamonds. The competitive nature of cutting and polishing diamonds, augmented by its low transport cost, resulted in it being cut and polished where skills and/or technology were highest or where labour costs were lowest (Economist, 1992b). This fact utilised efficiently the Jewish skills and networks. Hence, it led to the formation of diamond centres in countries where not a single diamond is mined, such as India, Belgium and Israel.

It seems that the clustering in a single geographic location was a critical factor for the formation, evolution, and the global success of the Israeli diamond industry (Szenberg, 1973).

The many small Israeli diamond firms benefited from economies of scale and scope as a result of the formation of this dense geographic cluster. The Israeli diamond Exchange consists essentially of a trading floor and office facilities, complemented by offices, governmental agencies, shipping facilities, insurance, legal and accounting services, banks, restaurants, travel agencies, and gemological laboratories, all under one roof. Israeli diammantaires claimed it was thought that as a result, polished diamond buyers globally would be lured more strongly by the prospect that, within a single, secure environment, one could purchase all that one needed. Furthermore, the researcher noted in his research that a diammantaire can complete all other business procedures around exporting diamonds for instance, evaluating and insuring the diamonds, without leaving the Israeli diamond complex.

Geographic organisational clusters are a pervasive phenomenon that offer firms, industries and locations important advantages (Krugman, 1996b; Pouder and St John, 1996). Chiles and Meyer (1997) claim that very little is known about how they emerge. Despite the important advantages geographic clustering offers, it has been neglected by economists, business strategists and organisational theorists. Without the knowledge of how the Israeli diamond industry emerged, the researcher believes that it becomes difficult to provide valid strategic advice to those clustered firms and build a coherent picture of the evolution of trust in the Israeli diamond industry. It seems from the researcher's field work that there are many Israeli polished diamond exporting firms that are in need of such advice.

The researcher would like to note that organisational structure and behaviour, such as trust and reputation, evolve and change over time. The shift from one type of trust or organisational behaviour to another, may require a change in the relationship and structural framework of the industry and the institutions within it (Kramer and Tyler, 1996), thus, the evolution of trust in the Israeli diamond industry was segmented into six chronological stages illustrating six distinct models of trust corresponding to structural de/evolution of the Israeli

diamond industry, as illustrated in the following figure (figure 9-1):

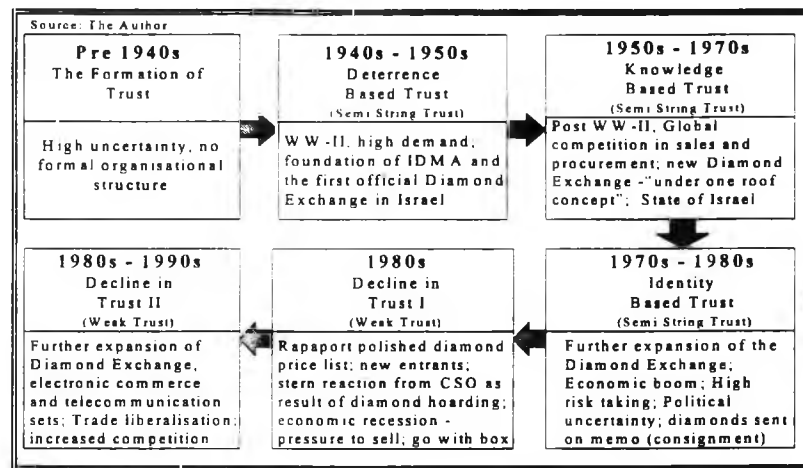


Figure 1: The Evolution of Organisational Behaviour/Structure

9.2 The Formation of Trust (Pre World War II)

New linkages and high uncertainty require actors to move away from the more traditional hierarchical forms of exchange and move towards networks and alliances, which are more socially embedded (Kramer and Tyler, 1996). These new forms are designed to be more responsive to rapid change, enable entrepreneurial activity to flourish and increase the effectiveness of communication and problem solving across, and within, organisational boundaries (Uzzi, 1996, 1997). Thus, socially embedded linkages illustrated in the Israeli diamond industry are, to a large extent, the result of years of racial discrimination and expulsion of Jews from their place of residence leading to high levels of economic and social uncertainty.

Following the expulsion of Jews from the Land of Israel, the Jews were dispersed to other countries, mainly Europe, North Africa, and the Middle East (586 BC). Over the centuries, they established many large highly networked Jewish communities all over the world (Grief 1989, 1994; Kotkin, 1992). They experienced long periods of growth and prosperity, but were also subjected at times to harsh discrimination (Shor, 1993). Each wave of persecution and violence against the Jews strengthened their belief in the concept of the "ingathering" of the exiles, and inspired them to return to their ancestral homeland of Israel (Shainberg, 1987), thus,

advancing the Jewish sense of community and instincts for survival (Mannheim, 1984).

The idea of developing the diamond profession in Palestine first emerged among Zionists from Belgium and Holland, in the very early twentieth century (Harel, 1986). Following the pogrom in the Jewish community of Kishniev and the riots in Russia (1905), the Zionist Congress sought ways to help the “Jewish orphans”. Hence, the development of the diamond industry in Palestine (Shor, 1993; Shainberg, 1987). The researcher would like to highlight that in the twentieth century the Palestinian diamond industry was tiny, isolated, and unattractive to the world markets (Freedman, 1980).

In this stage of the evolution, Palestinian diammantaires herded together as a result of the high uncertainty of daily life in Palestine. The Israeli, formerly Palestinian, diammantaires interviewed who were active at the time claimed in interviews that, in those days, if they did not help themselves and each other, no one else would, a type of altruistic behaviour. At the time, the Palestinian diamond industry relied heavily on family ties to market their polished diamonds (Spar, 1994; Bernstein, 1992). In the researcher’s field work many Israeli diammantaires claimed that their initial success in the diamond industry was attributed to global and highly networked family ties. Furthermore, it was claimed that trust violations were dealt with, within the family. If a Palestinian diammantaire misused trust he/she may be socially/religiously shunned, shamed and even, in extreme cases, taken to arbitration and/or court (Bernstein, 1992; Benson, 1988).

The homogeneous characteristics of Jewish diammantaires did not require a long history of exchange to build a mutual understanding and trust. The informal mechanisms of Jewish life and the interdependence was, to an extent, a guarantee of trustworthiness. For instance, an Israeli diammantaire claimed in an interview: “Being an observing Jew and from a Zionist family, it was understandable that we moved part of our activity to Palestine ... I dealt with the manufacturing while my brother, who was living in New York at the time, dealt in selling what I

sent him. No contracts were involved...you see he could be trusted as we share the same blood”.

The structural framework of the Israeli diamond industry developed quickly under the auspices of Akiva Arie Weiss, one of the pioneer Zionists who founded Tel Aviv 30 years earlier. He formed the Palestine Diamond Club in October 1937. It's charter proclaimed that the purpose of the Club was to set ethical regulations for the Palestinian diamond industry (Szenberg, 1973). The first regularly operating diamond cutting and polishing factory began in Petach Tikva outside of Tel Aviv (Shainberg, 1987). As the diammantaires in Palestine needed to import all their rough diamonds (the raw material needed for polished diamonds) into Palestine, their constant and stable supply was fundamental to the survival of the Palestinian diamond industry.

The rough diamonds in Palestine, originated mostly from Antwerp, and in small quantities from South Africa. At that time the CSO claimed that they could not supply all the rough diamonds needed for the Palestinian diamond industry, as it had signed an agreement obligating it to sell its rough diamonds to Belgium and Holland (Shainberg, 1987). In addition, there was an inflow from Syria and Lebanon of old cut large polished diamonds that needed to be re-cut in order to meet the current fashion (Saldern, 1990). Polishing rough diamonds from Belgium and re-cutting polished diamonds, was the main source of work for the Palestinian diamond industry at the time.

In recent years, managers and researchers have begun to recognise that competitive advantages, based on trust, can prove even more enduring than those that result from traditional strategic positioning (Barney and Hansen, 1994; Fombrun, 1996; Nooteboom, 1996). Trust itself is difficult to observe and measure, as a result of its tacitness and implicit elements (Gulati, 1985). The researcher would like to note that trust cannot be forced, it is built over time and must be given freely (Kim and Mauborgne, 1997). As a result of the special circumstances of the globally scattered Jews and the unique characteristics of diamonds, trust is one mechanism by

which diammantaires may reduce the complexity of exchange through markets.

Interdependence is an essential trust-related feature as expectations about another actor's trustworthiness only become relevant when the completion of one's own activities depend on the prior actions of another actor (Sitkin and Roth, 1993). It is important to note that no formal devices were used to enforce reciprocation in the Palestinian diamond industry and there was no lucid scale of conversion to the measuring rod of money. In this instance, trust emerged in the face of significant exchange vulnerabilities, independent of whether or not elaborate social and economic governance mechanisms existed (Barney and Hansen, 1994). Opportunistic behaviour was thought to violate value, principles, and standards of behaviour that have been internalised by parties to an exchange over the years (Bernstein, 1992; Spar, 1994).

Kramer and Tyler (1996) claim that trust is built over time and the supply of trust increases, rather than decreases, with use, if not abused. It is claimed that trust can become depleted if not used (Gambetta, 1988), thus, over time trust was built between a number of diammantaires in the Israeli diamond industry, leading to the formation of a coherent model of exchange embedded in a more deeply absorbed trust. With the consolidation of a basic industry structure, there was a need to conceive an economic model based on the emergence of trust in the Palestinian diamond industry, and there was a need for a new or additional model built on a deeper understanding of trust reflecting the realities of World War II.

9.3 Model One-Building Deterrence Trust (1940s-1950s)

Kramer and Tyler (1996) claim that most exchange occurs among actors who have long term social relationships and operate within a stable social network. A change in organisational behaviour reflects changes in organisational structure and vice-versa (Miles and Snow, 1978). Trust and other forms of social capital are particularly interesting because they are moral resources that operate in a fundamentally different manner from physical capital. The supply of

trust increases, rather than decreases with use. Trust can become depleted if not used (Gambetta, 1988).

In 1939, on the eve of the second World War, there were already four diamond manufacturing plants in Palestine (Shainberg, 1987). In 1939 the Mediterranean region was closed to civilian traffic, and diamond imports and exports from Palestine were almost frozen. During the early 1940s the Jewish community in Palestine was almost completely cut off from Europe and America, leading to an increased interdependence on one another for economic survival and moral support.

Jewish immigration was strictly limited and even more so as a result of the British "White Paper" of 1939 that drastically restricted Jewish immigration to Palestine. The British Mandate needed Arab favour to keep stability in the region, access to energy sources, and help in stopping Rommel in Africa (Szenberg, 1973). As a result, in many cases, the Jews in Palestine were discriminated against making their lives extremely difficult (Shainberg, 1987). This reality further aggravated the need of Jewish diammantaires to herd together in order to survive the harsh realities.

Therefore, a deeper model of trust evolved between the Jewish diammantaires, in order to cope with such uncertainties and hardships. The second stage of trust, deterrence based trust, evolved during World War II. Deterrence type trust was linked to the willingness to trust when there is a credible threat of punishment for failure not to cooperate (Bernstein, 1992). It is based on consistency of behaviour that actors will do what they say they are going to do (Kramer and Tyler, 1996). Behavioural consistency is sustained by the threat of punishment. Trust is sustained to the degree that the punishment is clear, possible and likely to occur if trust is violated (Choi et al, 1995). Furthermore, most exchanges occurred among actors who had long term social relationships in the diamond industry and operated within a stable social group. Hence, social institutions exerted formal and informal control over the behaviour of individuals,

making untrustworthy behaviour costly.

Barney and Hansen (1994) claim that this semi-strong form of trust, exists when significant exchange vulnerabilities exist. Trust emerges if actors to an exchange are protected through various governance devices. It was claimed that if the appropriate governance devices are in place, the cost of opportunistic behaviour will be greater than the benefit (Bernstein, 1992). Thus, it will be in the rational self-interest of exchange partners to behave in a trustworthy way (Hill, 1990). The researcher would like to note that trust has its limitations. Whenever the cost of governance needed to generate semi-strong form trust is greater than the expected gains from trade, the exchange with semi-strong trustworthy partners may not be pursued, as cheating is likely to occur.

As organisational structure and behaviour in the Palestinian diamond industry coevolved, it is necessary to discuss further the evolution of organisational structure of the Palestinian diamond industry. While an attractive location will likely be favoured by many firms, there also exists a decisive role for historic accidents (Chiles and Meyer, 1997). It seems that one's early location is a determining factor in the geographic location of a clustered industry (Pouder and St.John, 1996; Krugman, 1996; Arthur, 1994), thus, the importance of World War II as a historic accident to the formation of the Palestinian diamond industry. On May 10th 1940, the German troops invaded Belgium and Holland. As a result of the occupation, the diamond industries in these countries collapsed (Bruton, 1981). Industry experts claimed in the researcher's interviews that only when the diamond industries in Belgium and Holland closed, did the British government become interested in what was happening in Palestine. This was because Palestine was under British Mandate and the need for diamonds globally was increasing.

In this stage of the evolution of the Palestinian diamond industry, trust was a necessity in exchange for survival. The Jews depended on each other for their survival and, in some extreme cases, became altruistic in nature (Herbert, 1993). As the industry structure evolved and

matured, a new model of exchange was needed. In model one, cheating was not an option as it may have brought down the whole network. The number of Jewish diammantaires was relatively small and most exchange was through family connections (Shor, 1993). The researcher would like to note that, at the time, there was no official diamond Exchange building in Palestine and members did most of their trading at a private house at the corner of Ahad Ha'am Street in Tel Aviv (Shainberg, 1987). There were no needed facilities such as post office, banks and governmental agencies to complement the industry and one had to arrange everything oneself.

Many Jews at the time worked in agriculture, a tiny industry, barely making a living (Szenberg, 1973). The diamond industry and the clubs which spouted up among the cafes offered a decent living, polishing diamonds, to Jews in Palestine. These diamonds polished in Palestine were mostly targeted at American consumers (Spar, 1994). This was, to a large extent, a direct result of the Jewish connections to their colleagues in other parts of the world (Grief, 1989, 1994), thus, social networks made selling the polished diamonds for the Jewish diammantaire, in Palestine, relatively easy (Shor, 1993). Diammantaires in the Palestinian diamond industry became clustered, to a large extent, as they had relatively homogeneous tastes and preferences. By clustering they utilised economies of scale and scope of geographic and cultural concentration (Pouder and St.John, 1996).

As time went by, one of the main problems of the Palestinian diamond industry was that the CSO was not willing to allocate enough rough diamonds to the Palestinian polishers (Shur, 1996). Its importance is illustrated in the following quote: "Our business started growing faster after we became sight holders ... the time spent looking for rough diamonds overseas is now spent on selling and marketing overseas". Without raw material the diamond industry in Palestine was sure to fail as all rough diamonds were imported into Palestine (Harel, 1986). This is depicted in the following quote from an Israeli diammantaire in the researcher's field work: "Our development has been, and will remain in the future, dependent on the availability of the

raw material. There are no such things as regular suppliers, nor is there even a stable source of supply ... What is worse, even attempts to try and organise the purchase of raw materials in common ventures have failed. Every manufacturer has to go out and assure himself of raw materials in countries in the farthest corners of the globe”.

After the German invasion of Belgium, the world diamond industry was completely paralysed (Shainberg, 1987). The CSO, which had supplied most of the rough diamonds to Belgium and Holland until the outbreak of the second world war, found itself with accumulated stocks on hand, and a strong demand for polished and industrial diamonds that it could not supply, thus, the CSO decided to supply some of the needs of the Palestinian diamond industry to offset the excess demand. There was a vast demand for diamonds throughout the war and the Palestinian diamond industry made a good profit supplying those needs (Levhari and Sheshinski, 1973). Many industry experts interviewed by the researcher claimed that the Palestinian diamond industry arose out of the ruins of Belgium and Holland. Hence, Nazi occupation of Belgium and Holland accelerated the growth of the diamond industry in Palestine. Palestine became the world's major supplier of polished diamonds during World War II (Shainberg, 1987; Szenberg, 1973).

Ben Ami, Natanya's major of the time, a city at the outskirts at Tel Aviv, convinced the British High Commissioner that establishing a diamond industry in Palestine could help England in its war effort (Shor, 1993). The CSO which was the main supplier of rough diamonds through the CSO, called DTC - Diamond Trading Company at the time, was located in London. It was thought and hoped that the British government had some influence over the CSO. Ben Ami claimed that a diamond industry in Palestine could help the British administration in Palestine by increasing tax revenues and helping the war effort in supplying diamonds for industry (Szenberg, 1973). With some help from George Prince (Managing Director of Hennig, a CSO brokerage firm), Ben Ami managed to convince the late E. Oppenheimer, the managing director

of the CSO, to grant the Palestinian diamond industry a regular supply of rough diamonds (Shor, 1993; Pallister et al, 1988).

The first shipment of rough diamonds took almost two months to arrive, as it had to be sent safely, as a result of the war, through territories held by the allies (Schnitzer, 1988). The shipment was small and consisted of small, low grade rough diamonds (Szenberg, 1973). Its arrival marked the true beginning of diamonds as a major industry in Palestine. By 1940, several small diamond plants were operating in Natanya, augmented by newly trained workers, and newly arrived refugees from the diamond centres of Europe (Shor, 1993). For instance, an Israeli diammantaire told the researcher that Jerusalem's major of the time, Daniel Oster, who wanted to create stronger ties with the ultra - religious sector, offered employment polishing diamonds to Yeshiva students. This led to the formation of diamond cutting factories in the city, and this trend is further illustrated by a quote from a religious Israeli diammantaire that the researcher interviewed: "Before coming to Israel, there was no formulated plan for getting involved in the diamond industry ... things just worked out that way rather quickly ... within two weeks of our arrival, the family started learning the craft of diamond manufacturing".

The development of the Palestinian diamond industry led to the formation of exchange model one. Model one evolved from the CSO marketing and selling framework. In model one, the foreign polished diamond buyers came to Palestine to purchase polished diamonds. Most exchange was through intermediaries that helped certify the exchange partners. They showed the foreign diammantaires an assortment of polished diamonds in a "Box". The foreign buyers were forced to purchase the whole contents of the box or none at all. The Palestinian diammantaires showed a number of boxes that the foreign buyers could choose from, at varying prices, thus, no picking of specific diamonds was allowed from the box. On the other hand, as opposed to the rules of the CSO, negotiation on the price was more readily acceptable but, if a buyer reneged on an oral agreement or overly negotiated a price, he would not be dealt with again.

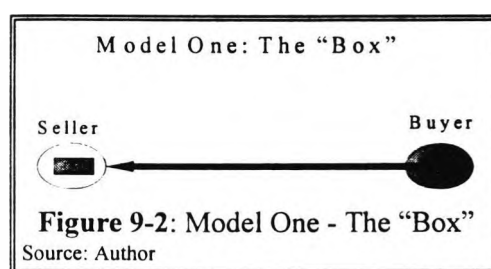
Israeli diammantaires, in the researcher's interviews, claimed that in model one the buyer may have purchased the assortment of polished diamonds for one particular polished diamond in the box. They claimed that a specific polished diamond may have made the whole transaction profitable. On the other hand, the foreign buyer may have purchased the box out of coercion so as to build trust for future exchange. Thus, relationships built on mutual understanding and of helping each other out, evolved through exchange. This point is illustrated in the following quote from the researcher's fieldwork: "When you dealt with a broker or customer that you did not know well, it could be a problem. If things went wrong, only God knows what could happen. With someone I know, problems could be solved. I keep long term and friendly relations with my suppliers and customers as that's the only way to become important and if you are not important you are not shown the stones first".

Experience has indicated that better relationships in the Israeli diamond industry may encourage a better polished diamond Box at the next exchange. Model one was viewed by Israeli diammantaires interviewed, as an efficient way of selling polished diamonds. Israeli diammantaires claimed in interviews that, in some instances, one could dispense of low quality polished diamonds, at a reasonable profit. It also helped control inventory as the seller did not get lumbered with unsaleable polished diamonds as they are today (1997).

In this exchange model, trust is based on the underlying assumption that trust is rationally based. In other words, one's decision about whether to cooperate is based on estimates of the probability that others will reciprocate that co-operation (Barney and Hansen, 1994). When there is a high probability of future association, actors are not only more likely to cooperate with others, but they are also increasingly willing to punish defectors (Kramer and Tyler, 1996; Choi et al, 1995).

When parties recognise that they have common interests, co-operative relations are thought to more readily ensue (Ernst and Bleeke, 1993). For instance, at the beginning of any

exchange in the Palestinian diamond industry, payments for polished diamonds were based on cash before delivery (CBD), cash on inspection (COI) in the country of origin, or cash against documents/box (CAD) in the country of origin. This illustrates the lack of ingrained trust. Furthermore, this framework could shift between the three payment terms as trust evolved. Only in some extreme cases, where there was a history and mutual trust, was credit given. The following figure (figure 9-2) depicts model one:



In 1940 Ben Ami founded the Israeli Diamond Manufacturers Association which he headed until 1950 (Ami, 1991). The main task of the Association was to distribute the rough diamonds received from the CSO, to diamond polishing plants according to their production capabilities. Although this distribution system was problematic, the pressure of a strong industrial structure, and an initial concentration of entrepreneurs, seemed to be a catalyst that helped attract additional organisations. Hence, with an improved organisational structure the Palestinian diamond industry became a stronger global competitor (Shainberg, 1987).

Chiles and Meyer (1997) found in their research that the fit between the supporting characteristics of the geographic location, and the type of organisations involved, are critical for the evolution of an industry cluster, thus, a strong intervention by public bodies and the central government helped the Palestinian diamond industry evolve to being a global diamond centre. For instance, in the late 1940s, the Histadrut and representatives of the factory workers, joined by other unions, commenced negotiations on labour conditions and salaries. The first labour agreement signed in the Palestinian diamond industry determined the level of pay for the various types of workers (Schnitzer, 1988) and defined the social benefits of the workers - such as

severance pay, and pensions.

At the same time, the Palestine Diamond Club, i.e the diamond Exchange of the time, reorganised and moved to a building on Allenby Road, Tel Aviv (Shor, 1993). The diamond Exchange members still struggled to trade in the 190 square metres floor. Many could not get offices in the new diamond Exchange and so some diammantaires continued trading in cafes and offices around the Exchange (Schnitzer, 1988); the diamond controller's office, post office, and customs offices were all in different buildings, which made security a real problem (Szenberg, 1973), but for the first time there was an official Palestinian diamond Exchange. The formalisation of a coherent structure and governance mechanism of the Palestinian diamond industry forced its members to conform to specific rules, norms and values. Thus, a networked diammantaire enjoyed, and could utilise, the trust and reputation given to him as a result of membership to the diamond Exchange. It was presumed that unsuitable diammantaires would be screened out and rejected (Spar, 1994; Bernstein, 1992; Benson, 1988). The diamond Exchange functioned as a screening tool to acquire external and internal trust (Bernstein, 1992).

Israeli diammantaires interviewed claimed that exchange model one was not popular with polished diamond buyers as global demand for polished diamonds, which is an integral part of the jewellery and fashion market, in various geographical regions, was different. As competition from other diamond centres increased, a new model was needed to tackle the new competitive environment. In reality, customers bought what they thought was fashionable and met their tastes and budgets (Saldern, 1990). Therefore, diamond buyers based on model one and marketing their wares in different geographical regions, were able to sell one part of the box, but were lumbered with some unsaleable polished diamonds that limited their profitability.

In conclusion, the steady supply of rough diamonds provided by the CSO, which would have normally have been allocated to the European centres, helped formulate the Palestinian diamond industry. The motivation and specialisation, for instance, the chain system production,

of the Palestinian diamond industry made it economically attractive (Paribas Capital Markets, 1996). The increased demand for polished diamonds generated by the war, throughout the world, especially in the US, gave the Palestinian diamond industry the push to become a leading diamond centre. With the further advancement of the organisational structure and behaviour of the Israeli diamond industry, some Palestinian diammantaires were able to develop a new exchange mechanism based on a deeper engrained trust.

9.4 Model Two - Knowledge Based Trust (1950s - 1970s)

After World War II, Holland and Belgium began to rehabilitate their diamond industries (Bruton, 1981). A new reality formed, where Israel, a newly formed state, was forced to reckon with international trade and competition. By the end of World War II, more than 4,000 people were employed in Israel's diamond industry (Szenberg, 1973). Industry experts claimed in the researcher's interviews that, with the end of the war, the CSO decided once more to favour their old customers, the Belgium and Dutch. As a result, the Israel diamond industry was thrown, once again, into a crisis.

Britain's announcement in 1947 that it would withdraw from Palestine, caused events to flow quickly. Full scale war erupted the following year. Israeli diammantaires claimed in the researcher's interviews that "the industry had closed down in 1948". Industry experts interviewed claimed that, after the war, as soon as the Belgian industry was on its feet again, the CSO cut down its allocation of rough diamonds to Israel. As a result, the Israeli diamond industry began to suffer a decline, aggravated by the Israeli war of independence (1948). By 1950, the Israel diamond industry was almost at a standstill. The year 1951 brought the first indications of recovery (Shor, 1993), thus, the Israeli diamond industry was very volatile moving from a state of almost total collapse in the 1950s, to the late 1960s, when it started growing again. These environmental uncertainties and dynamics demanded a new, or additional,

exchange model that was in sync with the industry's evolving structure and behaviour.

The diamond industry in Israel, however, still placed most of its faith in the DeBeers group and not only continued buying from the CSO, but even increased the level of rough diamond purchases as much as possible (Shainberg, 1987). The Israeli diamond industry grew through a combination of global growth in the demand for diamonds, a steady stream of skilled, dedicated immigrants to work in the polishing factories, and aggressive selling. The allocations of rough diamonds from the CSO and other African/Russian sources increased slowly, and the diamond industry in Israel strengthened. Israeli diamond exports crossed the US\$10 million mark in 1951 and US\$26 million by 1956 (Israeli Ministry of Industry and Trade Statistics, 1996).

By the middle of the 1950s, the direct supply of rough diamonds from the CSO accounted for only 35% of Israel's total supply of rough diamonds (Shor, 1993). During that time, the US government ceased buying rough diamonds for its strategic stockpile (Economist, 1992b) and, in 1955, General Electric developed the first commercial synthetic diamonds (Paribas Capital Markets, 1996). This meant rough diamonds were now available in the global market and large amounts of rough diamonds were recycled back onto the market. Industry experts claimed in the researchers interviews that the next taker, the Israeli diamond industry, got a "fair" supply. Furthermore, the CSO did not provide direct rough diamond sights to Israeli diamond manufacturers and brokers until the early 1960s (Shur, 1996).

In the 1960s, Israel was firmly established as the world's second largest rough diamond polishing centre, behind Antwerp. Rough diamond allocations from the CSO covered only around 60% of the Israeli rough diamond demand (Levhari and Shehinski, 1973). The rest had to be purchased in secondary markets, such as Antwerp, Russia and Africa at a premium of roughly 5 - 10%. This predicament positioned the Israeli diamond industry at a disadvantage over other centres who got larger allocations from the CSO. For instance, in 1959 the value of rough

diamonds imported from Africa amounted to the value of US\$170,000 while, in 1961, it was well over US\$5M.

The answer to the CSO's under allocation of rough diamonds to the Israeli diamond industry lay mostly in Africa. This was where emerging states were trying to establish new contracts away from the old colonial conglomerates which once managed their resources (Schnitzer, 1988). The researcher was told in his interviews that the problems of such rough diamond sources to the Israeli diamond industry was that these sources were unreliable and highly risky (Paribas Capital Markets, 1996; Shor, 1993; Economist, 1992b).

It seems that the CSO played a decreasing role as a rough diamond supplier to the Israeli diamond industry in the 1950s (Shainberg, 1987). This is because many African countries were getting to be more important to the Israeli diamond industry since receiving their independence - such as the Belgian Congo. This was furthered by the composition of the CSO's rough diamond allotment that was seen by Israeli industry experts as unfavourable to the Israeli diamond industry. Diammantaire claimed in the researcher's interviews that new economic and political opportunities that arose made purchases of rough diamonds, from sources outside the CSO worth while.

Industry experts claimed in interviews that the CSO's refusal to allocate a larger consignment of rough diamonds, reflected their favouring of Belgium and Holland. This was thought to have led to the CSO's restrictions on exportation of rough diamonds from Belgium, Russia and Africa, to Israel. This fact set the stage for the Israeli government to take the initiative in purchasing rough diamonds in the newly formed African states (Shainberg, 1987). The principle nations involved included, the Ivory Coast, Ghana, Guinea, and the Central African Republic, where Israel was held in high esteem as a result of agricultural and military aid to those new nations.

The evolution of the Israeli diamond industry led the researcher to illustrate the second

echelon of trust - knowledge-based trust. Such trust was linked to the dynamics and structural evolution of the Israeli diamond industry. Knowledge-based trust links the willingness to trust to the belief that other actor's natures are well known and that their behaviour can be reliably predicted. This type of trust is grounded in behavioural predictability (Kramer and Tyler, 1996). Knowledge based trust occurs when one has enough information about others to understand them and accurately predict their behaviour. In this stage, trust is based on information deployment on one's identity and level of trustworthiness, rather than solely deterrence through governance. Trust develops over time, largely as a function of the exchange partners having a history of interaction. Such interaction allows actors to develop a generalised expectancy that the other's behaviour is predictable and that one will act trustworthily (Bernstein, 1992).

As a result of space and security problems with the Israeli diamond Exchange, a new or enlarged diamond complex was needed. Interviewees claimed that what was envisioned by industry leaders was a self-contained structure, providing all the facilities necessary for the trade in diamonds. Diammantaire aimed at a diamond Exchange which would consist essentially of a trading floor and office facilities, complemented by offices, governmental agencies, shipping facilities, insurance, legal and accounting services, banks, restaurants, travel agencies, and gemalogical laboratories. all under one roof (Szenberg, 1973). It was thought that as a result, polished diamond buyers globally would be lured by the prospect that, within a single, secure environment, one can purchase all that one needs. In addition, industry experts highlighted that as a result of this progress, it would attract other diamond firms and customers to reallocate to Israel. This was hoped to help force the CSO to "treat" the Israeli diamond industry better than it has done in the past (Shainberg, 1987).

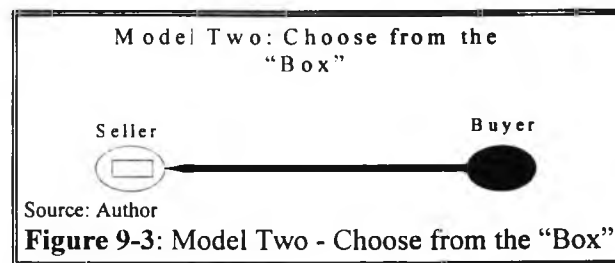
Until the late 1950s the Israeli diamond industry still heavily relied on family ties to market their polished diamonds. As a result of the gradual growth depicted in the late 1950s (see figure 9-4), led to the influx of new customers and new models of exchange in the Israeli

diamond industry. It seems to the researcher that the family orientated networking started to constrain the growth of the Israeli diamond industry. As a result enlarged networks were implemented as well as implementing changes in the existing exchange models. These facts lead the researcher to illustrate the second exchange models in the Israeli diamond industry (figure 9-3). As a result of the shortfalls of model one, polished diamond buyers increased pressure on the polished diamond sellers to cater for their specific clientele. These customers were not necessarily friends, or related through family.

Model 2 is similar to model one, but increased flexibility has been incorporated into it to increase the industry's competitiveness. Each "Box" had a price per carat (US\$/C) and as a result the polished diamonds it contains, were homogeneous in quality, colour, cut, clarity and within a certain carat range. The foreign buyer could pick and choose those polished diamonds that were best suited for his needs. The buyer paid only for those polished diamonds that were chosen at the price quoted on the box (US\$/C). Then the polished diamond buyer could pick and choose diamonds from another box which had a different assortment of diamonds on the 4C scale with a different price attached. Model one and two were generally common in the 1960s to the middle of the 1970s.

It is important to note that the pressure to buy polished diamonds was placed on the foreign buyer. For instance, as the accommodation and transportation costs in Israel were and still are, extremely expensive, also there was a time constraint of the plane ticket and it was assumed that the foreign buyers came to Israel to purchase diamonds, thus, the diamond buyer could not afford to return empty handed after incurring all the above encompassing costs. This fact is claimed to have helped close deals quickly. In this stage, exchange was fundamentally based on socially embedded ties. The better the ties, the better the price, as illustrated in the following quote from the researcher's interview: "If two diamantaires brought the exact same polished diamond to me, I may pay up to 5% more to the one I feel more comfortable with - its

more to encourage him to come back and help him out". The following figure (figure 9-3) depicts model two:

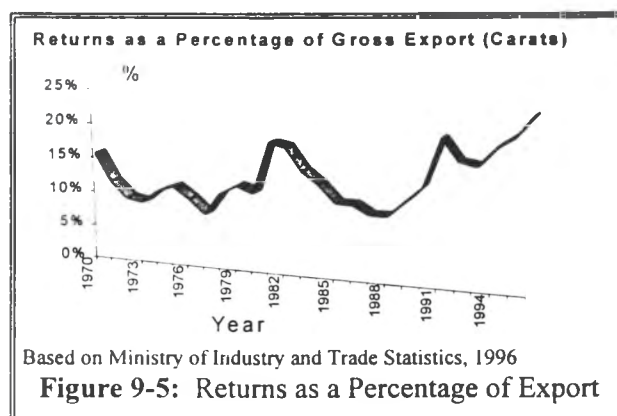


To accommodate the influx of buyers, and to promote new buyers to come to purchase their polished diamonds in Israel and fuel Israel's national competitiveness, the city of Ramat Gan offered the Israeli diamond Exchange 1.25 acres of land with tempting benefits to build a new diamond complex (Schnitzer, 1983). Hence, the cornerstone of the world's first diamond skyscraper, a 20 stories high building with a total of 20,000 square meters of office floor space was laid in January 1964. The first structure in today's modern complex, the Shimson building was completed at the end of 1968 and dedicated in January 1969. By then, the Israeli diamond Exchange membership was more than 1,000 strong and diamond exports totalled more than US\$200 million (Israeli Ministry of Industry and Trade Statistics, 1996). Israeli diammantaires told the researcher that the Israeli diamond trade grew the Shimshon building almost immediately. The following figure (figure 9-4) illustrates Israeli polished diamond exports in value terms in the third stage of its evolution:



Both model one and two incorporate a relatively passive marketing strategy, where the seller passively waited for the buyer to come to the seller as illustrated in the following quote: “Our marketing was based on what we manufactured ... First we built up our production, and only then did we figure out how to sell it ... The advantage of this marketing style was that we had a variety of goods, all sizes, all shapes, so we always had goods to meet current demand”.

Some firms still incorporate model one and two today for specific customers and/or specific markets. Furthermore, as a result of the two models above, there was a relatively low return rate of polished diamonds (around 10%). This may be due to the fact that the buyers themselves came to Israel and bought the polished diamonds themselves. The following figure (figure 9-5) depicts the returns of polished diamonds over the years.



Israeli diamond brokers fostered an air of trust in exchange. The broker, by the very definition of his task, is an actor of special connections and of high moral standards, who can present both the seller and the buyer with equal trust and devotion (Spar, 1994; Bernstein, 1992; Benson, 1988). This mediation between the potential exchange actors was invaluable in bridging gaps between the actors. The diamond broker performs two functions: (1) transfers expectations of behaviour from the existing socially embedded relationship to the newly matched actors; and (2) calls on the reciprocity owed to him by exchange actors. Thus, as trust built up and became more ingrained and the Israeli diamond industry matured, a new model of exchange was developed.

9.5 Model Three - Identification Based Trust (1970s - 1980s)

The 1970s illustrated a time of growth in the Israeli diamond industry. In response to the strong growth of the Israeli diamond industry and to increase the economic returns of geographic clustering, the second building, the Noam building, was completed at the beginning of 1979, and the third building, the Maccabi building, even larger than the Shimshon building, was established in December 1979, adding 40,000 square meters of office and parking facilities. The three buildings were joined by a bridge, into which was extended the trading floor for polished diamonds. The Israeli Precious Stones and Diamonds Exchange, was founded in 1973 and took up residence on the first floor of the Maccabi building. The following figure (figure 9-6) depicts the growth of the Israeli diamond exports in this period:

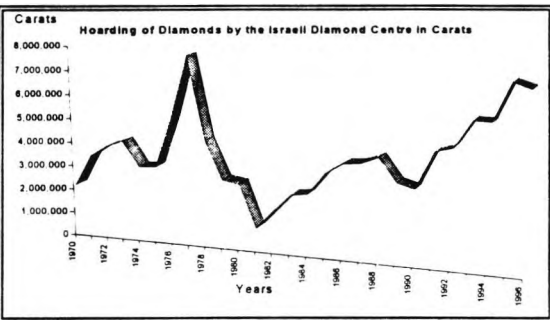


The initial concentration of diammantaires, the elaborate industry structure and the facilities offered by the Israeli diamond industry, in turn, attracted other diammantaires to reallocate to Israel. As a result of a positive outlook for the diamond industry as a whole and the strong position of the Israeli diamond industry, Israeli diammantaires started taking even larger risks than in the past (Szenberg, 1973). With strong backing from the Israeli banking system, Israeli diammantaires bought huge quantities of rough diamonds from almost any source possible at sometimes uncompetitive prices (based on Israeli industry experts).

Israeli diamond experts claimed in the researcher's interviews that the situation became

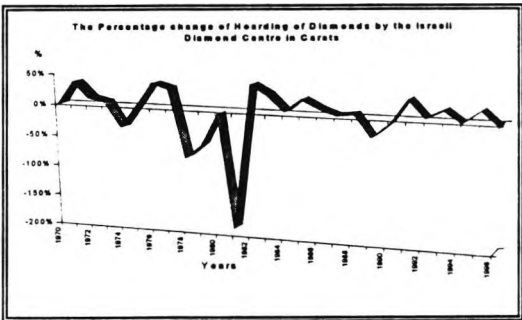
so severe that the stockpiles of rough diamonds, held by diammantaires in the Israeli diamond industry, jeopardised to a large extent the stockpiles in the vaults of the CSO. Furthermore, industry experts claimed that the stockpiles of rough and polished diamonds in Israel at some periods of time equalled those held by the CSO. There was a feeling among some Israeli diammantaires that some of them had tried to undermine the DeBeers cartel and break the CSO's single marketing channel. Israeli diammantaires extended long credit lines to their clients and, in some extreme cases, even sold diamonds on consignment (Even-Zohar, 1997c).

The following four figures (figure 9-7 to 9-10) illustrates the amount of diamonds held by Israeli diammantairs between 1970 and 1996 in value terms, carats and the percentage change. It is possible to note large increases in diamond hoarding (rough imports minus polished exports, taking into account 40% carat lose while polishing diamonds) in the middle 1970s. Furthermore, it is important to note the big crash in carats and value terms towards the end of the 1970s to the beginning of the 1980s and, then again, in the early 1990s, thus, it seems that the Israeli diamond industry is a very cyclical and volatile industry.



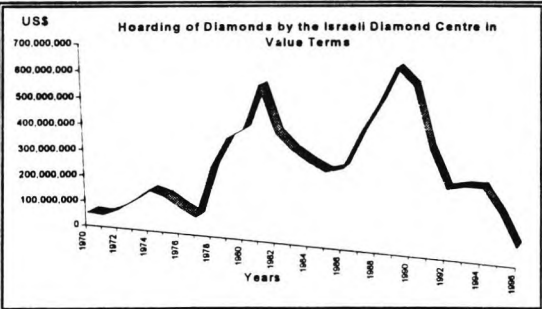
Based on Israeli Ministry of Industry and Trade Statistics, 1996

Figure 9-7: Hoarding in Carats



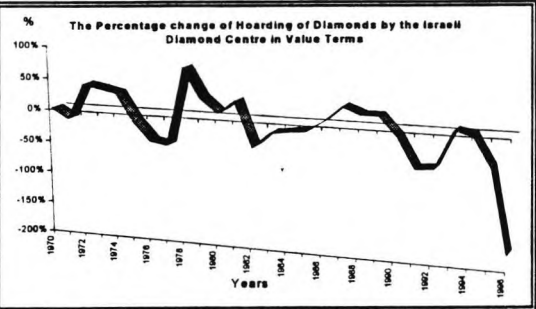
Based on Israeli Ministry of Industry and Trade Statistics, 1996

Figure 9-8: The percentage change



Based on Israeli Ministry of Industry and Trade Statistics, 1996

Figure 9-9: Hoarding in value



Based on Israeli Ministry of Industry and Trade Statistics, 1996

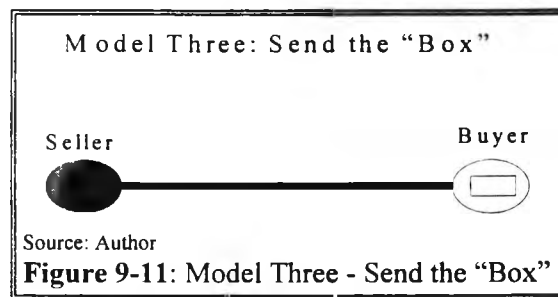
Figure 9-10: The percentage change

As a result of increased competition from other diamond centres, global recession, over stocking of polished diamonds, and the security problems in Israel at the end of the 1970s, foreign buyers were weary of coming to Israel (Harel, 1986). The business and political environment in Israel became more uncertain for foreign diammantaires (Paribas Capital Markets, 1996; Economist, 1992b). As the role of trust gained more importance in exchange a more accommodating exchange model built on a deeply ingrained trust was formulated.

The environmental situation put pressure on the diammantaires in Israel, leading to a need for a more active approach to marketing of diamonds. This situation led the researcher to depict Model three - Send the "Box" (see figure 9-11). In model three "Boxes" with polished diamonds were sent to highly trusted customers, so that they could choose and pick as if they were in Israel.

The problem with this model was that the buyer was under no pressure to buy polished diamonds, in the sense that there was no time constraint and no incurred costs involved in the potential transaction. In other words, interviewees claimed that the diamond buyers could "sleep over" their decisions. The problem with polished diamonds and even more acute with precious stones, is the problem of the need for the illusion around the product (Bruton, 1981; Epstein, 1982). The value of diamonds and precious stones is, to a large extent, derived from the subjective feeling of the diammantaire (Davis, 1984). The value of the polished diamonds in the eyes of the diammantaire may change as a result of a change of atmosphere, in the physical location of the transaction. The mood, light, the smell in the room, and one's imagination, are all claimed to be an integrated part of the value of polished diamonds and precious stones (Pollak, 1975). This is further augmented by the fact that the quality of the relationship, in some cases affects the price offered for polished diamonds (Bernstein, 1992; Berger, 1988). As a result of this phenomena, the amount of polished diamonds that were returned to Israel skyrocketed to between 15% - 20% in this stage (see figure 9-5). The following figure (figure 9-11) depicts

model three:



This new model of exchange demanded a change in organisational behaviour in the Israeli diamond industry. Over the years trust was built and a mutual confidence was established that exchange actors would refrain from exploiting another's vulnerabilities, or cheat in exchange, thus, there emerged between some diammantaires, identification based trust. Such deeply ingrained trust emerged as diammantaires took on the needs and desires of other diammantaires as personal goals, and acted in ways that considered joint gains (Kramer and Tyler, 1996). It was based on a complete empathy with the other party's desires and intentions. In this model, trust existed because Israeli diammantaires effectively understood, agreed with, empathised with, and took on the other's values because of the connection between them. It was presumed that one could act trustworthy and efficiently for the other. In many instances, it permitted a diammantaire to serve as the other's agent. In identification-based trust, one could be confident that one's interests would be fully protected and that no surveillance or monitoring of the other diammantaire was necessary.

In 1979 a diamond exporter, analyst, and journalist, under the name of Martin Rapaport, created the first polished diamond price list that covered most types of polished diamonds. The Rapaport price list is the only price list available, to the present day, to polished diamond dealers globally; and from the researcher's interviews, it has come to his attention that since the mid 1980s it has become a standard when one transacts in polished diamonds. It covers round diamonds from the size of 1 pointers (100 diamonds in a carat or 0.01 of a carat) to 5.99 carats in all clarity gradings (IF -best, VVS, VS, SI1, SI2, SI3, I1, I2, I3 - worst) in colours (D - best no

colour to N - worst almost yellow), but not taking into account the quality of work or cut (based on the 4Cs scale - clarity, colour, cut, carat). The Rapaport price list also covers some Fancy Cuts (for instance, Pear, Marquise, Emeralds, Princess, Ovals, and Hearts cuts) from 18 points to 5.99 carats. It is important to note that Fancy shaped polished diamonds are more complex than round polished diamonds, as it is much harder to evaluate their price. In other words, the quality of cut, proportions, and the overall shape of the Fancy shaped diamond, all have a fundamental impact on the price and liquidity of the polished diamond involved. Rapaport recommended in his price lists, that all diamonds be examined as poorly cut diamonds, availability problems, and that matching diamonds may cause certain polished diamonds to trade at substantial discounts.

The Israeli diamond industry based, for generations on socially embedded exchange based on trust and reputation, has received a 'shock' as a result of the publication of Rapaport price list. The price list created new opportunities and threats in the environment in which Israeli diammantaires transacted. For instance, as a result of the publication of the Rapaport price list, pricing power within the diamond and jewellery market has diminished. In other words, pricing power has shifted from the supplier toward the buyer, and profitability has suffered accordingly.

The sombre mood of the time was depicted by what an interviewee told the researcher on his experiences of the time: "I was one of the first ... there were times when we thought when everything was going to the devil, but I held on to the trade by my fingernails ... Diamonds got into my blood". One's relationship with another diammantaire, that was seen as the conduit for exchange, received a fatal blow. Tacit information suddenly became explicitly available and the illusion surrounding diamonds started dissipating.

As a result of the formation of a polished diamond price list, firms in the Israeli diamond Exchange reacted to it by clustering around certain combinations of resource allocation and strategic choices (Bogner and Thomas, 1993). One strategic group focused on transacting in polished diamonds covered by the Rapaport price list; the second strategic group focused on

transacting in polished diamonds not covered by the Rapaport price list; and the third strategic group focused on transacting in a mixture of the two. These strategic groups are further discussed in case study three.

9.6 Model Four - Decline in Trust I (1980s)

The 1980s was a time of turmoil for the Israeli diamond industry as it was for the economy of Israel as a whole (Shainberg, 1987). DeBeers reacted sternly and swiftly to the threat of the over stocking of diamonds by reducing diamond allocations to Israeli sight holders, and over supplied other diamond centres with rough diamonds of similar quality held by the Israeli diammantaires (Harel, 1986).

Industry experts claimed that with the continued structural change and rationalisation of the Israeli diamond industry this caused socially embedded frameworks to shift to a large extent from an asset to a liability. The introduction of the Rapaport price list decreased profit margins and decreased the need of skill to transact in polished diamonds, resulting in lower entry barriers (see case study three). This brought about an increase of a wide range of competitors, into the diamond industry.

Macroeconomic events such as, recessions and volatile foreign currency rates, had a direct impact on profitability in the diamond industry (Economist, 1992b; Saldern, 1990). It seemed that the prolonged global recession and currency devaluations reduced profitability and demand in the Israeli diamond industry to record lows (Even-Zohar, 1997b). Profitability for Israeli diammantaires, especially polished diamond manufacturers, was decreasing on the supply side as a result of sharp price increases in rough diamonds by the CSO and higher production costs such as salaries, taxes, and service charges.

As a result of these environmental shifts, Israeli diammantaires took upon themselves more risk and searched for high return one-shot deals. Furthermore, from the researcher's

interviews it seemed that actors in the Israeli industry became complacent to the fact that their futures are highly interlinked. The confidence that mutual exchange partners would refrain from exploiting another's vulnerabilities had seen cracks in it. Altruistic behaviour was almost non-existent and Israeli diammantaires started looking for short term/one off exchange, as opposed to building long term exchange embedded in trust and mutual understanding. This trend was illustrated in the following quote: "No company, no matter how good its relations with its customers, suppliers and brokers was as important as the end price of the diamond. Price at the end of the day will close the deal not friendship! ... Diammantaires will sell their 'mothers' if there is a profit to be made in it!"

Trust was further eroded as a result of new entrants into the Israeli diamond industry (Shainberg, 1987). Trust, based on social and cultural similarity (fixed factors of identity) could no longer be taken for granted. Information on an actor's or firm's attributes was not easily attainable or readily transferable. The decline in the ability to identify an exchange partner's attributes led to an increase in conflicts and to lengthy negotiations in exchange (Bernstein, 1992; Benson, 1988). This reality was opposed to the pre-existing mechanisms and advantages of belonging to a group such as the Israeli diamond Exchange. Furthermore, from the researcher's interviews, it seems that many diammantaires transacting in the Israeli diamond industry refused to become members of a diamond Exchange and transacted as visitors and employees.

Price increases in polished diamonds had not caught up with the price increases of rough diamonds (Paribas Capital Markets, 1996; Economist, 1992b; Saldern, 1990), thus, lowering profit margins even further (Jackson, 1996). Israeli diammantaires claimed in interviews, that more jewellery retailers were buying diamonds in manufacturing centres straight from the manufacturer. To obtain more competitive prices, buyers went to the "source" such as polished diamond manufacturers and not necessarily to diamond brokers as was common in the past.

It seemed that there was a global tendency of consolidation in the Israeli diamond industry, where large firms increased market share at the expense of smaller "Mom and Pop" firms that were common phenomena at the time. The proliferation of all these large firms selling jewellery, as claimed by Mr. Rapaport, resulted in a severe over supply of jewellery stores selling identical products, resulting in strong competition and price wars, thus, the large retailers were dictating, to a large extent, the terms and prices to the sellers and manufacturers. In other words, they were using their scope and scale advantage to enforce a buyer's market.

From interviews, it has come to the researcher's attention that in the Israeli diamond industry, it became almost impossible for small firms to sell directly to the large firms because of demand for consistent quality, quantity, and the financial terms required. Therefore, as large firms gained market share, the prevalent smaller family owned and run firms had fewer customers to sell to, and found themselves locked out of many lucrative markets. In addition, commoditisation of polished diamonds, tended to cause polished diamonds to trade at even lower profit margins (Even-Zohar, 1997b). This was due to the competitive ability of buyers to compare similar polished diamonds offered for sale by numerous sellers (Paribas Capital Markets, 1996; Economist, 1992b). For instance, through the Rapaport price list and certificates such as the Gemological Institute of America (GIA).

It seems to the researcher that profit margins for low end goods were being limited by mass merchandisers. On the other hand, profit margins for high end products, like certified diamonds, were limited by fierce competition among sellers and the ability of consumers to "comparison" shop. It appeared that actors who merely resold mass produced polished diamonds and did not offer special products or services found themselves competing with discounters selling at very low profit margins. For instance, firms like Lili Diamonds, Ubexdiam, Ovadia Yosef, and Paz diamonds have all tried to differentiate by introducing various patented unique polished diamond cuts, with moderate levels of success.

As trust declined and economic pressures increased, it was necessary for Israeli diammantaires to move to more professional levels not only in the sense of manufacturing and selling, but also in marketing and strategic planning. This need is illustrated in the following quote: "When the recession hit the world economy in the 1980s, our business, like everyone else's, suffered. It was then that we began to invest more in marketing and looking ahead".

The actions of the CSO and the hostile environment of mistrust dealt a severe blow to the Israeli diamond industry and led to a further fall in diamond profits. In the early 1980s there was a preference for financial, rather than physical, assets and commodity markets tumbled (Paribas Capital Markets, 1996). From an interview with an Israeli banker in bank Igud, the researcher was told that as interest rates began to rise in Israel, banks became concerned about the vast amounts of funds invested in diamonds. This trend was further augmented by the fact of the devaluation of many of the diamonds in the bank vaults, held as collaterals against loans.

The Israeli banks started calling in loans that were given in many instances on the base of mutual understandings and trust. Banks started demanding an increase in collaterals and the loan process became more stringent. These measures increased the pressures on the Israeli diammantaires to sell their large stocks of polished diamonds even at a loss (Even-Zohar, 1997c). The pressure built up until reaching critical point where Israeli diammantairs started going broke as a result of liquidity problems, thus, making diammantaires more desperate for one shot deals.

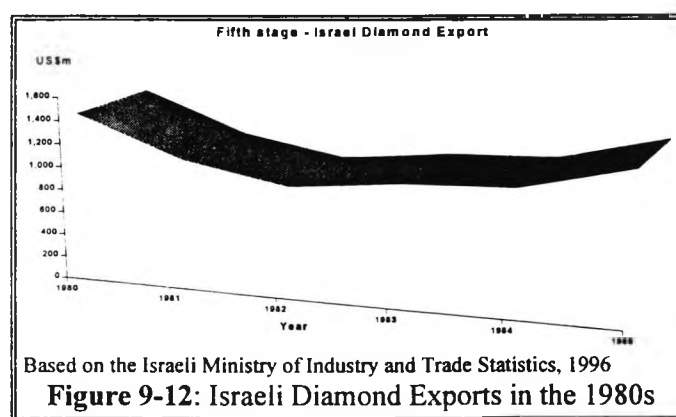
Diammantaires started losing money and those who were unlucky, or speculated recklessly, lost fortunes (Shainberg, 1987). The researcher was told in interviews that many Israeli diammantaires who went broke pulled, with them other diamond traders and even large parts of the Israeli banking system itself, as a result of the high gearing rate. In other words, the domino effect. The economic environment of the time in Israel was illustrated as a cascading effect that almost brought to an end the Israeli diamond industry and the Israeli banking system.

To save the industry and the banks the government intervened and until this day tough regulations are in place so that such a phenomena could not occur again.

On the other hand, as a result of the improvement in the Israeli security problem and a breakthrough in the peace process with Egypt, foreign diamond buyers slowly started coming back to Israel. They were attracted by the low diamond prices offered by Israeli diammantaires and the organisational structure of the Israeli diamond Exchange. Some Israeli diammantaires reverted back to marketing of "Boxes" and assortment of "Boxes" (i.e Model one and two), as historic trust was not necessarily engrained.

On the other hand, some Israeli diammantaires continued using exchange model three between trusted exchange partners. This phenomena was one explanation of the decrease in returns in the middle 1980s, that has gone down to a more manageable level of around 10% (see figure 9-5). At this stage there where three main exchange models of selling polished diamonds that were used discriminately in the market, based on the various levels of trust.

The researcher would like to highlight the fact that Israeli banks have never regained from the fall of the 1980s resulting in tougher lending procedures that were common in the past (Even-Zohar, 1997c). The following figure (figure 9-12) illustrates Israeli stagnating diamond exports in value terns, during the 1980s:

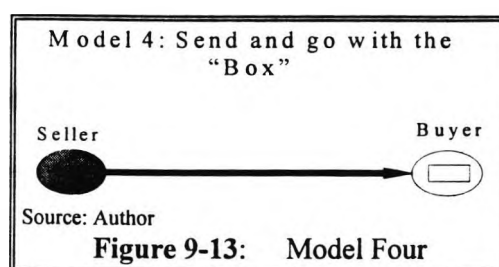


The increased global competition in diamonds from other global diamond centres, the collapse of many diammantaires in Israel, complemented by pressure from the Israeli banks,

forced Israeli diammantaires to become more aggressive and, to some extent, desperate to get rid of polished diamonds as their hefty debts and interest payments ballooned (Even-Zohar, 1997c). It was thought by the researcher that, as in the past, in time of crisis Israeli diammantaires would co-operate to deal with the problems presented, through deeper mutual understanding and trust (Spar, 1994; Shainberg, 1987; Bruton, 1981). From the researcher's interviews, it seemed that reality was very different, Israeli diammantaires started taking advantage of one-off transactions and trust further deteriorated.

The security problems such as the Intefada, the Palestinian uprising in the Gaza Strip and all that it encompassed, drove many buyers once again to other diamond centres to purchase diamonds. Few diamond buyers were willing to come to Israel. Israeli diammantaires needed to go out for the first time in many years to actively search for buyers en mass and create new markets. Furthermore, they could not just send the "Box" of diamonds as a result of the risks associated and the pressure to sell quickly, thus, they needed to have a more coherent strategy than in the past. This led the researcher to illustrate a new model of exchange, model four - Send and go with the "Box".

Israeli diammantaires needed to become more active than before and for the first time, went to the customer. At this stage the table was turned and most transactional costs of accommodation and time constraints were placed on the seller and not the buyer. Looking at figure 9-5 it is possible to note an increase of returns in the 1990s going up to an unmanageable 25%, as polished diamond selling became more competitive and diammantaires became more choosy and price-sensitive. The following figure (figure 9-13) illustrates model four:



As a result of this new model and increased global competition a new framework of organisational behaviour evolved. Thus, in the first half of the 1980s, it is possible to note a decline in trust illustrated as decline in trust I. In this case, violations of trust were more severe because they occurred between highly trusting diammantaires (Bernstein, 1992; Benson, 1988), and effectively eliminated the deeply ingrained trust that was built over time. Such violations of trust were more than mere unpredictability. They went against common norms and values in the Israeli diamond industry built over time. A common quote from the researcher's interviews was that "I don't know him any more".

9.7 Model Five - Decline in Trust II (1980s - 1990s)

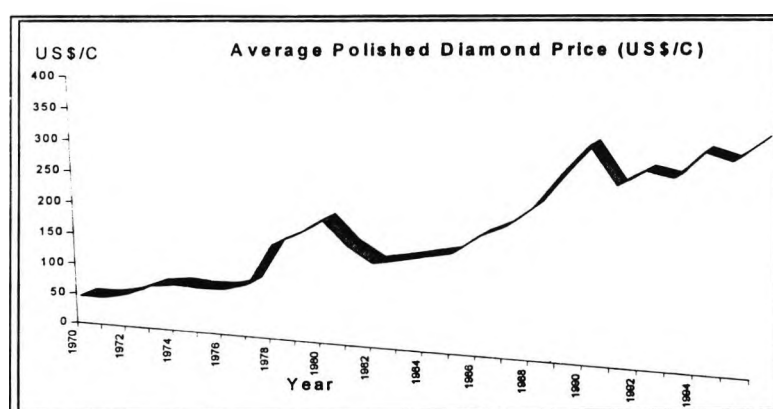
This period illustrated a time of relative uncertainty with moderate economic growth. The last building, the Diamond Tower began in 1989 and was completed in 1992. It was claimed by Israeli diammantaires to be the tallest building in the Middle-East. The bridge connecting it to the rest of the complex was planned to hold the trading floor of rough diamonds for the Israeli diamond Exchange which was expected to be completed towards the end of 1998. The researcher is in doubt of this date as a result of the recession in the diamond trade in 1998. This is a direct result of a sharp decline in diamond demand and the fall in global polished diamond prices as a result of the economic recession in the Far East.

The researcher would like to highlight that the Israeli diamond industry was distinctly an export industry. Almost all its production was intended for export, from its inception (Szenberg, 1973), thus, the world economy, and especially the Far East and America, have a considerable impact on the exports of diamonds from Israel (see table 9-1). The researcher has calculated that the value of imported rough diamonds amounts to nearly 85% of the value of polished diamond exports (relatively low value added). Furthermore, the Israeli diamond industry was completely dependent upon imports for its rough diamonds as not one diamond is mined in Israel (Paribas

Capital Markets, 1996; Economist, 1992b).

Trade liberalisation and financial deregulation in Israel during the middle of the 1980s increased the mobility of capital and diamond polishing moved, to some extent, away from traditional centres such as Israel (Economist, 1992b). Improved computer and telecommunications technologies have meant that physical distance was becoming less of a barrier to communications, travel, and trade (Even-Zohar, 1997b). This led to an eastward and southward shift in diamond and jewellery manufacturing, to low cost centres in the Far East and Latin America (Shor, 1993).

Diammantaire, especially in Israel, took advantage of their ingenuity and mobility and transferred many manufacturing facilities overseas. This reduced many of the diamond manufacturing costs (Paribas Capital Markets, 1996) and increased competitiveness. As claimed by a prominent Israeli diammantaire in an interview: “No company, no matter how successful, can afford to remain without change. A company needs to work constantly on new marketing techniques, new technology, and new advertising efforts”. The following figure (figure 9-14) depicts the increase in the average price per carat exported from Israel over the years:



Based on the Israeli Ministry of Industry and Trade Statistics and authors calculations

Figure 9-14: Average Polished Diamond Prices (US\$/C)

As mentioned above, one of Israel's strategic advantages in the diamond industry, as well as in other industries, such as agriculture, textiles and computers, is the high level of technology and knowledge (Economist, 1992b). This led to lower costs of production and higher quality

than ever before. The problematic side of it was that once this technology was disseminated to other global diamond centres, the Israeli diamond centre lost some of its technological competitive advantage. For instance, the researcher was told in an interview that India had a problem polishing round diamonds. Industry experts claimed that the problem had been solved, with the help of Israeli technology, thus, India became a dominant player in the global diamond industry pushing Israeli diammantaires out of the small polished diamond segment.

As competitive pressures increased, complemented by increases in labour costs and governmental clamp down of tax evasion, Israeli diammantaires continued to transfer manufacturing facilities and even offices, overseas. One of the underlying elements that led to this situation is summarised by an Israeli diammantaire in an interview: “We spoke endlessly about what we can do, but we see very little of it in the field ... for instance, many consider India as a bowl of rice ... but few realise it is developing multi-million dollar factories making use of innovations that we have chosen to ignore in Israel”. The following figure (figure 9-15) depicts Israeli net polished diamond exports in the sixth stage:



Industry experts claimed that Israel was still in 1997 losing large segments of the manufacturing side of the polished diamond industry to other diamond centres. Today a large extent of rough diamonds are polished by Israeli diammantaires or firms in other countries such as India and China, and then brought to Israel to be sold. The following table (table 9-1) illustrates the size of Israeli polished diamond exports by country in value terms, illustrating the

dominance of the US, Japan and Hong Kong, markets:

Country	1995	%	1996	%
USA	2,048,624,988	42.41	2,355,980,661	45.57
Japan	885,379,657	18.33	771,902,307	14.93
Hong Kong	825,080,622	17.08	898,095,369	17.37
Belgium	474,848,243	9.83	540,320,367	10.45
Switzerland	113,987,200	2.36	107,154,845	2.07
Italy	61,514,326	1.27	50,945,437	0.98
Germany	81,838,247	1.69	88,846,940	1.72
France	40,887,914	0.85	38,076,221	0.73
UK	46,928,276	0.97	59,331,230	1.15
Canada	26,127,330	0.54	29,622,191	0.57
Singapore	44,225,376	0.91	46,388,808	0.89
Thailand	55,246,408	1.14	61,599,537	1.19
Australia	36,190,783	0.75	35,582,118	0.69
Korea	22,585,589	0.47	27,333,008	0.53
Other	66,273,001	1.37	58,161,948	1.13
Total	4,829,737,960	100	5,169,340,987	100

Based on: Ministry of Industry and Trade, 1996

Table 9-1: Export of Polished Diamonds by Country (Gross US\$)

Israel's present tax laws (1997) for the diamond industry are very different from those of any other sectors. According to established taxation criteria, every year a minimum taxable income is established, irrespective of the actual turnover. According to the present system, tax is paid on the higher of the two figures: either the profit that is thought to be reasonable, or on the profit which is calculated as a percentage on turnover. It is necessary to pay the tax based on the higher level of the theoretical profit in order to reduce cheating. In other words, the Israeli diammantaire may actually lose money over a given year and still end up paying tax on theoretical earnings that were never made.

In response, the Israeli tax authorities permitted Israeli diammantaires to opt out of this system, hold 'proper' financial accounts and pay tax at the same rates as other industry sectors. As a result of the cost and hassle involved, in calculating diamond related profits (Spar, 1994) industry experts claim that very few firms in the Israeli diamond industry have decided to opt out. The Israeli diamond industry has, for decades, served as a desirable model of the kind of industry needed in Israel (Szenberg, 1973). This is as a result of exports being a central element in the country's economic independence. The researcher would like to note that the volume of

diamond exports should not be taken as a net measure of the industry's role in the earning of foreign exchange, as all rough diamonds are imported into Israel and paid in US dollars. The following four figures (figure 9-16 to 9-19) depict the export and imports of the Israeli diamond industry in value terms and carats. It is important to note the crisis of 1973-1975; 1978-1979, and 1980-1982, focusing on the degree to which the industry has recovered. This illustrates to some extent the vigour of the Israeli diammantaires.

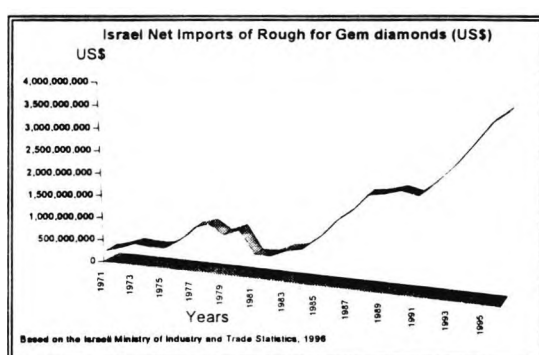


Figure 9-16: Import of Rough (US\$)

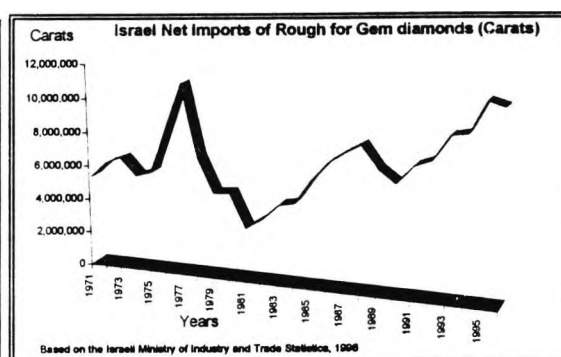


Figure 9-17: Import of Rough (Carats)



Figure 9-18: Import in Terms of Value

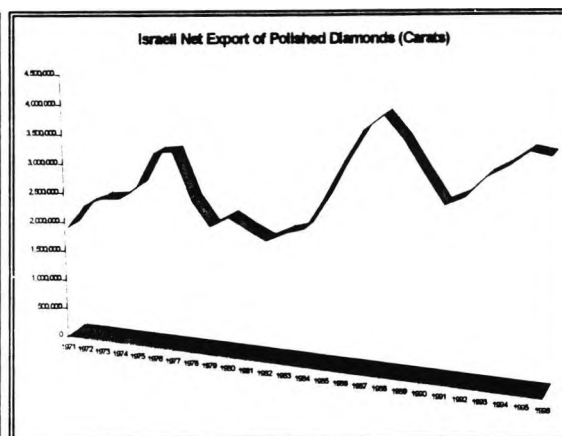


Figure 9-19: Import in Carats

Israel exports diamonds to over 80 countries (Israeli Ministry of Industry and Trade Statistics, 1996). It owes much of its success to its highly skilled and diversified work-force. The backbone of the industry was a sub-contracting system in which small producers complement the output of larger manufacturing firms (Lenzen, 1970). A unique feature of the Israeli diamond manufacturers was the fact that workers were paid by piece work and not a fixed salary (Shainberg, 1987).

The industry has been aware that, in order to maintain an edge over other diamond

centres, it must not deal in polishing diamonds that the labour element was a dominant factor of the production cost, as opposed to the Indian centre. Thus, the Israeli diamond industry focused more on profitable larger diamonds where labour costs are not significant. The following table (table 9-2) illustrates the official number of Israeli polished diamond exporters over the years by size of export. The table shows cycles of the number of firms operating in the Israeli diamond industry. One can ascertain from the table below, a consolidation of firms in the last three years. Industry experts believe, as does the researcher, that this trend will persist until a hard core emerges.

Size (US\$M)	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987
50>	8	11	8	6	4	2	10	7	7	2
20 - 49	29	25	24	19	22	22	21	23	17	17
10 - 19	46	51	45	39	37	35	27	25	27	32
5 - 9	87	81	79	69	64	54	60	69	52	40
1-4	246	234	238	231	218	223	208	202	238	193
>1	492	545	561	496	525	527	612	953	652	680
Total	908	947	955	860	870	863	938	1,279	993	964

Based on: Ministry of Industry and Trade statistics, 1996

Table 9-2: Number of Exporters by Export Size

In order for the Israeli diamond Exchange to continue being a centre to be reckoned with, it must keep a wide range of product and services. If diamond buyers do not find a whole product range in the Israeli diamond centre, experts claimed that the diamond buyers might defect to other global diamond centres. Although the Israeli diamond industry is focused on high quality diamonds it must import low quality polished diamonds from India, and very high quality diamonds from the US, to realise a full product line, to be a one stop centre. Hence, the ability to import polished diamonds cheaply and quickly is essential for the success of the Israeli diamond industry. The following two figures (figures 9-20 and 9-21) depict those imports of polished diamonds. It is important to note the sharp increase in the 1990s:

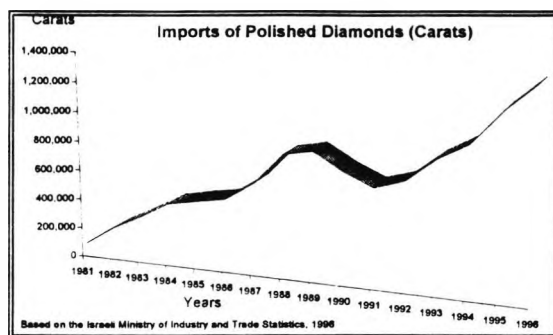


Figure 9-20: Diamond Imports (Carats)

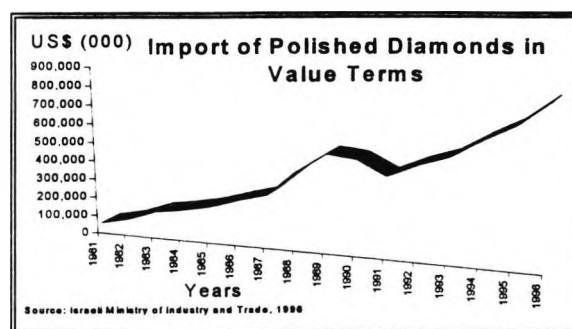


Figure 9-21: Diamond Imports (US\$)

Passive marketing of polished diamonds in this period was still a very common phenomenon in the Israeli diamond industry. In other words, many of the Israeli polished diamond exporters waited for the diamond buyers to come to them and, only recently, have they started sending their sales forces out to the buyers with specific strategic plans. The little marketing that is undertaken is presently illustrated through arm's length mechanisms, such as exhibiting in diamond and precious stones exhibitions and advertising in industry specific magazines.

The researcher views these moves as reactive to the decline in trust and as an initiative to find a fit with new realities in the competitive environment surrounding the diamond industry. This point is further illustrated in the following quote from the researcher's field work: "I see advertising and exhibitions a waste of my time and money. I do it to keep up with the Jones's thus, not seen as the odd one out There is also an element of peer pressure to exhibit and advertise"

Industry experts claimed in the researcher's interviews that DeBeers is a monopoly using a competitive market to get the best prices for its rough diamonds. It uses monopoly power to control the pricing and availability of rough diamonds that are the sole source of raw material for the polished diamond industry (Paribas Capital Markets, 1996). The DeBeers group is stronger today than ever before, as a result of the decree which was signed on July 21, 1997, between ARS (Russia) and DeBeers. The decree approved the continued co-operation between the two

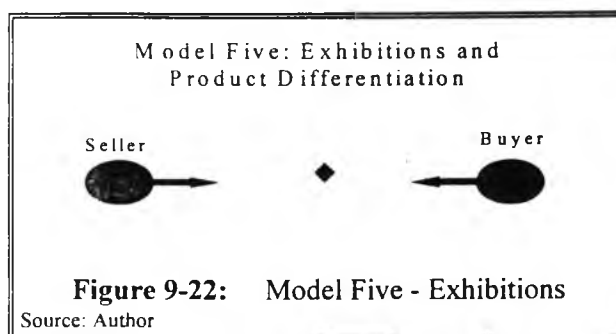
giants in controlling the supply side of the diamond market, thus, jointly regulating the price of rough diamonds and minimising leakages outside the single marketing channel (i.e the CSO). DeBeer's monopoly power extends into the polished markets because it controls the supply side of the polished diamond equation (Economist, 1992b).

On the other hand, DeBeers does not control the demand side of the diamond equation (Saldern, 1990). For instance, if demand for polished diamonds decreases or polished diamond prices fall, DeBeers does not automatically lower its prices of rough diamonds as would happen in many other competitive markets. Those diammantaires holding CSO sights are forced to subsidise, to some extent, DeBeers profits (The Economist, 1992b) as they are forced to purchase what is offered at a pre-determined price through a hostage mechanism. Martin Rapaport, a leading journalist, analyst and the publisher of the Rapaport price list claims that the diamond industry and especially the Israeli diamond industry is in crises to a large extent as DeBeers is absorbing a disproportionate share of industry generated profits.

Because of these environmental changes, further decline in trust was imminent. As a result, Decline in Trust II was illustrated by the researcher. Such decline in trust is depicted as a result of the fact that many Israeli diammantaires moved to arm's length contracts, penalties and legal arrangements as opposed to semi structures and oral contracts (based on researcher's perceptions and industry experts). The prevalent view in the Israeli diamond industry was a diminishing willingness to trust others. Thus, when trust was violated, a diammantaire was likely to either renegotiate the contract, to better ensure the desired outcomes, or to seek another relationship (Spar, 1994; Bernstein, 1992). Trust in the Israeli diamond industry became even more fragile as there was little recent history of trust to count on. In this instance the diammantaires were careful about the degree of risk and built in safeguards to protect themselves (Bernstein, 1992). A common quote was "You win some, You lose some".

Exchange model five (figure 9-22) named as "Exhibitions" is a result of an influx of

“new blood” and relatively more educated actors entering the Israeli diamond industry. It seemed to the researcher that a more pragmatic way of selling diamonds was initiated in the late 1990s to fit into the new competitive landscape. Up to this stage, Israeli diammantaires were only reactive to environmental threats. Model five was the first relatively pro-active marketing model based on arm’s length economic exchange that was implemented in the Israeli diamond industry. Although diamond and precious stone exhibitions were not uncommon or new, globally, exhibiting was undertaken for the first time in Israel during 1996 under the banner of “Israel the Source”. Interviewees claimed that Israeli diammantaires realised that foreign diamond buyers were not returning to the Israeli diamond centre, thus, there was a need to aggressively pull them back. The following figure (figure 9-22) depicts model five:



As a result of the decline in trust and structural changes, diammantaires may purchase today polished diamonds through electronic means. Buyers and sellers started advertising their demand and supply needs globally through arm’s length mechanisms, such as electronic means. The volume of sales through electronic means, was claimed by industry experts, as trivial, but was seen by many diammantaires in strategic group two as the future scenario of exchange. Little use was, to an extent, a result of the industry structure and the reluctance of diammantaires. especially in strategic group one, to utilise this means of exchange. An example of one electronic data base is the Diamond Link illustrated in the following figure (figure 9-23):

[illegible]

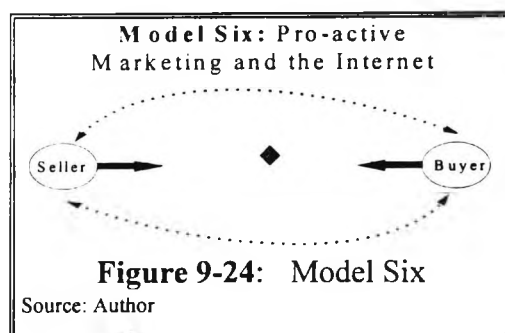
The researcher claims that the introduction of the Internet and the World Wide Web (WWW) in the Israeli diamond industry has a more interesting and deep implication than just a virtual front or shop. The researcher presumes that the Internet and the WWW will strongly influence the future structure of the diamond industry and affect how transactions are implemented. In other words, a second shock wave, after the introduction of the Rapaport price list. Information on diamonds for sale, potential buyers, and market trends was traditionally conveyed through word of mouth.

Social networks were a fundamental factor of an actor's success or failure. Such information that was once conveyed through social networks was finding itself available through the Internet and the WWW to all. In other words through arm's length ties, thus, the industry may need to restructure itself in a different way to cope with the global information environment. The researcher has illustrated this trend (see case study three), but furthermore in the last year exponentially more Israeli diamond firms have created home pages and utilised email tools. This change may have lowered the barriers to entry and so changed the prevalent business practices where trust may no longer play a role in economic exchange, but this is generally out of the scope of this doctorate thesis.

Exchange model six - the Internet (figure 9-24), started to be implemented in 1997. It had

come about with the need of aggressive proactive marketing, with the decrease in trust, and utilising Israel's competitive advantage in high-tech industries. As a result, Israel was one of the first diamond centres to have a web sight and virtual diamond shops. Furthermore, Israeli diammantaires were some of the first to start marketing polished diamonds through the Internet to the public (Even-Zohar, 1997b).

This is a bold transformation from one extreme, the socially embedded trust based exchange, to the other extreme of arm's length ties over the Internet. This change is explained by a quote from a diammantaire interviewed by the researcher: "It is only natural that the younger generation should see things differently from their elders. A person with extensive experience may sometimes hesitate to try a new technique or novel approach because of the very experience ... our fathers grew up with their firms, so that their management approaches were relevant for that time ... the younger generation, have been trained in different frameworks, in the secondary school and in the army, where we learned new approaches to the business and management". The following figure (figure 9-24) depicts model six:



In summary the six models of exchange above are still all implemented to a varying extent. The model used in any exchange in the Israeli diamond industry depends on the clientele, market, seller, and the type of diamond exchanged. There are no rules for when each model will be implemented and which necessarily has a higher economic success rate. It's up to the subjective feeling of the actors involved to choose the correct model for the transaction. It is important to note that the use of any one model does not rule out using another for a different

market or client. Furthermore, case study three illustrates that arm's length exchange seems to lead to a higher probability of economic success.

In conclusion, anonymous exchange in economics, in many cases, is served as a starting point for analysing competition. In reality, one may need to take into account social structures and social relationships when analysing competition. Trust as a means of facilitating exchange is crucial (Ernst and Bleeke, 1993) in the Israeli diamond industry; and is important in various areas, such as, management (Barney and Hansen, 1994; Ring and Van de Ven, 1994) and social sciences (Landa, 1994; Elster, 1989; Luhmann, 1979). Burt (1992) claims that in imperfect competition, trust is critical. The question is not whether to trust or not, but whom to trust. It is therefore not the presence of trust that is distinctive in the Israeli diamond industry but, rather, the depth and nature of its social embeddedness (Bernstein, 1992; Spar, 1994) and its sharp decline over the last few years.

As trust declined, Israeli diammantaires were increasingly unwilling to take risks, demanded greater protections against the possibility of betrayal and increasingly insisted on costly sanctioning mechanisms to defend their interests, thus, feeding the cycle of mistrust (Bernstein, 1992). The rational perspective recognises that declining trust in exchange increases transaction costs, because actors must engage in self protective actions and be continually making provisions for the possibility of opportunistic behaviour by others (Bernstein, 1992).

This change in organisational behaviour reflects the decline in the stability of the prevalent social networks based on trust. Such changes have increased the number of one-shot interactions observed by the researcher in the Israeli diamond industry. As a result of increased competition, decline in trust and rationalisation of the diamond industry, DeBeers plans to inscribe its name in tiny letters on each polished diamond it produces to bolster consumer confidence at a time of less than sparkling sales. The strategic move by DeBeers further illustrates a decline in trust, as such inscriptions were supposed to certify polished diamonds.

10. Case Study three - Business Performance and Limits to Trust: The Israeli Diamond Industry in 1997

"Historians say that, when Moses led the Jews out of bondage in Egypt, he turned left. If Moses had turned right, we would have the oil, but Moses was a visionary. He Turned left, moved his people up along the shores of the Mediterranean and - instead of oil - he gave the Israeli people Ramat Gan and the Diamond Bourse."

Anonymous Diammantaire

10.1 Introduction

Case study three is confined to Israeli polished diamond exporting firms who are physically located in Israel in 1997. The study focused on the business level strategy variables, for instance, strategies concerned with a diammantaire's operations as opposed to the corporate level strategy. The firms involved were mostly Single Business Units (SBUs), with narrow product lines and structures and family owned.

The population of Israeli polished diamond exporters comprised of 908 polished diamond exporting firms in 1996. Out of the overall population of Israeli polished diamond exporters, the researcher was able to screen and identify, based on the three stated parameters in the research methodology, 190 firms who: (a) are polished diamond exporters; (b) export polished diamonds in the value of US\$4m and over in 1996; and (c) are physically located in the Israeli diamond Exchange. The 190 firms represent 21% (1996) and 20% (1995) of the number of Israeli diamond exporters (i.e. 190/908), but they represent 80% (1996) and 75% (1995) of Israel's net official polished diamond exports a year in value terms. The researcher sampled 100 firms out of the 190 (53%) official diamond exporters in 1996 or 11% of the total population (100/908). Furthermore, they represented 56% of the total official Israeli polished diamond exports by value (1996), 53% (1995), and 50% (1994). Thus, the researcher presumes that sampling 100 Israeli polished diamond exporters is a representative sample.

Case study three compares and contrasts three distinct strategic groups within the Israeli diamond Exchange. The first strategic group (strategic group one) deals purely with tacitly

priced polished diamonds (10 firms); the second strategic group (strategic group two) deals with explicitly priced polished diamonds (37 firms); and the third strategic group (strategic group three) deals with a mixture of both (63 firms). The researcher will compare and contrast the three strategic groups on their intensity of social networks, marketing mix, and managerial characteristics leading to differences in economic performance. In line with Uzzi's work (1993, 1996, 1997), the researcher will indicate that the structure and content of ties in exchange, within the Israeli diamond industry, significantly affects a polished diamond firm's strategic behaviour. The aim of this case study was to answer the following four exploratory propositions:

The *first* exploratory proposition addresses the importance of socially embedded exchange based for instance, on reputation, trust and social networks, as facilitators of exchange. It is thought that socially embedded exchange affects business practices in the Israeli diamond industry, thus, the weaker the ability of prices to deploy information on the polished diamonds being exchanged in the Israeli diamond industry, the more Israeli polished diamond exporters will form and rely on socially embedded ties to facilitate exchange. The researcher will illustrate that strategic group one, dealing with polished diamonds, not covered by the Rapaport price list, find their exchange highly embedded in social networks compared to strategic groups two and three. This exploratory proposition illustrates the link between the type of polished diamond exchanged and the firm strategy employed.

The *second* exploratory proposition examines whether social embeddedness, as opposed to arm's length exchange of Israeli polished diamond firms operating in the Israeli diamond industry increase one's probability of economic success as defined in this doctorate thesis. The researcher has found that the three strategic groups have significantly different economic success rates. Strategic group one was found to have a lower economic success rate compared to strategic groups two and three. The third strategic group, was found to have a moderate economic success rate, i.e higher than strategic group one, but lower than strategic group two.

The researcher found from the field work that the operators/owners in the family orientated Israeli polished diamond exporting firms, are involved in all key aspects of the business and consequently have firsthand knowledge of the firm's strategy and administrative activities. The *third* exploratory proposition queries what are the managerial characteristics of the operator/owner of the Israeli polished diamond exporting firm, in facilitating its economic success. From the research it was found that operators/owners in strategic group one (i.e least economically successful) with polished diamonds not covered by the Rapaport price list, are (1) significantly longer in the diamond business; (2) significantly longer members of the Israeli diamond Exchange; (3) significantly stronger rooted from diamond families and (4) significantly operating in young firms compared to strategic group two and three. The implications of these findings will be discussed further in the case study. The following Table (table 10-1) summarises the main firm and management characteristics found in the fieldwork:

Characteristics \ Group	Group One	Group Two	Group Three
FIRM			
Average Export (US\$m)	9	17	27
Years in operation	7.60	17.96	18.65
Years in Firm	7.10	12.01	14.40
Type of diamonds	No Price List	Full Price List	Partial Price List
Average no. employees (office)	5.00	9.56	14.81
Average no. of employees (manu.)	26.60	66.08	109.34
% have an export department	0%	59%	36%
% Manufacture & Market	70%	81%	98%
No of Firms sampled	10	37	53
Generic Strategy of exchange	Over socialised	Under socialised	Relational
MANAGEMENT			
Age	48.90	42.44	45.92
% Male	100%	97%	90%
Years of Education	12.00	12.50	12.39
Years in Business	29.70	15.95	23.17
Years Member of IDE	22.30	10.54	14.37
% Worked for another firm	50%	42%	43%
% from a diamond family	100%	39%	34%
% family will follow	60%	61%	76%
Generations in diamonds	1.50	1.16	0.84
PERFORMANCE			
% Success rate	10%	49%	23%

Table 10-1: Main Firm and Management Characteristics

The *fourth* exploratory proposition is rooted in the risks of over-embeddedness and path dependency, in exchange (Pouder and St John, 1996). This led the researcher to make the following exploratory proposition: Israeli polished diamond exporters that build their competitive advantages on the use of socially embedded ties, will be at a higher risk of economic failure (as institutional changes fundamentally rationalise the basis of exchange), than their counterparts who base their transactions on arm's-length ties. It seems that socially-embedded exchange was predominant until an institutional change occurred in 1978 with the publication of the first polished diamond price list by Martin Rapaport. Furthermore, this trend was complemented by a further shock in 1996 with the onset of the World Wide Web, Internet, and electronic data bases such as the Diamond Link. It was thought that those firms changing and adapting their structure and strategy to the new environment may have had a significantly higher economic success rate, than those firms which have not, or partially not, adapted to the environment (Bettis and Hitt, 1995; Hamel and Prahalad, 1996).

10.2 The Structure of the Israeli Diamond Industry in 1997

Israel has a strong reputation for manufacturing medium to large-sized polished diamonds of high quality (Scriven, 1997; Paribas Capital Markets, 1996; Economist, 1992b). The Israeli diamond industry is an important global centre for trade in polished and rough diamonds (Shur, 1996). It imports all its inputs (rough diamonds) and most of the outputs (polished diamonds) are destined for export, especially to the US (Economist, 1992b; Harel, 1986; Bruton, 1981). In other words, it is a value added centre (Tidhar, 1996). The Israeli diamond industry is highly susceptible to price fluctuations of rough diamond, as it is heavily dependent on rough diamond allocations from the CSO through the single marketing channel (Shur, 1996).

Other diamond centres such as India are prone more to labour cost fluctuations (Shur, 1996). This may be due, in some part, as a result of the high labour element in polishing and cutting small diamonds of relative low quality (Scriven, 1997; Paribas Capital Markets, 1996; Saldern, 1990). Small diamonds polished by the Indian diamond centre emanate mostly from various sources outside the CSO (Paribas Capital Markets, 1996; Economist, 1992b), such as Australia, thus, the Indian diamond industry is relatively less susceptible to price fluctuations of rough diamonds than the Israeli diamond industry.

Israel was the world's largest buyer of rough diamonds in 1996 from the CSO (Shur, 1996), based on DeBeers annual reports and triangulated with calculations of industry experts who claim that DeBeers sold rough diamonds to the value of US\$4.834bn in 1996 (DeBeers annual reports, 1996). It is calculated that Israel purchased around the value of US\$3.8bn worth of rough diamonds (Israeli Ministry of Industry and Trade Statistics, 1996), of this to the value of US\$2.5bn from DeBeers (Shur, 1996), which is around 50% of the CSO's total output. Polished diamond exporting in Israel is concentrated in the hands of a few large firms. For instance, the eight largest Israeli polished diamond exporting firms represent 0.8% of the total population of Israeli diamond exporters. On the other hand, they represent 35% of the total Israeli polished diamonds exports by value (1996). As a result, the researcher concluded that the Israeli diamond industry is highly concentrated (see appendix - three).

At present the Israeli diamond industry is positioned at a cross-roads between continuing being a major global diamond manufacturing centre and that of evolving to becoming an important diamond trading centre, with manufacturing moving to other low cost centres (Forem, 1997). Therefore, because of this predicament, the Israeli diamond industry was interested in this study's inter-industry analysis and, as a result, institutional bodies as well as Israeli polished diamond firms co-operated with the researcher in his fieldwork. To further the understanding of the players in the Israeli diamond industry, there is a need to elaborate on its main structures.

The Israeli diamond industry in 1997 was divided into the following four main industry structures:

The Israeli Diamond Manufacturing Association. The Israeli Diamond Manufacturers Association (IsDMA) was established in 1944 and has around 300 member (1997). At first, the purpose of the organisation was to find solutions regarding the supply of rough diamonds to Israel. Later the foundations were laid for the extensive activity of the Association in other fields pertaining to the work of the Israeli diammantaires (Ami, 1990a). The IsDMA represents the Israeli diamond industry and promotes R&D aimed at advancement and improved efficiency in the manufacturing process. Furthermore, it strives to secure an increased allocation of rough diamonds and better the working terms for Israeli manufacturers. The Association handles all labour related issues in the Israeli diamond industry and seeks to improve the facilities and education of the actors involved (Schnitzer, 1988).

The Ministry of Industry and Trade - Diamond Division. As a result of the importance of the diamond industry to the Israeli economy, the Israeli government set up an office of the Ministry of Industry and Trade in the Israeli diamond Exchange, i.e the Shimshon building. It is presently headed by the diamond controller, Mr. Tzafrir Inbar (1998). Thus, diammantaires can conduct all official business with the Israeli government without ever having to leave the Israeli diamond complex.

The Israeli Ministry of Industry and Trade - the Diamond Division functions to assist Israeli diammantaires by removing, as much as possible, bureaucratic obstacles - for instance, computerising import/export licence procedures. It initiates policy directed at the facilitation of trade and provides a direct line to various governmental offices. In addition, it improves security as there is no need to leave the Israeli diamond complex to get documentation pertaining to exports and imports of diamonds or precious stones.

The Israeli Diamond Exchange. The Israeli diamond Exchange (Bourse) has over 2,500 members (Israeli Ministry of Industry and Trade Statistics, 1996). It provides members, be they diamond sellers or buyers, with a multitude of services, such as official weighing of diamonds, arbitration in case of disputes, the diamond trading floor and secure storage facilities. Furthermore, it serves as the central liaison between the diamond business and the government of Israel, the banks, and other financial institutions. Therefore, all the secondary structures needed to conduct business by diammantaires are under one roof.

The Israeli Diamond Institute. The Israeli Diamond Institute (I.D.I) is a non-profit organisation. Its aims are to better co-ordinate the research and development schemes conducted by the Israeli diamond industry. It is mainly funded by the Israeli diamond community and devotes its resources to R&D and to maintaining the efficiency and productivity of the Israeli diamond industry as a whole. The responsibilities of the I.D.I encompass four generic areas: (1) R&D; (2) vocational training; (3) public relations and promotion of the diamond industry as a whole; and (4) safety and security procedures for diamond plants around the country. The following figures (figure 10-1 to 10-2) depict the overall structure of the Israeli diamond Industry in 1998:

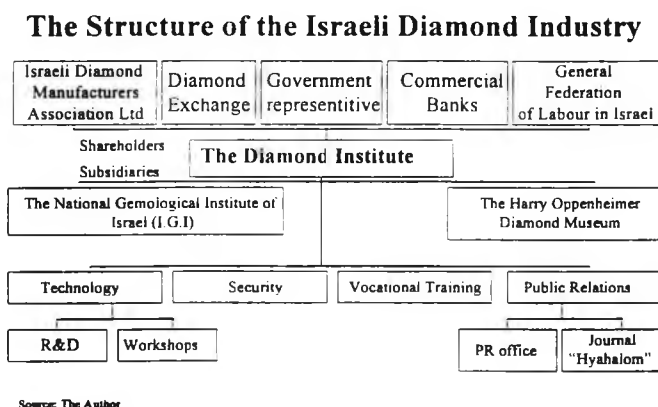


Figure 10-1: Structure of the Israeli Diamond Industry (P1)

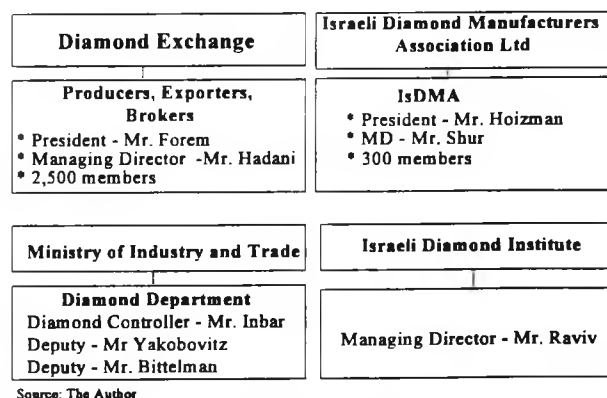


Figure 10-2: Structure of the Israeli Diamond Industry (P2)

To understand better the decision-making process and the socially embedded networks in the Israeli diamond industry, it is necessary to understand the basic decision- making process,

thus, the following figure (figure 10-3) depicts the typical decision- making process involved in exchange, taking place in the Israeli diamond industry:

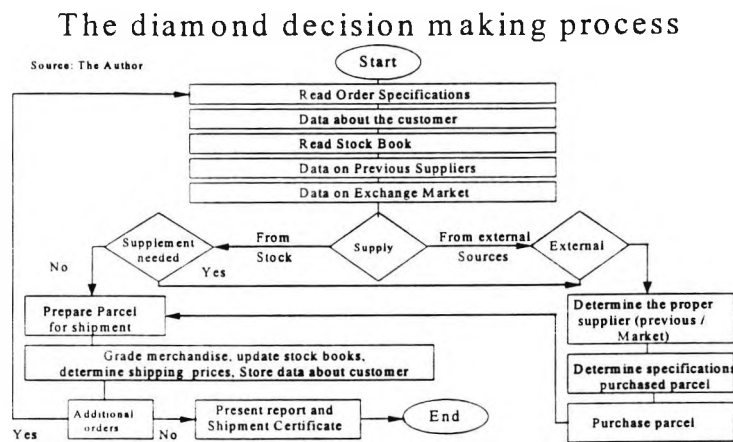


Figure 10-3: The diamond Decision Making Process

10.3 Discussion

10.3.1 An Overview

This doctorate thesis illustrates organisational behaviour, through an understanding of how socially embedded exchange among actors affects market structure and the resulting behaviour of actors within it. Case study three links up the existing literature review on identity, reputation, social networks, trust and governance mechanisms, with the exploratory propositions within the context of the Israeli diamond industry and in line with the research methodology.

As claimed by Schelling (1978) and Katz and Shapiro (1985, 1994), and backed up by the researchers field work, it seems that actors tend to create networks comprised of others who are similar to themselves. This may be based on various characteristics such as age, origin and socio-economic background. The population sampled was divided into three strategic groups, based on the type of polished diamonds most often exchanged to make inter-industry comparisons possible. It was found that the type of diamond exchanged was related to the management characteristics, firm strategy and level of the firm's performance.

From the researcher's fieldwork, one can observe that Israeli diammantaires within strategic group two, who transact in polished diamonds fully covered by the Rapaport price list,

are based on the undersocialised perspective. In other words, actors are considered to be interchangeable. In this case, it is the content of the exchange which determines exchange (Granovetter, 1985).

For actors in strategic group one, who transact in polished diamonds not covered by the Rapaport price list, it is the relationship between potential exchange partners that enables exchange, i.e the oversocialised perspective, thus, not only direct exchange related variables are important in facilitating exchange but holistic ones as well. In this case, exchange is constrained by existing social relations such as one's identity, trustworthiness and reputation as well as what is being exchanged. In other words, the "relationship" is a function of both exchange actors.

Strategic group three deals with a mixture of both tacitly and explicitly polished diamonds, and implements a relationship perspective. In this case, exchange takes into account one's identity as well as what is being exchanged. This perspective is between the over and under socialised view of exchange. The relationship is seen as the conduit through which interaction occurs, but it cannot be reduced to what is being exchanged or to an actor's social position.

It seems from the researcher's fieldwork that uncertainty in strategic group two is relatively lower than that in strategic group one. This may be due to the difficulties of valuing the polished diamonds exchanged in strategic group one. This fact is in line with the literature review where Israeli diammantaires, in strategic group one seem to seek alternative sources of information such as opinion leaders and experts, as their environment is besieged by imperfect information (Bettis and Hitt, 1995; Hamel and Prahalad, 1996).

To further the doctoral thesis towards its conclusions, the researcher has addressed in the following section the four exploratory propositions presented. The structure of case study three observed closely the tools established in the methodology chapter and was in line with the literature review conducted.

10.3.2 Exploratory Proposition One

Exchange Mechanisms. The weaker the ability of prices to deploy information on polished diamond being exchanged, the more the Israeli polished diamond exporters will form and rely on socially embedded ties.

In many arm's-length exchange, actors regularly replace exchange partners to take advantage of new opportunities or to avoid over dependency on one specific exchange partner (Sako, 1992). It is assumed that interaction is rational, self-interested and minimally affected by social relations (Uzzi, 1996, 1997; Granovetter, 1985). In an exchange through the market, actors are considered to be interchangeable (Williamson, 1975, 1979, 1981; Chandler, 1962), thus, social relations are seen as unimportant as facilitators of exchange. It is the content of the transaction, which is exchanged between actors, as well as its price and quantity that determines exchange. Only these things capable of being exchanged in the marketplace, explicit elements, are conceived as having any value (Granovetter, 1985). In this case, the move from one exchange partner to the other is limited to economic data - for instance, price, payment terms, the product itself, and risk. This shifting from one partner to another may be an attempt to avoid entrapment in inefficient relationships (Hirschman, 1970).

On the other hand, socially embedded exchange is based on trust and personal ties, rather than explicit contracts (Gerlach, 1992; Sako, 1992; Grief, 1992). Information exchanged in socially embedded exchange is more detailed, holistic, tacit in nature than price and quantity that are key in arm's length exchange (Bernstein, 1992), thus, in arm's length exchange, information exchanged covers mostly price and quantity (Granovetter, 1985). Hence, it is limited in scale and scope compared to socially embedded exchange. In other words, the information exchanged in socially embedded exchange is more propriety and detailed than the information traded in arm's length exchange. The information exchanged goes well beyond the simple exchange of prices and quantity. It may include information on strategic plans and how prices and costs are

determined (Uzzi, 1997), thus, not only explicit, but tacit information may be exchanged as depicted in the following quote: "Sometimes in heated negotiations a diammantaire wants to inspect my safe - I let him see my safe as I have nothing to hide ... The fact that I let him see my safe builds trust, that leads to a good reputation which is good for future business."

The researcher has observed in the field work that the Israeli diamond manufacturing process and exchange are highly subjective and embedded in social networks (Spar, 1994; Bernstein, 1992; Economist, 1992b). It may be hard for industry experts to articulate and separate their knowledge into discrete parts (Nonaka, 1991). For instance, different polished diamond manufactures may see different ways of cutting and polishing a rough diamond. Such differences may be based on their experience, professional ability and market demands (Ghaswala, 1987; Benson, 1988). In other words, it is difficult to codify this tacit knowledge into a coherent or explicit pattern, or convey it through arm's length ties, without the loss of information of the expert (Nonaka and Takeuchi, 1995). This claim is furthered by the following quote: "The diamond business largely depends upon experience transmitted from father to son. Anyone attempting to learn the trade on his own must be prepared for sweat and toil ... Even then, some things have to be learnt from the parent generation, who started out as diamond workers and feel the very pulse of the industry and firm".

Social Embeddedness. The researcher concluded from his field work that the relationship between Israeli diammantaires who, for instance, send their rough diamonds for polishing, whether it be a fully owned polishing factory or an independent subcontractor, are tightly coupled. This is owing to the fact that any loss, due to the cutting and polishing process of the rough diamond, is at the rough diamond owner's risk. Only in cases of extreme negligence on the side on the manufacturer can the subcontractor be sued in arbitration for damages (Bernstein, 1992). Thus, the findings of this doctorate thesis are in line with those found by Uzzi (1993)

which proposes that, to some extent, socially embedded exchange is a means of decreasing uncertainty in the environment for some Israeli diamond firms.

Furthermore, the researcher concluded from the fieldwork and from the literature review, such as Bernstein (1992) and Spar (1994), that actors with socially embedded ties, in most cases, shape expectations of fairness and needs, within the network rather than look for solutions across relationships. For instance, one diammantaire told the researcher in an interview: "When you deal with a broker or a diammantaire that you do not know well, it can be a problem. If things go wrong, only God knows what can happen. With someone I know, problems can be solved. I keep long term and friendly relations with my suppliers and customers as thats the only way to become important and if you are not important you are not shown the stones (polished diamonds) first."

It seems that the transfer of information in the case of the Israeli diamond industry is more intricate than mere price and quantity data. The researcher found that critical transactions, in the Israeli diamond industry, on which actors depend heavily, are socially embedded while other transactions may be categorised as just "correct" relations. For instance, the research has indicated that all firms in strategic group one told the researcher that their relationships with suppliers and customers move far beyond just correct business associations. They may go on holidays together and their children may even go together to summer camps.

The researcher was told by an interviewee in strategic group one that once he sent, for the first time, a brown coloured diamond to be cut and polished. Due to his good ties with his subcontractor, the job of cutting the rough diamond was stopped and queried, due to the fact that brown diamonds are softer than other types of rough diamonds. If they are cut, in most instances, they burst and one is left with boart quality fragments. Such rough diamonds must be sent straight for polishing. Hence, the close socially embedded relations safeguarded the money of the owner of the rough diamond due to the fact that the subcontractor revealed his knowledge.

The strength of the social tie is further highlighted by the fact that, although the manufacturer lost the current job of cutting the rough diamond, he was willing to forego the work by revealing his knowledge, a type of altruistic behaviour. This tacit knowledge is illustrated by a quote from an Israeli diammantaire interviewed: "My very soul is in the business and I get immense satisfaction when I succeed in obtaining the maximum from a rough stone."

Those Israeli diamond exporting firms, interviewed by the researcher, who transact through socially embedded ties (strategic group one) focused, in many instances, more on the quality of the relationship between potential exchange partners than on the polished diamond being exchanged. The following quote from an interview depicts an example of this view: "Treating your customer like a friend and associate, which is not only a question of clever business practice, but also a way of life. You establish your business on firm ground, whether times are rosy or not so rosy ... You must trust your partner to offer the best he can."

On the other hand, only around 10% of firms in strategic group two indicated that their relations with suppliers and customers moved beyond "appropriate" business boundaries, as opposed to 100% in strategic group one. Actors interviewed by the researcher in the Israeli diamond industry using arm's length ties in exchange (mostly strategic group two) focused the researcher's attention to the lack of trust, loyalty, non-repeated nature of much of the exchange undertaken in the Israeli diamond industry, (as illustrated in case study two). Interviewees highlighted the importance of price over all other elements of the exchange. The following quote from an interview of a firm in strategic group two illustrates an example of this view: "No company, no matter how good its relations with its customers, suppliers and brokers is as important as the end price of the diamond. Price at the end of the day will close the deal not friendship! ... Diammantaires will sell their 'mothers' if there is a profit to be made in it!"

In the researcher's field work, a five point bi-polar scale was utilised with values ranging from "1 = Extremely Crucial" to "5 = Not Relevant". Interviewees were asked to indicate the

importance of a number of factors to their probability of business success in exporting polished diamonds from Israel. Furthermore, a reliability test, through SPSS, was undertaken to examine the consistency of the data. The variables were found to be 74% reliable which is within acceptable interval for such a study, see appendix nine. The following table (table 10-2) illustrates the Tuckey - HSD table. It illustrates the averages of some of the differences found in the field work between the three distinct strategic groups and their significance at a 5% confidence interval. See survey results for the complete table and methodology chapter on Tuckey - HSD.

No.	Group Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
1	Firm Reputation Mean Tuckey-HSD test F - test	1.00 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.1917	2.35	1.52
2	Contact at exhibition/fair Mean Tuckey-HSD test F - test	4.60 <i>group two is significantly different from group one at the 0.05 level</i> 0.0126	3.49	3.90
3	Lower price than competitors Mean Tuckey-HSD test F - test	3.30 <i>group three is significantly different from group one and two; and group one and two are significantly different at the 0.05 level</i> 0.0000	1.62	2.31
4	Advertising Mean Tuckey-HSD test F - test	4.90 <i>group two is significantly different from group one at the 0.05 level</i> 0.0163	3.65	4.13
5	Freq. comm. with cust. Mean Tuckey-HSD test F - test	1.00 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0084	2.05	1.77
6	Good Relations with Brokers Mean Tuckey-HSD test F - test	1.30 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.0000	2.65	1.87
7	Good Relations with cust. Mean Tuckey-HSD test F - test	1.00 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.0000	2.03	1.06
8	Good Relations with Suppliers Mean Tuckey-HSD test F - test	1.00 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.0000	2.32	1.40
9	Do you advertise Mean Tuckey-HSD test F - test	0.20 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0010	0.80	0.61
10	Do You visit exhibitions Mean Tuckey-HSD test F - test	0.20 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.0000	0.88	0.53
11	Do You Exhibit in Shows Mean Tuckey-HSD test F - test	0.10 <i>group two is significantly different from group one at the 0.05 level</i> 0.0056	0.74	0.49

Table 10-2: P1 - Tuckey - HSD

Social Capital. Reputation is a crucial element in socially embedded exchange, as it describes some of the intangible sets of values actors associate with other actors. It is derived from one's experience since its founding (Fombrun, 1993). In other words, it is the cumulative record of the business successes and failures of an actor and/or a firm (Kramer and Tyler, 1996; Grief, 1989; Camic, 1992). It is a perceptual representation of one's past actions and future prospects. It describes one's overall appeal to all of the stakeholders, when compared with others (Fombrun, 1996; Choi et al, 1995; Weigelt and Camerer, 1988). Therefore, reputation is an implicit signal outside an individual's control. It may inform investors, employees and customers about one's strengths and weaknesses and more importantly, about what to expect in the future based on past experiences (Fombrun, 1996; Choi et al, 1995; Jervis, 1989). A reputation is an intangible element of an actor's business strategy (Dollinger et al, 1997). It can be employed and leveraged to reduce uncertainty in the environment (Fombrun, 1996), thus, reputation building is strategically important in incomplete information settings. For instance, it is important in settings where actors are not equally informed about another's attributes or quality of products offered (Weigelt and Camerer, 1988) such as those encountered by firms in strategic group one.

From the researcher's field work, it is possible to note that actors in strategic group one, i.e. those who deal in tacitly priced polished diamonds, seem to inhabit a much more uncertain environment than both, strategic group two, i.e. deal in explicitly priced polished diamonds, and strategic group three, i.e. those who deal in a mixture of both tacitly and explicitly priced polished diamonds. This is a result of the fact that the value of the polished diamonds dealt in are non-standard and no fixed price is attached to it, thus, in order to decrease uncertainty, strategic group one uses social capital, to a greater extent than strategic groups two and three, as a tool to reduce uncertainty in exchange (see table 10-2). It is possible to note that reputation is significantly more important in strategic group one as a facilitator of successful business activity

than in strategic groups two and three (1.00 vs. 2.35 vs. 1.52). In other words, strategic group one relies much more on a holistic tool, such as reputation, in facilitating successful exchange than strategic groups two and three. One interviewee in strategic group one claimed that: "We don't want customers to buy from us only because of cheaper prices, but also because of our method of supply, sorting, and trustworthiness". On the other hand, a diammantaire in strategic group two claimed that: "I respect friendship, but at the end of the day - money talks".

The identity of the actors involved in exchange of tacitly priced polished diamonds, i.e. strategic group one, is extremely important in relation to explicitly priced polished diamonds, i.e. strategic group two. This is because identity formation is part of the process of building trust and reputation between exchange partners (Granovetter, 1985; Bonacich, 1987; Podolny, 1993; Elsbach and Kramer, 1996). One's identity is a way of decreasing environmental uncertainty in exchange through markets (Landa, 1994), thus, Israeli diammantaires may overcome uncertainty in exchange, to some extent, by market discrimination through the ability of identification of potential exchange partner's attributes (Podolny, 1993; Hosmer, 1995; Pouder and St.John, 1996) or/and through certifiers such as diamond brokers (Spar, 1994; Bernstein, 1992; Benson, 1988).

From the research on the Israeli diamond industry, the researcher concluded that in strategic group one, one's favourable identity, in most cases, is a prerequisite for any exchange. It is important to note that one's identity is still important in strategic groups two and three, but not as important as in strategic group one, see table 10-1, q6-8. If a potential exchange partner's identity cannot be fully established, certification by a mutually trusted middleman, i.e. a diamond broker may be the only way an exchange can occur (Spar, 1994). This phenomenon is illustrated in an extreme case in strategic group one. For instance one interviewee from strategic group one claimed that: "Here identity and the ability to trust is not just a useful and welcome quality - here it is far and far more. It is the one functional factor on which the very foundation

of the business stands. Trust and identity is not just the 'cement' which keeps the trade together, but it is also the 'engine' which makes it run. Without it there is no diamond business ... people buy from us not only because of cheaper prices, but also because of our family name - our sterling reputation."

Diammantaires in strategic group one claimed that certifiers such as diamond brokers are crucial to enable exchange. On the other hand, diammantaires in strategic group two claimed that certifiers are relatively unimportant (1.30 vs. 2.65 vs. 1.87). This point is further highlighted by the following quote from a diammantaire in strategic group one: "Sometimes a broker or a manufacturer offers me a diamond that I don't know if I can make a profit on ... If he is a trustworthy friend, I'll take his word if he says I can make a profit on it ... If I don't trust him, I'd rather not buy it."

Marketing. Mass marketing may lead to a problem of market discrimination and identity certification in the Israeli diamond industry, thus, the researcher has found fundamental differences between strategic groups one and two in their promotional mix. It seems that strategic group one perceives frequent two-way communications with customers relatively more important, than both strategic groups two and three (1.00 vs. 2.05 vs. 1.77), to promote economic success (see table 10-2). This may imply that strategic group one is in dire need of attaining one's ongoing reputation and level of trustworthiness to facilitate exchange. Strategic group one focuses significantly more on word of mouth in attracting customers and suppliers, than strategic groups two and three (2.76 vs. 3.60 vs. 2.83; see survey results) and in facilitating successful exchange (1.00 vs. 2.05 vs. 1.77) as depicted in the following table (table 10-3):

Strategic Group	Yearly adv. spending (US\$K)	No. of years adv.	Times/year visiting exhibitions	Years visiting exhibitions	No. of times exhibiting a year	For how many years exhibiting
One	0.65	2.40	1.10	3.80	0.40	1.10
Two	12.68	6.60	1.86	4.81	1.08	1.26
Three	11.78	6.38	2.17	5.34	1.19	1.83

Table 10-3: Elements of the Promotional Mix by Strategic Groups

Table 10-3 illustrates that strategic group one's mass market promotional mix is significantly more modest to that of strategic groups two and three. This may imply that strategic group one is more reluctant to attract customers and suppliers from the mass market in relation to strategic groups two and three. For instance, strategic group one advertises (0.20 vs. 0.80 vs. 0.61), visits exhibitions (0.20 vs. 0.88 vs. 0.53) and exhibits in diamond shows/fairs/exhibitions (0.10 vs. 0.74 vs. 0.49), significantly less than both strategic groups two and three, see table 10-2 and 10-3. This may be due to the fact that mass market promotional mix does not necessarily convey the needed holistic information required in socially embedded exchange as illustrated in the chapter two and three.

It may be hard for diammantaires to market discriminate and determine one's identity through mass marketing tools. Thus, such media is shunned, to a large extent, by strategic group one as illustrated in the following quote: "I see advertising and exhibitions a waste of my time and money. I do it to keep up with the Jones's. Thus, not to be seen as the odd one out ... There is also an element of peer pressure to exhibit and advertise ...".

In conclusion, the researcher noted from the researcher's fieldwork, that strategic group one does not attract customers by way of mass marketing techniques (such as advertising and shows), in comparison to strategic group two and three and does not see it as significantly important. Strategic group one perceive advertising (4.90 vs. 3.65 vs. 4.13) and contacts at exhibitions and fairs (4.60 vs. 3.49 vs. 3.90) as significantly unimportant, in comparison to strategic groups two and three, as a facilitator of export success (see table 10-1). Therefore, strategic group one advertises, visits and exhibits in shows, fairs and exhibitions seldomly and irregularly, in comparison to strategic group two and three (see table 10-2).

The Importance of Relationships. Maintaining good relations with customers generally is important across the board, but maintaining good relations with customers in strategic group one is significantly more important than in strategic group two (1.00 vs. 2.03 vs. 1.06). This

illustrates the fact that where one deals in tacitly priced polished diamonds, one must trust the exchange partner more than in instances when actors trade in explicitly priced polished diamonds. This flows well with the claims by Darby and Karni (1973) and Choi and Hilton (1995) who claim that where quality is rarely learnt even after use, for instance, credence goods, one relies on the other's reputation and identity to facilitate exchange. Furthermore, a firm in strategic group one claimed in an interview that they were reluctant and in extreme cases refused to deal with those actors who did not achieve socially embedded ties. For instance: "Our customers look for reliable service and for suppliers who can meet their very specific, very individual orders ... If something goes wrong, I want to know that my exchange partner will do the equitable thing ... If I can't I'd rather not do business ...".

The problems of tacitly priced polished diamonds as credence goods is further illustrated in relation to the value of luxury goods. In such cases diamond and jewellery prices are more volatile as they are a function of what is in vogue (Economist, 1992b; Saldern, 1990). This may increase uncertainty in relation to tacitly priced polished diamonds (Paribas Capital Markets, 1996). This point is further stressed in the following quote from an interview of an Israeli polished diamond exporter: "I make money by buying polished diamonds when demand for them is low and 'sit' on them until demand picks up and then I sell them at a profit ... It is impossible to understand the market ... one day it is like this and another it is like that ... It seems that diamond prices outside the Rapaport price list are more volatile and unpredictable...".

Maintaining good relations with one's suppliers is relatively important to all the Israeli diamond exporters in facilitating an Israeli diamond firm's economic success. Its importance in strategic group one is significantly more substantial than in strategic groups two and three (1.00 vs. 2.32 vs. 1.40). This is the contrasting side of the demand/supply function. Where customers are fundamentally more important to suppliers and vice versa. This seems fundamental in strategic group one in order to decrease uncertainty in exchange, as opposed to strategic groups

two and three who base exchange to a large extent on price information available in the market (see table 10-2).

The importance of price for successful exporting of polished diamonds in strategic group one, i.e. tacitly priced polished diamonds is significantly less important from strategic group two, i.e. explicitly priced polished diamonds and group three, i.e. a mixture of both tacitly and explicitly priced polished diamonds (3.30 vs. 1.61 vs. 2.31). On the other hand, in strategic group two with its explicitly priced polished diamonds, price is extremely important to facilitate successful exchange.

This may be as one can compare specific prices of polished diamonds with others, and, may also be due, to some extent, to the fact that Israeli diammantaires were able to compare the prices offered to them with the prevalent Rapaport price list. On the other hand, in strategic group one focusing on tacitly priced polished diamonds, diammantaires have very little aptitude to compare prices as there is no price list or a standard polished diamond to benchmark it with. Therefore, it is possible to note that polished diamond prices are not necessarily the key information element in strategic group one in facilitating successful exchange while it seems fundamental in strategic group two.

In conclusion, it seems that there is a fundamental difference in the importance of the quality of the relationship between the Israeli polished diamond exporting firms involved in exchange and its customers, brokers, and suppliers, whether the Israeli diamond exporter's polished diamonds are covered by the Rapaport price list or not. It is possible to note from the researcher's field work that maintaining good relations with diamond brokers (1.30 vs. 2.65 vs. 1.87), suppliers (1.00 vs. 2.32 vs. 1.40), and customers (1.00 vs. 2.03 vs. 1.06) in strategic group one, is fundamentally and significantly more important for facilitating successful exchange than in strategic groups two and three (see table 10-2). These findings imply that as a result of the difficulty in determining price information in strategic group one, actors heavily rely on socially

embedded networks to reduce uncertainty and facilitate exchange relative to strategic groups two and three.

The researcher was able to conclude that in strategic group two compared to strategic groups one and three, price information is used more often to facilitate exchange, thus, the weaker the ability of prices to deploy information on polished diamonds being exchanged in the Israeli diamond industry, the more Israeli polished diamond exporters will rely on their socially embedded ties to facilitate successful exchange.

10.3.3 Exploratory Proposition Two:

Does socially embedded, as opposed to arm's length, exchange of Israeli polished diamond exporters operating in the Israeli diamond industry increase one's probability of success?

A firm's export success is a subjective term, as stakeholders may perceive export success differently (Louter et al, 1991; Cristensen et al, 1987; Cooper and Kleinschmidt, 1985). Knowledge of the factors that determine export success is rather inadequate (Cavusgil and Kirpalani, 1993). Researchers have measured export success by using either quantitative or qualitative measures. Das (1991) claims that the most widely used quantitative measure of export success found in the existing literature is based on export growth. Therefore, economic success in the case of this doctorate thesis, is in line with the chapter on methodology and the literature review. Economic success will be based on the increase in value of the official polished diamond exports of the Israeli polished diamond exporting firms sampled. An economically successful exporter is defined in this doctorate thesis as: A firm that has increased its exports for the last three years and in the last year (1996) by at least 10% in comparison to the previous year (1995).

Homogeneous networks such as the Israeli diamond industry as a whole, and the three defined strategic groups within it, may face different resource availability and competitive practices. It may have led the networks to evolve independently to its environment (Chiles and Meyer, 1997; Pouder and St.John, 1996). It seemed from the researcher's fieldwork, that three distinct strategic groups can be identified in the Israeli diamond industry. Each distinct strategic group in the Israeli diamond industry confronted the uncertainty in the environment, differently.

Strategic group one tried to reduce environmental uncertainty, increase economic success, and improve its competitive advantage by relying heavily on socially embedded networks, i.e the over-socialised perspective, based on historic exchange mechanisms. On the other hand, strategic group two has gone to the relative other extreme. It based its competitive advantage on arm's length ties, generally prevalent in most industries, based on explicitly exchanged information such as price, i.e the under-socialised perspective. Firms in strategic group three have decided to take the middle path, i.e the relational perspective. In this case the network is the conduit through which interaction occurs, but what is being exchanged fundamentally determines exchange.

Before disclosing the findings and its implications in the researcher's field work, there is a need to further the literature review on the advantages and disadvantages of arm's length exchange versus socially embedded exchange. The researcher would like to highlight that in arm's length exchange, obligations are explicit (Sako, 1992). On the other hand, in socially embedded exchange obligations are explicit and embedded in ongoing exchange (Granovetter, 1985; Uzzi, 1996, 1997). As obligations are satisfied in socially embedded exchange, a rising spiral of trust, information and knowledge exchange and joint problem solving, is procreated between the exchange partners (Nonaka and Takeuchi, 1995).

Over time, exchange was claimed to improve rather than promote exit as a result of uncertainties in the environment and joint problem solving (Hirshman, 1970). This spiral may

create a potential cycle of obligations and reciprocity (Nonaka, 1991). For instance, it may spark creative solutions to unanticipated problems (Kim and Mauborgne, 1997) without the need to specify before hand how income will be divided and how unforeseen contingencies will be handled (Bernstein, 1992; Benson, 1988).

Pouder and St John (1996) claim that competitive strategies of socially embedded firms in highly dense networks may, initially, be highly innovative; but in time firms tend to be less innovative and lose some of their competitive advantage. This may be as firms and actors benchmark their actions and views of business success against other actors in the same network, rather than against the total inter and intra industry population. This fact may explain, in part, the various levels of economic success illustrated in the Israeli diamond industry between the three strategic groups.

Networks may become so dense and path dependent that they may actually hold back the dissemination of new information and important changes (Burt, 1992). Pouder and St John (1996) and Chiles and Meyer (1997) claim that various dense industrial districts have experienced declines in growth. This may be, to some extent, attributed to the over discriminate nature of the network. In addition, this may be augmented by the fact that, outsiders may find it more difficult to co-operate with insiders.

Economic Performance. As social networks grow in size, congestion, and saturation may begin to constrict the agglomeration economies. As firms may enjoy economies of scale to a certain point, congestion (i.e information bottlenecks and misinformation) may transform economies of scale to diseconomies of scale (Chiles and Meyer, 1997). It seems that socially embedded firms are more susceptible to exaggerated forces of coercive isomorphism, when procedures, controls and structures within the organisation create institutional pressures for conformity, than in arm's length based firms (DiMaggio and Powell, 1983). It is a constraining process that forces actors to resemble other actors that face the same set of environmental

conditions. These environmental conditions may stem, for instance, from political influence and the problem of legitimacy (Bernstein, 1992). The following table (table 10-4) illustrates export success rate of the three distinct strategic groups as found in the researcher's fieldwork:

Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
Export Success Rate			
Mean	0.10	0.49	0.23
Tuckey-HSD test	<i>group one is significantly different from group two and three at the 0.05 level</i>		
F - test	0.0094		

Table 10-4: P2 - Tuckey - HSD

From the researcher's field work it is possible to note that a significant difference exists between the economic success rates of the three distinct strategic groups (see table 10-4). Strategic group one, transacting in tacitly price polished diamonds, has significantly the lowest success rate in relation to strategic groups two and three. It has a 10% export success rate in exporting polished diamonds as defined in the methodology chapter. Strategic group two with explicitly priced polished diamonds has significantly the highest export success rate in relation to strategic groups one and three, with 49% export success rate. Strategic group three, which transacts in a mixture of tacitly and explicitly priced polished diamonds, has a moderate success rate, with 23% export success rate (positioned between strategic groups one and two).

These findings are in line with the claims of Pouder and St.John (1996), where positive effects of social embeddedness and high density of clustering may rise to a critical mass, after which socially embedded exchange may decrease performance by isolating one from the market and information beyond their social network. In other words, over embeddedness in the mature stage of the Israeli diamond industry may reduce the flow of new or novel information into the socially embedded network and may lose touch with the market resulting in the loss of some of its competitive advantage and a decrease in economic performance.

To increase the validity of this finding and to illustrate that the differences in performance emanated from the mechanism of exchange and not from other sources, further

analysis was needed. First, the researcher needed to conclude that the type of polished diamond being exchanged has no bearing on the probability of success. The research has indicated that the export turnover between the three strategic groups was not significantly different. In addition, industry experts and diammantaires interviewed claimed that profitability in marketing of polished diamonds was generally fixed at around 3-5% of turnover over the whole spectrum of polished diamonds. They further claimed that the profitability generically was normally distributed between the various types of polished diamonds. A deeper analysis was not possible as profitability levels of specific firms is a tightly held secret.

As DeBeers controls the global market for a wide range of rough diamonds, there was a need to scrutinise the fact that it may control the export success of particular Israeli diamond firms. The research indicated that there was no significant difference in the success rate between the firms in the three strategic groups that are De Beers sight holders and those that are not (0.20 vs. 0.28 vs. 0.24). Although the Israeli diamond industry is heavily dependent of De Beers for its rough diamonds, it imports a large portion from outside the CSO. There was no way for the researcher to determine the profitability of the various rough diamonds. This was as a result of the intangibility of rough diamond prices embedded in the ingrained secrecy and a lack of a rough diamond price list.

Second, the researcher needed to ascertain that firm characteristics were not the only factor in determining an Israeli firm's probability of success. As mentioned above, size of export in terms of turnover between the strategic groups was not significantly different. Furthermore, the number of employees or being a manufacturer was not found to be significantly different between the three strategic groups. Although firms in strategic group two were found to be longer in the diamond business, firm managers were found have more diamond related experience. Generally the research seems to indicate that managerial variables seem to affect an Israeli firm's success than firm characteristics (see exploratory proposition three).

Third, the researcher needed to ascertain if and what managerial characteristics affected an Israeli polished diamond firm's success. The research indicated that management socio-demographics (for instance, age, sex and education), were not significantly different between the three strategic groups. Generally, it seems that the pool of managerial skills and their market perceptions led to the form of exchange in the the three distinct strategic groups (a point that would be discussed in further detail in the next section).

Geographically dense networks may further cause strategic groups within the networks, to behave differently, from actors outside the network (Krugman, 1996a, 1996b; Pouder and St John, 1996). It seems that this may have caused Israeli diammantaires to assess to some extent, competition and market trends, differently. It may have led them to become vulnerable to ignorant industry assumptions and imitative behaviour. This may have led to unproductive innovative efforts and obsolete strategies (Chiles and Meyer, 1997), thus, internal benchmarking seems to have affected most strongly strategic group one which is relatively closed to the outside, in comparison to strategic group two and three.

To further the point above, it is claimed that the integrity of the source of information in socially embedded exchange is crucial for exchange (Jervis, 1989). For instance, the value of a polished diamond covered by the Rapaport price list has a basis in the market. On the other hand, the price of polished diamonds not covered by the Rapaport price list, has its basis in the social identities of the exchange partners and other intangible elements called, in the Israeli diamond trade, "the illusion in the stone". In an interview the researcher was told that if two polished diamond brokers in strategic group one bring the exact same polished diamond to a diamond buyer, the buyer in most instances will pay more to the diammantaire that he feels more comfortable with. In some extremes cases, the polished diamond buyer may even refuse to buy the diamond from a broker that he does not like or trust.

This phenomenon is taken to the extremes in strategic group one, where the prices of polished diamonds are strongly based on gut feelings of the diammantaires involved in exchange, in relation to strategic group two where a polished diamond price list exists. Therefore, over reliance on socially embedded communication in strategic group one in facilitating exchange, may be an inhibiting factor to Israeli polished diamond exporter's economic success. In conclusion, socially embedded exchange seems to reduce the complexity of risk taking in economic exchange by providing expectations of reciprocity and may link actors in multiple ways (Uzzi, 1996, 1997). On the other hand, it seems to be an inhibiting factor for Israeli polished diamond economic success.

It seems that many actors in the Israeli diamond industry whose exchange is highly embedded in social relations, pass crucial information through their social networks. It is important to note that if knowledge cannot be codified and made explicit, it is hard to exploit through market exchange (Nonaka, 1991). For instance, such information may include details on "hot selling items" and past experiences with specific actors that were deployed through one's social networks.

Actors in strategic group one rely heavily on timely and reliable information for their economic success. Possible miscommunication and over reliance on such information may bestow a competitive disadvantage to those actors who transact solely through socially embedded exchange mechanism, as illustrated in the following quote from the researchers field work: "My trusted customers, suppliers and brokers are like my family. You see our futures are interlinked ... I discuss with them my future plans, be it private or commercial...".

Industry experts claimed that the diamond industry especially the Israeli diamond industry is a high risk industry. As a result the Israeli diammantaires' socially embedded relations have been thought to enable them to obtain resources and adjust to unforeseen events more efficiently than others. Social embeddedness was thought to enable Israeli diammantaires

to take higher risks and be more innovative than otherwise possible. For instance, those actors with strong socially embedded ties may have been able to send polished diamonds on memo, (consignment with a return date clause), with far less risk than those operating on the basis of arm's length ties.

Diammantairees who transact on arm's length ties usually base exchange on complex written contracts. An Israeli diammantaire in strategic group one claimed that one's friends will be there through bad and good times. The research illustrated in case study two that this may no longer be the case, and more cautious business strategies may have to be employed. This trend is further illustrated, in the following quote from an Israeli diammantaire in strategic group two, in the researchers field work: "Friends, family and trusted partners are not like it used to be ... Today you can't trust anyone but yourself ... Its the survival of the fittest !"

Uzzi (1996, 1997) in the New York garment industry, Bernstein (1992) in the New York diamond industry, and the researcher in the Israeli diamond industry, found that socially embedded exchange promotes economies of time, as complex contracts are avoided and holistic information is transferred between exchange partners. In other words, direct contracting costs are, to a large extent, avoided and information transfer is claimed to be faster and more efficient based on mutual understanding of both actor's needs (Bernstein, 1992; Uzzi, 1996, 1997).

In some instances, socially embedded exchange allows actors to capitalise quickly on market opportunism, as contracting costs and time of writing contract are avoided through fast and - in some cases - efficient information transfer (Spar, 1994; Bernstein, 1992). Thus, actors trust that payoffs will be divided equitably between the various actors taking part in the exchange (Nootenboom, 1996; Gulati, 1995; Benson, 1988). Unfortunately, from the researcher's field work this does not seem to be leading to an overall economic success for Israeli polished diamond exporting firms.

The researcher noted that product strength in terms of attribute uniqueness and quality, have been found to be strongly related to success in many industries (Styles and Ambler, 1994; Cavusgil and Kirpalani, 1993). From the research, this claim does not seem to be the case in the Israeli diamond industry, with firms transacting in standard polished diamonds covered by the Rapaport price list being more economically successful than those transacting in "unique" diamonds.

The researcher would also like to note that, in general, socially embedded relations and social contacts are important features of the Israeli diamond industry, daily life in Israel and in Jewish culture, generally (Ganitsky, 1989; Mannheim, 1984; Bernstein, 1992). There are those who depict Israel as a familistic culture where kinship plays an important and ingrained role in many domains (Fischer and Shavit, 1995). It seems that social embeddedness in exchange in the Israeli diamond industry evolved naturally from the Jewish culture. Presently it seems that those basic concepts need to be re-evaluated as illustrated in the following quote: "When we immigrated to Israel it took us several years to integrate into Israeli society ... but now we had become Israelis and it is only natural that we in turn should help in the absorption of newcomers ... The problem is that many newcomers are untrustworthy. You see they are a different 'animal' than we were in the past ... So sometimes it is not a good idea to trust them".

In conclusion, it seems that managerial variables have contributed to the three different forms of exchange chosen by the individual firms. The research has indicated that arms length exchange models as a generic business strategy in the Israeli diamond industry was significantly an overall better business strategy than the historically prevalent socially embedded strategy in facilitating successful economic activity. To further substantiate the exploratory proposition above there is a need to look into the managerial factors that have led to the type of exchange mechanism chosen that led to the different probabilities of success.

10.3.4 Exploratory Proposition Three:

What are the characteristics of the operator/owner of an Israeli polished diamond exporting operating in the Israeli diamond Exchange that affect its economic success?

Management Characteristics and Economic Success. Management characteristics are important indicators for economic success because it appears that management commitment, perceptions and attitudes towards business problems and incentives are good predictors of economic success (Nils-Eric and Slater, 1988; Bijmolt and Zwart, 1994). Furthermore, Nils-Eric and Slater (1988) claim that management factors are key determinants of economic success. It is claimed that a firm's marketing activities and its success in exporting are related to the quality, attitudes and characteristics, of its managers (Styles and Ambler, 1994). For instance, management involvement and economic success have been found to be positively associated with the manager's knowledge of markets and experience (Nils-Eric and Slater, 1988).

The importance of the main characteristics of successful operators/owners in the Israeli diamond industry is important as large sums of money change hands in the Israeli diamond industry, often at a breathtaking rate. Its importance is further augmented by the fact that local operators/owners must make decisions, often based on their individual instinct and a feel for the market. The head office, if one exists, can offer only broad outlines on how business activities are conducted. While the formal ties between affiliated firms may be limited, the Israeli diamond industry remains a predominantly family-orientated industry with a loose structure and a tacit business style. Furthermore, while some diamond firms may be operating in a number of countries under apparently different ownership structures, they are often tied together by bonds that are stronger than a watertight contract of limited partnership (Spar, 1994; Bernstein, 1992).

The research indicated that operators/owners in polished diamond exporters in the Israeli diamond industry seem to get directly involved in most strategic business activities. Such activities include, for instance, identification and development of export markets and key

success factors of their business, which are in line with the findings of Uzzi (1993). For instance, Ganitsky (1989) found that Israeli exporters commit themselves to allocating and developing additional resources for performing the required tasks and strengthening their competitive export positions, thus, in family orientated firms, such as the Israeli polished diamond exporting firms, operators/owners are seen to be involved in all key aspects of the business and, consequently, have considerable effect on firm strategy and marketing mix (Uzzi, 1996, 1997). It is thought by the researcher that their characteristics are a good indicator and are fundamentally important predictors for some of the factors facilitating economic success of Israeli diamond exporters.

Weigelt and Camerer (1988) claim that a reputation of an actor is the perceptions others have of that actor's values. In addition, managerial reputations may be a barrier to mobility (Fombrun, 1996) or may grant additional leeway to improve a firm's strategy. The manager's reputation and characteristics may determine the choice of strategies undertaken by the firm (Moini, 1995), thus, the researcher presumes that managerial characteristics determine the undertaken strategy leading to various levels of economic success in the Israeli diamond industry.

The notion of strategic choice recognises that similar firms, operating within the same environment, may choose to address that environment differently, based on the strategic orientation of the management (Ackoff, 1970; Dess and Davis, 1984), thus, the importance of the characteristics of the management of the firm in formulating the firm's marketing mix and strategy employed leading to higher or lower levels of economic success, as illustrated in the following quote: "... the organisation pursues a purposive, directive course, whether be it described in terms of a pattern of decisions, or in terms of goods, plans, or intentions of the organisation." (White and Hamermesh, 1981:216).

Managerial reputation is an intangible element derived from the firm's business strategy (Dollinger et al, 1997; Kramer and Tyler, 1996) and it can be employed to influence a firm's

probability of economic success (Fombrun, 1996; Grief, 1989). Managers and firms with strong positive or negative reputations are more visible to stakeholders (Fombrun, 1996). When viewed from a strategic perspective, reputations are both assets and barriers to mobility and immobility. For instance, a conservative firm trying to undertake an innovative approach in a certain strategy would most likely be met with resentment, by stakeholders, to such a move. On the other hand, a positive reputation may grant more leeway and understanding from consumers and stakeholders, than for those actors who lack this intangible asset (Fombrun and Shanley, 1990). This leads to the importance of the manager's characteristics which is the base for one's identity, reputation and trust.

Management Characteristics in the Israeli Diamond Industry. In recent years, managers and researchers have begun to recognise that competitive advantages, based on reputation and social embeddedness in exchange, is crucial (Uzzi, 1996, 1997; Kim and Mauborgne, 1997). Social embeddedness is highly dependent on manager's characteristics, thus, its importance in analysing the case of the Israeli diamond industry. Exchange, as illustrated in some cases in the Israeli diamond industry, covers a wide range of information. For instance, it contains one's reputation and level of trustworthiness (Bernstein, 1992; Spar, 1994). Fombrun (1996) claims that these shared intangible assets can prove even more enduring than those that result from traditional strategic positioning.

Competition is claimed, by Dickson (1992), to be a result of supply-demand disequilibrium. Following this line of thought, marketing planning, that is affected by managerial characteristics (Moini, 1995; Nils-Eric and Slater, 1988; Bijmolt and Zwart, 1994) is fundamental to the firm's product mix. Kotkin (1992) claimed that actors whose exchanges are based on socially embedded networks may share critical characteristics, such as a strong ethnic identity and a sense of mutual dependence. Therefore, it is expected that operators/owners in the Israeli diamond industry may have relatively homogeneous characteristics. Those characteristics

that are heterogeneous may be those that influence the different level of economic success of Israeli polished diamond exporting firms found in exploratory proposition two. The following table (table 10-5) illustrates some of the average characteristics of the operators/owners of the Israeli polished diamond exporting firms, in the researcher's fieldwork sampled, classified by the three defined strategic groups (see appendix 10 for an explanation of the questions asked):

Strategic Group	No.	Age	Sex (%M)	Education	Yrs. in dia. bus.
One	10	48.90	1.00	12.00	29.70
Two	37	42.44	0.97	12.50	15.95
Three	63	45.92	0.90	12.39	23.17

Strategic Group	Yrs. mem.	Other firm	Dia. family	Yrs. in firm	Generations
One	22.30	0.50	1.00	7.10	1.50
Two	10.54	0.42	0.39	12.01	1.16
Three	14.37	0.43	0.34	14.40	0.84

Table 10-5: Characteristics of Operators/Owners of Israeli Diamond Exporting Firms

It is possible to note from the table above that the operators/owners of the firms in strategic group one are relatively older than in strategic groups two and three and are entirely male-dominated. All the operators/owners of the three strategic groups have on average a high school education (i.e. 12 years of schooling). Operators/owners of strategic group one are more years in the diamond business, more years members of the Israeli diamond Exchange, are more generations in the diamond trade and have worked for another diamond firm in the past, than operators/owners in strategic groups two and three. On the other hand, operators/owners of strategic group one are least time in their present firms in relation to strategic groups two and three.

The following table (table 10-6) summarises the researcher's findings on the operators/owners characteristics of the Israeli polished diamond exporters by strategic group in a Tuckey - HSD format. It examines if the differences found between the three strategic groups in table above (table 10-5) are significantly different at the 5% confidence interval:

No.	Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
1	Time in Business Mean Tuckey-HSD test F - test	29.70 <i>group two is significantly different from group one and three at the 0.05 level</i> 0.0003	15.95	23.17
2	Time Member of Isr. Exchange Mean Tuckey-HSD test F - test	22.30 <i>group two is significantly different from group one at the 0.05 level</i> 0.0103	10.54	14.37
3	From a diamond family Mean Tuckey-HSD test F - test	1.00 <i>group two is significantly different from group one at the 0.05 level</i> 0.0002	0.39	0.34
4	Years Firm Operating Mean Tuckey-HSD test F - test	7.60 <i>group one is significantly different from group two and three at the 0.05 level</i> 0.0288	17.96	18.65
5	Years in the Firm Mean Tuckey-HSD test F - test	7.10 <i>group one is significantly different from group two at the 0.05 level</i> 0.0094	12.01	14.40
6	Age Mean Tuckey-HSD test F - test	48.90 <i>no two groups are significantly different at the 0.05 level</i> 0.1595	42.44	45.92
7	Sex Mean Tuckey-HSD test F - test	1.00 <i>no two groups are significantly different at the 0.05 level</i> 0.2988	0.97	0.90
8	Education Mean Tuckey-HSD test F - test	12.00 <i>no two groups are significantly different at the 0.05 level</i> 0.8558	12.50	12.39
9	Worked for another dia. firm Mean Tuckey-HSD test F - test	0.50 <i>no two groups are significantly different at the 0.05 level</i> 0.8643	0.42	0.43
10	Generations in diamonds Mean Tuckey-HSD test F - test	1.50 <i>no two groups are significantly different at the 0.05 level</i> 0.1240	1.16	0.84

Table 10-6: P3 - Tuckey - HSD

The findings from the researcher's fieldwork in the Israeli diamond industry indicated that operators/owners in strategic group two are significantly: (1) less years in the diamond business (29.70 vs. 15.95 vs. 23.17); (2) less years members of the Israeli diamond Exchange (22.30 vs. 10.54 vs. 14.37); (3) are least often emanating from a diamond family (1.00 vs. 0.39 vs. 0.34); and (4) are least years in their present firm (7.10 vs. 12.01 vs. 14.40) than strategic groups one and three.

Firm and Management Characteristics Leading to Economic Success. In line with Louter et al (1991) the researcher concluded from his field work that the greater the number of years a firm is exporting, the more successful its exporting activity will be, thus, the number of years a firm is exporting influences export results. Export was seen by Das (1991) and Louter et al (1991) as a learning process. They claim, as illustrated in the researcher's fieldwork that it may be a function of motivation, education (12.00 vs. 12.50 vs. 12.39) and quality of employees. In line with Das (1991) and Louter et al (1991), the researcher's fieldwork indicated that firms in strategic group one, were significantly less experienced in export than both strategic groups two and three (7.60 vs. 17.96 vs. 18.65), thus, they were less successful in polished diamond export compared to strategic groups two and three.

The fact that Israeli diammantaires in strategic group one were significantly more years in the diamond industry, but significantly less years in the present firm, was surprising. In April, 1988 the researcher flew to Israel to query this phenomenon. After talking to some of the original operators/owners in strategic group one and industry experts, it came to the researcher's attention that these Israeli diammantaires worked in various other jobs in a number of other firms. Only when competition and business practices started changing did they open their own firms to capitalise on their knowledge thus, reinforcing strategic group one.

Nils-Erik and Slater (1988) claim that a young firm's management tend to more aggressively seek export market information than their counterparts thus, are more successful. These claims were found to be in line with the researcher's findings in the Israeli diamond industry, where managers of strategic group two were found to be younger than both strategic groups one and three (48.90 vs. 42.44 vs. 45.92). This finding may have been a contributing factor to the higher economic success rate in strategic group two, compared to strategic groups one and three in the Israeli diamond industry.

Operators/owners of strategic group two, who were more successful polished diamond exporters, were significantly less time in the diamond business (29.70 vs. 15.95 vs. 23.17), less time members of the Israeli diamond Exchange (22.30 vs. 10.54 vs. 14.37), and relatively do not originate from a diamond business background (1.00 vs. 0.39 vs. 0.34). This finding seems in line with Ganitsky (1989) who claims that most successful Israeli exporters are more flexible and have the capacity to improvise, thus, may not be locked into established industry norms, values and assumptions of acceptable business practices.

Furthering the point above, the research illustrated that operators/owners of firms in strategic group two are less generations in the diamond industry than strategic group one (1.50 vs. 1.16). Thus, operators/owners of strategic group two may be better at applying different technologies, acquiring international knowledge, and instituting consistent and realistic business objectives. They may further develop business policies and establish the necessary management control systems that may fundamentally fit better in the present environment, leading to economic success, than both strategic groups one and three. The researcher noted that operators/owners of Israeli polished diamond exporting firms have significantly less experience outside the diamond industry as operators/owners in strategic group one entered the diamond industry at a significantly younger age than both strategic group two and three (19.2 vs. 26.49 vs. 22.75). This view is further stated in the following quote from a diamantaire in strategic group one: "One can differentiate between the generations by age ... many of the older generations are much smarter than the younger people and can put them in their small pockets ... The younger generation is wider in outlook and more self confident than their fathers, but the older people are more careful, owing to their experience".

Operators/owners in strategic group one are significantly less time in their present firms (7.10 vs. 12.01 vs. 14.40) than strategic groups two and three, leading to a possible lack of relevant managerial experience. From the researcher's interviews it has come to his attention that

operators/owners of strategic group one, transacting in tacitly priced diamonds, have more often worked in various non-managerial capacities in other diamond firms before opening their own firms (0.50 vs. 0.42 vs. 0.43). This may illustrate that members of strategic group two, transacting in explicitly priced diamonds, may have picked up “bad habits” less often and have a wider perspective of business than both strategic groups one and three. On the other hand, operators/owners of strategic group two may have less industry specific experience in various stages of the diamond value chain.

It seems to the researcher that this diamond related experience may be less useful at present in facilitating polished diamond export success, thus, the prevalent claim that to be successful in the diamond industry, one must go through all the various stages in the diamond value chain, may no longer be a valid claim. Having a wide managerial experience in other fields may be a better managerial characteristic in order to facilitate successful exchange in the Israeli diamond industry.

10.3.5 Exploratory Proposition Four:

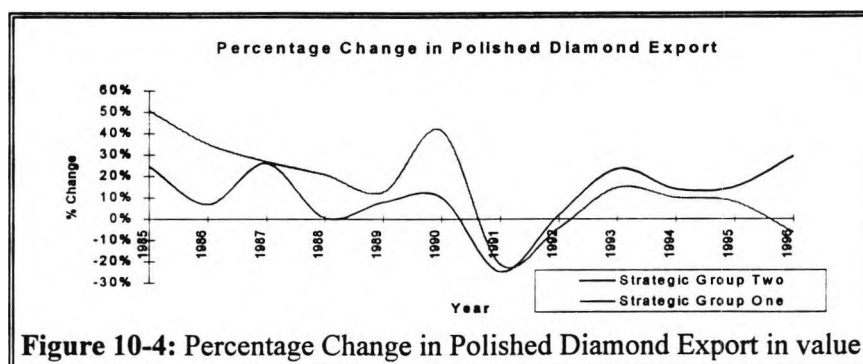
The Competitive Environment. The fourth exploratory proposition claims that Israeli polished diamond exporters that build their competitive advantages on the use of socially embedded ties, will be at a higher risk of economic failure, as environmental changes fundamentally rationalise the basis of business transactions.

Before going into in-depth analysis, the researcher would like to note that technology is rapidly altering the nature of competition and strategy in the late twentieth century, moving us toward a “new competitive landscape” in the twenty - first century (Hamel and Prahalad, 1996; Bettis and Hitt, 1995) with a blurring of once distinct industries. The new competitive landscape presents new issues, new concepts, new problems and new challenges. The twenty-first century is a period of transition from the modern to the post-modern time. The *modern era* was the

period of “Chimney stack” industrialisation (Arthur, 1994, 1996), rigid structural differences, clear distinction between industries, ideology, nationalism, and mass culture.

The post-modern era is the period of knowledge as the key facilitator of business success, a relative free flow of information, office workers, global interconnectedness, and fragmented culture (Nonaka and Takeuchi, 1995; Belk et al, 1989). In an increasingly global business environment, actors will need to transact in increasingly new and diverse regions. This, in turn, leads to exchange where there is high contract uncertainty (Choi et al, 1995; Spar, 1994; Bernstein, 1988). In such business situations, new mindsets and business practices will be needed to facilitate economic success (Hamel and Prahalad, 1996).

The researcher views exploratory proposition four as important since it sums up the three previous exploratory propositions with an outlook to the future. It furthers exploratory proposition two, claiming that those firms who base their exchange on socially embedded mechanisms are less economically successful at polished diamond export than their counterparts who base their exchange on arm’s length strategies. The researcher presumes, after long discussions with industry experts and Israeli polished diamond operators/owners, that Israeli polished diamond firms in strategic group one based on trust, will continue to deteriorate. This may be as a result of natural evolutionary shifts and psychological beliefs such as a rising pessimism about their future prospects. This may then ignite a self-fulfilling prophecy of reversal of fortune, see case study two. This trend is illustrated in the following figure (figure 10-4):



From figure 10-4, the researcher is able to note that from 1985 to 1991 the percentage change between strategic groups one and two illustrated strategic group one's overall higher economic success rate. Between the years 1991 - 1992 this gap has evened out and the two strategic groups' percentage change in polished diamond export was similar. In the last four years (1992 - 1996) it is possible to note that strategic group two became economically more successful than strategic group one.

As profitability is claimed to generally be normally distributed over the whole range of polished diamonds a decline in turnover would indicate a decline in profitability especially in view of the high fixed costs of running an office in the Israeli diamond Exchange (for instance rent, service charge and salaries). Furthermore, from the researcher's interviews and from the Israeli Ministry of Industry and Trade, there is no significant evidence of firms wishing to change their taxation basis. On the other hand, industry experts and diammantaires interviewed claimed that changing taxation systems was undertaken only in extreme cases or in those firms which had the competence to do so as it involved a change of mindset, costs of keeping financial statements and more importantly leaving the norm and opening up to external scrutiny. Many firms were locked in to a taxation system that were not necessarily indicative of their profitability. From examining the interview transcripts it seemed that a higher proportion of operators/owners of Israeli polished diamond firms in strategic group one criticised the taxation policies in relation to strategic group two and three.

From figure 10-4 it is possible to note that strategic group one is in a downward spiral which, by industry indicators, is expected to continue. On the other hand, polished diamond exports of strategic group two are rising. This trend may be attributed to some extent to the rationalisation of the diamond industry and the fit between firm and environment, as will be discussed below.

Exchange and Performance. Kotkin (1992) claimed that actors whose exchange is based on socially embedded networks may share critical characteristics, such as a strong ethnic identity and a sense of mutual dependence. Kotkin (1992) further claimed that it helps one adjust to changes in the global economic and political environment without losing its essential unity, for instance, a global network based on mutual trust that allows the actors to function collectively beyond the confines of national or regional borders, such as the World Federation of Diamond Bourse (Spar, 1994; Bernstein, 1992; Benson, 1988). This view is in line with Jewish/Israeli culture, illustrated as socially embedded relations where social contacts are an important features of daily life in Israel (Ganitsky, 1989; Mannheim, 1984). There are those who illustrate Israel as a “familistic” culture where kinship plays an important role in many domains (Fischer and Shavit, 1995).

The example of route 128 (Pouder and St.John, 1996) illustrated a point where positive effects of social embeddedness and high geographical density rise to a critical mass, after which socially embedded exchange may decrease economic performance by isolating actors from the market and information beyond their social network (Uzzi, 1996, 1997; Chiles and Meyer, 1997). In other words, over embeddedness may reduce the flow of new or novel information into the socially embedded network. Thus, networked members may lose touch with market trends and non-networked competitors, as illustrated in the literature review.

This doctorate thesis based on the Israeli diamond industry illustrated, as does the study undertaken by Pouder and St John (1996) and Uzzi (1993), that networks initially bestow an advantage on their members depicted by economic growth, prosperity, highly and sophisticated inter-organisational networks. Over time it seemed that in a geographically dense industrial district, competitive advantage may deteriorate. Decline and stagnation may set in and in some cases social networks and trust start breaking down, as is illustrated in case study two. This trend is illustrated in the following quote from the researcher’s field work: “The problem is that many

newcomers are untrustworthy. You see they are a different 'animal'. So sometimes it is not a good idea to trust them ...".

It seems that if actors become too socially embedded, adaptation to environmental changes may become a problem (Pouder and St.John, 1996; Chiles and Meyer, 1997). Sudden structural change in resource flows can cause advantages based on actor's socially embedded exchange to shift from an asset to a liability. For instance, an actor who is socially embedded in exchange with another is of high risk of being herded in the same direction of the other actor, as one may not have the ability to evaluate the environment effectively (Uzzi, 1993).

As a result of the reliance on one another, one actor may not be able to replace the other in a short time, if necessary, as the social networks needed for exchange take time to build (Uzzi, 1993). It seems that socially embedded actors may be more susceptible to exaggerated forces of coercive isomorphism, when procedures, controls and structures within the network create more institutional pressures for conformity, than in arm's length based firms (DiMaggio and Powell, 1983). Coercive isomorphism in the Israeli diamond industry seems to be a constraining process that forces actors to resemble other actors that face the same set of environmental conditions. It may stem, for instance, from political influence and the problem of legitimacy (Spar, 1994; Bernstein, 1992; Benson, 1988).

Institutional arrangements that rationalise markets may, in some cases, rupture socially embedded ties. Hence, distinctive competitive advantages, based on social relations, may not bestow the advantages they once offered. Examples of market rationalisation include for instance: (1) older vs. younger generations entering the diamond industry with a more formal education and knowledge of information technology and do not necessarily conform to the networks norms and values; (2) the emergence of the Rapaport price list (1978); (3) conglomerates vertically diversifying into the diamond business and not necessarily conforming to preconceived industry norms and values. They may shift relationship buying to numbers

buying, emphasising short term profit as opposed to socially embedded, long term view of exchange (Uzzi, 1997); and (4) rationalisation of the industry through information technology and special automatic manufacturing process that take over more efficiently the traditional manual manufacturing process of polishing diamonds. Industry experts claimed, as well as many interviewees, that one effect of commoditisation and market rationalisation may, to some extent, decrease the value of the knowledge and expertise that the Israeli diammantaire may have learnt over the years.

The researcher views that the rationalisation of the Israeli diamond industry, for instance, through the introduction of the Internet and the World Wide Web (WWW) would have significant effects on the diamond industry as a whole. The WWW in the diamond industry and other electronic information technology elements have an interesting and deep implication, than just a virtual front. The researcher presumes that the Internet and the WWW would strongly influence the future structure of the Israeli diamond industry and, maybe, the global diamond industry as a whole.

It would be interesting to find how IT will affect exchange in the diamond industry and how it will evolve over time. The researcher noted from the field work that information on polished diamonds for sale, potential buyers, and market trends, were traditionally conveyed through word of mouth, thus, traditionally one's social networks were a fundamental factor of a diammantaire probability of business success or failure.

Such information, that was once conveyed through social networks, is finding itself available more often through IT such as the Internet, the Diamond Link and the WWW to all, through arm's length ties. The Rapaport price list has lowered, in many instances, the need for diamond related knowledge in order to transact effectively in the diamond industry. Today, one may need more crude business instincts and management experience than diamond related knowledge. This view is a shift from the prevalent view that to transact in diamonds, one needs

to “feel the diamond and market”. The differences found from the research between the various strategic groups in the use of socially embedded and arm’s length sources of information is illustrated in the following table (table 10-7):

No	Variable	Group one No Rapaport	Group two Full Rapaport	Group Three Partial Rapaport
1	Word of Mouth between cust. Mean Tuckey-HSD test F - test	2.76 0.2153	3.60 <i>no two groups are significantly different at the 0.05 level</i>	2.83
2	Advanced Technology Mean Tuckey-HSD test F - test	3.80 0.3504	2.81 <i>no two groups are significantly different at the 0.05 level</i>	3.75
3	Do You Use/Have Email Mean Tuckey-HSD test F - test	0.20 0.1027	0.41 <i>no two groups are significantly different at the 0.05 level</i>	0.22
4	Do You Use/Have HomePage Mean Tuckey-HSD test F - test	0.20 0.1630	0.35 <i>no two groups are significantly different at the 0.05 level</i>	0.12
5	Do You Have an Export Dept. Mean Tuckey-HSD test F - test	0.00 0.0013	0.59 <i>group two is significantly different from group one at the 0.05 level</i>	0.36

Table 10-7: P4 - Tuckey - HSD

As is illustrated in previous exploratory propositions, firms in strategic group one rely heavily on word of mouth (2.76 vs. 3.60 vs. 2.83). On the other hand, the researcher is able to note that members in strategic group two are much more wired up to IT and the importance of advanced technology to facilitate exchange. This is illustrated in table 10-7 where interviewees were asked about the importance of advanced technology in facilitating successful export activity (3.80 vs. 2.81 vs. 3.75). Members in strategic group two are twice as likely to have and use email (0.20 vs. 0.41 vs. 0.22) and have their own home page, than those of strategic group one (0.20 vs. 0.35 vs. 0.12).

From the researcher’s observations, while interviewing Israeli diammantaires it seems, firms in strategic group one seldomly had a computer or even a fax machine, while firms in strategic groups two and three regularly had a fax machine and a computer in plain view. For instance, when the researcher interviewed an Israeli diammantaire in strategic group two, it seemed that the attention of the operator/owner interviewed was split between the researcher and

the computer screen, as all the time he was looking at his computer. Once in a while he would interrupt the interview and give orders over the telephone or through the computer.

It seems from the researcher's interviews that firms in strategic group one are more passive to the need for export-related knowledge. This is illustrated, to some extent, by the fact that none of the firms interviewed in strategic group one had an export department or a specific member of staff who was in charge of a certain foreign market (0.00 vs. 0.59 vs. 0.36). The diammantaires in strategic group one claimed that this was because the operators/owners share responsibility and "all can do everyone else's job". This view is prevalent in familistic type firms (Uzzi, 1996, 1997). On the other hand, 59% of the firms interviewed in strategic group two had an export department, illustrating a more export-orientated approach.

In conclusion, it seems that the dying out of business practices, firms and industries represents a natural selection of adaptation (Chiles and Meyer, 1997; Poudier and St John, 1996; Uzzi, 1993). Uzzi (1993) and Podolny (1993) claim that social structure exists prior to economic activity and, therefore, shapes its origins and functioning, thus, as the evolutionary theory or Darwin states, old business structures, firms and industries, are inevitably replaced with new and more efficient business practices, firms and industries that better distribute society's scarce resources. Hence, those firms building their competitive advantages on the use of socially embedded ties may be at a higher risk of economic failure (as institutional changes fundamentally rationalise the basis of business transaction), than those firms transacting in arm's length ties.

11. Conclusions

"Knowledge doesn't exist in a vacuum, and your work only has value in relation to other people's. Your work and your findings will be significant only to the extent that they're the same as, or different from, other people's work and findings."

(Jankowicz, 1995:128-9)

11.1 An Overview

The researcher's understanding of socially embedded exchange builds on other's work such as Granovetter (1985); Uzzi (1996, 1997); Barney and Hansen (1994); Bernstein (1992); Spar (1994); and Grief (1989, 1994). Granovetter (1985), Uzzi (1996, 1997) and Chiles and Meyer (1997) argue that virtually all relations in the modern business arena, are to some extent, socially embedded in networks of relations.

The researcher illustrated an extreme case of socially embedded exchange based on trust and reputation through the Israeli diamond industry. It is not the presence of trust that is distinctive in the Israeli diamond industry but, rather, the depth and nature of its embeddedness (Bernstein, 1992; Spar, 1994). The researcher, in this doctorate thesis, examined the limits of social capital and its embeddedness and scrutinised its properties as a facilitator of economic success in the Israeli diamond; and examined how socially embedded, versus arm's length, exchange affected the economic success of Israeli polished diamond exporters.

The Israeli diamond industry is a leading polished diamond centre, globally, and can be classified as a dense industrial district (Chiles and Meyer, 1997; Pouder and St.John, 1996). An industrial district is an area in which are located a variety of firms involved in a related industrial activity. For instance, an industrial district, such as Silicon Valley, is where one can find hundreds of large and small firms all related to the computer industry (Pouder and St.John, 1996). The researcher would like to highlight the fact that it is the only industry in which Israel is globally dominant.

The Israeli diamond business is made up of many small firms (908 registered firms in Israel during 1996), the majority of which are family owned. An increasingly large portion of the market is held by a select handful of firms, most of which are surrounded by a group of vertically integrated affiliated firms operating in a number of different countries. It seems that only a few polished diamond manufacturers and polished diamond exporters can offer a wide enough range of diamonds to satisfy the needs of large scale buyers, who demand large quantities of a wide scope of diamonds.

With many Israeli diamond firms concentrated in a single geographic location in Ramat Gan, Israel, diammantaires have access to the joint output of a number of smaller diamond firms. In other words, by operating within an industrial district, a smaller diamond firm is able to draw benefits that would ordinarily only be enjoyed by large diamond firms. These benefits include, for instance, the fact that geographically dense industrial districts attract into their midst firms offering specialised services to the industry. These benefits may include firms, such as, banks, insurance firms, governmental agencies, and machinery suppliers. The Israeli diammantaires are located in four interconnected buildings hence, diammantaires have easy access to all Israeli diamond firms and supplementary institutions.

De Beers, through the CSO, sets prices, fixes production quotas, and handles foreign trade of most rough diamonds. Marketing decisions emanate from one central source and are rarely, if ever, contradicted or compromised by competing interests. It seems to the researcher that large diamond firms would have to establish a presence in more than one diamond centre globally in order to succeed in the ever competitive global market. This is because the various diamond centres are becoming more specialised in specific diamonds (Paribas Capital Markets, 1996) and the industry is becoming more sophisticated (Even-Zohar, 1997c).

For the larger diamond firm, the opportunities offered by one industrial district are frequently insufficient. For instance: (1) Belgium has evolved into a rough diamond trading

centre, with a decreasing polished diamond trade and a shrinking manufacturing centre; (2) Israel is a major centre for the trade of all kinds of polished diamonds and manufacture of medium to large diamonds in all qualities. Although it is attempting to diversify and develop its own rough diamond trade, it lags far behind Belgium in that respect; (3) New York has a relatively small manufacturing base and is, essentially, a trade hub for the massive US market; (4) India is almost exclusively a manufacturing centre of small and low quality diamonds, where labour costs are a crucial ingredient. The Indian polished trade and manufacturing is forecasted to expand in line with the expected opening of the integrated diamond Exchange based on the Israeli model (Paribas Capital Markets, 1996); and (5) China (Hong Kong), is a polished diamond trade centre. It is the primary gateway to the consumer markets of Southeast Asia. The researcher has noted that the need to transact through various global diamond centres is eased, for instance, by technology advances which simplify the task of managing a business long distance. The cellular phone, fax, and computer, are now becoming basic tools in many large diamond offices which the researcher has visited.

The research indicated that social networks are fundamental for a diammantaire's performance (Spar, 1994; Bernstein, 1992; Benson, 1988; Bruton, 1981). For instance, it is possible to buy diamonds on the open market, but a dealer who does not have access to a network such as one of the global diamond Exchanges would be at a competitive disadvantage compared to those who are networked (Paribas Capital Markets, 1996; Spar, 1994; Bernstein, 1992). Diammantaires who are part of a diamond Exchange would have a competitive advantage in comparison to those who are not part of the network, because diammantaires within the network are bound by norms and values of the group and possess mutually embedded social capital (Spar, 1994), thus, being a member of a network seems to lower transaction costs and risks involved in exchange (Grief, 1989, 1994; Bernstein, 1992, Economist, 1992b; Choi et al, 1995) as illustrated in the New-York garment industry (Uzzi, 1997).

Social capital has recently been more extensively researched in academic literature (Barney and Hansen, 1994; Kramer and Tyler, 1996; Nooteboom, 1996). It is no coincidence that such growing attention coincides with the increase of various types of co-operative relations between, and among, organisations (Gulati, 1995; Ernst and Bleeke, 1993; Ring and Van de Ven, 1992). As a result of the increased uncertainty and complexity in exchange (Hamel and Prahalad, 1996; Bettis and Hitt, 1995), the role of social capital has become more important in many collaborative arrangements. Trust and other forms of social capital are particularly interesting because they are moral resources that operate in a fundamentally different manner from physical capital. It seems that the scope and scale of trust increases, rather than decreases, with use, and becomes depleted if not used (Uzzi, 1997; Kramer and Tyler, 1996; Arthur, 1994).

It was thought that trust and reputation as a means of facilitating exchange were crucial and increased competitive advantage (Ernst and Bleeke, 1993) in the Israeli diamond industry (Spar, 1994; Bernstein, 1992; Benson, 1988). Kramer and Tyler (1996) claim that trust and reputation are the glue that hold many co-operative relationships together. On the other hand, in essence it seems that trust and reputation may decrease a firm's competitive advantage over time (Chiles and Meyer, 1997; Pouders and St. John, 1996). As opposed to the abundant literature illustrating positive effects of social capital in exchange, the research has illustrated its limitations. In other words, exchange heavily embedded in social capital initially led to a firm's success. On the other hand, as the Israeli diamond industry matured and became more rationalised, socially embedded exchange led to limitations and declined, compared to the globally prevalent arm's length exchange. The research indicated that changes in the industry organisational structures created a need in changing organisational behaviour in the Israeli diamond industry. The researcher indicated that firms, which have managed to find a better fit between the gradual decline in trust and economic progress in the Israeli diamond industry, were

significantly more successful. Furthermore, the research indicated that this trend is likely to persist.

In conclusion, analysing the Israeli diamond industry without mentioning Fleming's story "Diamonds are Forever" which reached the silver screen in 1971 as an episode in the popular series of Bond Films, would be an injustice to the diamond industry. The movie was a box-office smash-hit promoting the illusion and prestige of diamonds. In addition, Shirley Bassey's version of the theme song, of the same title, achieved similar success over radio waves. Based on the novel by Anita Loos, the saucy musical "Gentlemen Prefer Blondes" with its hit song "Diamonds are a Girl's Best Friend" still serves as an anthem of sorts at endless trade gatherings, and was mentioned by the interviewees many times during the interviews conducted by the researcher. All these Hollywood examples helped promote the elusiveness and the importance of owning a polished diamond.

11.2 The Importance of the Three Case Studies

The process of illustrating the emergence of the Israeli diamond industry and the evolution of trust unfolds in three principal phases: (1) pre-history (see case study one) illustrated the evolution, structure and the workings of the global diamond industry focusing on the relative position of the Israeli diamond industry and its Jewish origins; (2) the evolution of trust in the Israeli diamond industry, focusing on how Israel became a dominant player in the global diamond industry (see case study two). This sets the stage for the interplay between the "accidents" of history, strategic actions undertaken, and sociostructural values predominant, in the Israeli diamond industry. It illustrated, through a phenomenological perspective, the limits of trust and reputation in the prevalent economic environment in the Israeli diamond industry; and (3) the present (1997) maturity/decline stage of the Israeli diamond industry (see case study three). Case study three illustrated through a positivistic perspective the effects of diminishing

returns as a result of industry over capacity, and the inclination of Israeli diammantaires' preconceived notions of business practices. It portrays the prevailing taste of pessimism and a decline of innovation in the Israeli diamond industry.

Case study one provided the important link of grounding the framework in which the Israeli diamond industry emerged with its socially embedded exchange. It is an important area to look at if one is to understand holistically the diamond industry as a whole, and the Israeli diamond industry in part. Case study one provided the basis to understand the Israeli diamond industry's organisational structure and organisational behaviour, illustrating a decline in trust based exchange over the years.

The researcher claims that organisational clusters such as the Israeli diamond industry do not exist in isolation. They are embedded in an ecology of organisations that coexist within a geographic region. It is the ecology as a whole that initially provides industry networks with a competitive advantage (Pouder and St.John, 1996). To improve the odds of survival, a network cluster must build an organisational structure and behaviour that fosters co-operation within the organisational network (Chiles and Meyer, 1997), thus, the first case study builds the framework for case study two, by understanding the social, cultural, and organisational structure that sets the stage for the formation of the Israeli diamond industry.

Case study two elaborates on the fertile ground into which the Israeli diamond industry emerged. It is seen as an important link to understanding the emergent framework of the Israeli diamond industry and the dynamics of trust and reputation. In case study two the researcher illustrated that historic accidents and the accumulation of path-dependent events, both planned and unplanned, conspired to transform the Israeli diamond industry into the global diamond centre it is today, largely based on arm's length exchange. It seems that once a geographic location has been chosen, firms can begin to capitalise on available increasing returns (Arthur, 1994, 1996; Krugman, 1996b). Case study two elaborated on the culture and business systems

based on trust and reputation that were deeply rooted in family, religion, and patriotic and nostalgic values. It illustrated through a phenomenological perspective the evolution and limits of social capital in the Israeli diamond industry.

Case study three, through a positivistic approach, illustrated and elaborated on the effectiveness of trust and reputation as a facilitator of economic success. It furthered case study two with a more focused, positivistic, in-depth analysis of the Israeli diamond industry. It seemed to the researcher that today Israeli diammantaires must anticipate the onset of diminishing economic returns brought by time worn organisational behaviour and outdated business structures. Case study three explored one possible reason and solution to the endemic downward economic cycle in which the Israeli diamond industry today finds itself. It is illustrated that arm's length exchange may be a better generic strategy to the more industry specific socially embedded exchange in the Israeli diamond industry. It further illustrated the managerial characteristics of successful Israeli polished diamond exporters that, it is hoped, will be a guiding light to the industry's future global success, thus, opening the doors to future research and industry re-evaluation of organisational behaviour and structure.

11.3 The Research Findings: A Summary

Evidence suggests that strategic groups can have positive effect on firm performance (Peteraf and Shanley, 1997). Research in organisational ecology suggest that groupings of firms within an industry have significant effects on patterns of competition and population dynamics (Pouder and St.John, 1996). Despite this promising start, the literature on cognitive strategic groups is insufficiently developed (Dranove et al, 1998). We know little about the origins of cognitive groups, the conditions that affect their emergence, or their dynamics in terms of how they grow, change and decline (Chiles and Meyer, 1997). We know little about what makes them persist and how they affect competition, co-operation, and the firm outcomes.

If social capital is to be more than a "buzzword" its stock should somehow be measurable, even if inexactly. In this doctorate thesis the researcher used survey indicators that are no doubt inexact due, for instance to translation difficulties, sampling errors and response bias, but which produce values that are consistent with data from other research. Furthermore, social capital developed in one context can often be transferred from one social setting to another. Demonstrating this phenomena, the researcher utilised trust, built up between himself and the Israeli diamond dealers over time, in order to research trust.

It seemed to the researcher from the fieldwork conducted that in order to research trust, one needs to create trust. Past research on trust in the diamond industry was relatively abstract and lacked empirical testing (Spar, 1994; Bernstein, 1992). This doctorate thesis attempted to fill this gap in the academic literature by measuring trust and guide future researchers on conventions of how to research trust. Analysis of social capital was seen to be centrally concerned with the significance of relationships as a resource for social action. Social capital is a quality created between people (Burt, 1997). Although it has value only with use, social capital cannot be traded easily (Nahapiet and Ghoshal, 1998; Nonaka and Takeuchi, 1995) as illustrated in the Israeli diamond industry (Benson, 1988; Lenzen, 1970; Bruton, 1981). Social capital resides in relationships, and relationships are created through exchange (Kramer and Tyler, 1996). For example, there is mounting evidence demonstrating that where parties trust each other, they are more willing to engage in co-operative activity, through which further trust may be generated (Nalebuff and Brandenburger, 1996).

In reality, there have always been costs associated with trade, for instance the costs of information and co-ordination. The research has indicated that the nature of exchange of intangible products cannot be the same as for explicit products such as electronic goods. It seems that the market value of intangible assets such as diamonds can only be known through high measurement costs. The thesis addressed the issue that some intangible products cannot be

readily exchanged in the market, demanding a socially embedded means of exchange, while other types of products can be readily exchanged in the market.

The research illustrated that once analysis moves away from the theoretical economic models of perfect competition, reality is grounded on the complexities of imperfect competition (Schelling, 1978). In such a framework social structures and organisational behaviour based for instance on, trust, reputation and identity, are fundamentally important as facilitators of successful exchange (Khanna et al, 1998; Nahapiet and Ghoshal, 1998; Burt, 1997). Such a framework was believed to be predominant in the Israeli diamond industry (Spar, 1994). The importance of this approach was based on the fact that valuing a polished diamond at the time of exchange is a very complex and, in many instances, a subjective process. It seems that tangible/explicit assets are valued through the market while intangible/explicit assets are difficult to determine through the market thus, its value in many instances is situation specific and embedded in social relations. As a result, the ability to identify the other firm or actor in exchange rather than the product or service becomes crucial. Such identification may be influenced by external intermediaries in the market.

An historical perspective can shed light on initial endowments of firms, the path by which assets have accumulated and capabilities have developed, and the role of luck. Due to path dependence, once a group has developed, it is likely to persist and become more defined and differentiated over time (Arthur, 1996). The persistence of groups in such industries as airlines and tobacco has been strongly influenced by the historical paths by which these industries developed. Institutionalists view the evolution of industry structure as a socially constructed process that, over time, generates norms of behaviour that in turn shape subsequent competition. Physical proximity may promote the emergence of groups with strong identities. Geographic proximity draws the attention of rivals to one another and leads to greater observability. Proximity contributes to more frequent interaction and greater information

exchange. The interaction of proximate firms may have special significance because of potential benefits from labour pooling, shared services, and technological spillovers (Krugman, 1994). Managers of localised firms are more likely to encounter one another in social settings and to know one another on a personal basis, facilitating mutual understanding and information transfer. Because proximate firms often share local buyers and input sources, they are also likely to gain information about one another through these intermediary sources.

Past research indicates that firms were likely to continue to interact with firms with which they have had positive interactions in the past and to narrow their subsequent choices regarding potential associations on the basis of their past expectations (Dranove et al, 1998; Temple and Johnson, 1998). When managers enter the industry from outside, it increases the likelihood that strong identities will start breaking down (Peteraf and Shanley, 1997). By introducing new mental models and norms of behaviour into the industry, they may impede mutual understanding and destabilise groups. The variation brought into the system by such managerial movement may break down the routines that served to stabilise group behaviour and support an identity in the past. Hence, some strategic groups may reject such moves in order to sustain legitimacy of their ways. The following are the summary of the points covered in the doctorate thesis concerning the effect of embeddedness on firm performance:

(a) As DeBeers controls the global market for a wide range of rough and polished diamonds, there was a need to scrutinise the fact that it may control the export success of particular Israeli diamond firms. The research indicated that there was no significant difference in the success rate between the firms in the three strategic groups that are De Beers sight holders and those that are not. Furthermore, the firms that were CSO sight - holders were evenly distributed between the three strategic groups. This is explained, in part, by the fact that although the Israeli diamond

industry is heavily dependent on De Beers for its rough diamonds, it imports a large portion from outside the CSO (i.e Africa and Russia).

(b) There was no way for the researcher to determine the exact profitability of the various kinds of polished diamonds (4C scale) and that of rough diamonds. This was as a result of the intangibility of diamond prices embedded in the ingrained secrecy of the industry. On the other-hand, while interviewing Israeli diammantaires and umbrella institutions, it was mentioned continuously that the profitability on average, on polished diamonds, in percentages of value is similar, fixed at around 3-5% gross.

(c) There was a needed to ascertain that firm characteristics were not a factor in determining an Israeli firm's probability of success. The research has indicated that firm characteristics such as size of export in terms of turnover, the number of employees, organisational structure or being a manufacturer were not found to be significantly different between the three strategic groups.

(d) In the next stage, the researcher needed to ascertain that management characteristics were not a substantial factor in determining an Israeli firm's probability of economic success. Generally the research seemed to indicate that managerial socio-demographic variables such as sex, age, and education were not significantly different between the three strategic groups, thus were not seen to affect the probability of economic success. On the other hand, the research indicated that there were some differences in managerial variables between the three strategic groups, such as firm managers in strategic group one were found have more diamond related experience than both strategic group two and three. Generally, there is a need to further untangle the effect of the variables of management characteristics and type of polished diamond exchanged on an Israeli diamond firm's probability of economic success (a point mentioned in future research).

As a result of market imperfections, such as those generated by asymmetric information in markets, which leads to its breakdowns, firms act in a risk-averse manner, such as transacting in a strategic group. In other word, the fact that firms can only partially diversify out of the risks that they face lead them to act in a risk-averse manner (Bruce and Stiglitz, 1993). Markets with more flexible prices are among the more volatile in the economy, which suggests that something beyond price and wage flexibility is at issue (Stiglitz and Weiss, 1992) and firms will look for means to reduce uncertainty (Robinson and McDougall, 1998).

The researcher would like to note that a strategic group identity presupposes cognitive and learning abilities of firms (Dranove et al, 1998; Peteraf and Shanley, 1997). Central characteristics may take the form of family traits, or they may take the form of a set of a core relationships or activities. While individual managers have cognitive abilities, firms, strictly speaking, do not. When a firm is led by a single top decision maker, as many small firms are, the cognitive processes of the CEO are arguably the same as those of the firm or when a firm is managed by a top management team that exercise collective decision making. This is an important point to make in the context of the Israeli diamond industry as most firms depict a family owned structure with a single decision maker. Furthermore, it seems from the research conducted that the mobility barriers that define strategic groups may be more cognitive than embedded in reality. Thus, a strategic group identity likewise involves more than just a simple perception or identification of the group. It requires an attachment of member firms to the cognitive group that evolves as members come to identify with the group and align their activities to a greater degree with those of the other group members (Hundley and Jacobson, 1998; Madhavan et al, 1998).

Early in the history of an industry, the lack of legitimacy can threaten the existence of even the most capable players (Chiles and Meyer, 1997; Poudier and St.John, 1996). Under such conditions, firms may look to one another for solutions and support, seeking strength in numbers

(Peteraf and Shanley, 1997). By bonding together, they may obtain greater legitimacy as a group than any set of firms can individually. As the legitimacy of the industry becomes more firmly established, firms within a group can focus more on competing with one another, knowing that the basis of their competition is secure. At this stage, it is claimed that there will be more variation in firm practice, more attempts at differentiation, and less emphasis on collective action and group identity as illustrated in the case study on the evolution of the Israeli diamond industry. Group concerns will become relatively more salient when circumstances make such an orientation valuable or necessary (Madhavan et al, 1998). This implies that identification with a group will be more likely in times of economic duress than in times of prosperity. When the existence of the group or individual firm is threatened, group orientation and group action may provide effective or perceived redress.

It is argued that interconnectedness among group members increases the impact of disturbances and reduces the collective's capacity to adapt successfully to environmental threats. This fact may overly focus the attention of members on the group and away from outside competitors (Dranove, 1998). The fact that firms do not perceive a competitive threat from outside the group can mean that they will be in no position to monitor the threat and plan a counter-attack (Peteraf and Shanley, 1997). A strong attachment to a group may be associated with resistance to change and an inability to adapt to new conditions (Pouder and St.John, 1996). This stems from the inertial habits that top managers develop in attending to group norms and from the sunk nature of resources that group members have in common. It also is the product of set routines that have developed to guide behaviours within the group (Bernstein, 1992).

An increase in the number of firms in a group increases the forces of fragmentation, which in turn increases the likelihood of group breakdown. This is especially true, since there appear to be a limit to the number of members that perceptual groups can accommodate (Knack and Keefer, 1997). By introducing variation into the industry, entry may change the basis of

competition and upset the industry equilibrium. On the other hand, exit, whether due to bankruptcy, merger, or the redeployment of firm assets to other product markets, reduces the number of firms in an industry. With fewer firms, the likelihood is increased that firms will be able to attend to and interpret the actions of others. The number of interactions among remaining players is likely to increase.

It was possible to note that information in the Israeli diamond industry is imperfect. In an imperfect market such as the Israeli diamond industry, there can be multiple prices because of disconnections between the various actors. One's knowledge is vastly different based on one's experience and social networks. This situation is further augmented by the fact that a large range of polished diamonds do not have an explicit price (Spar, 1994; Bernstein, 1992). As information is imperfect exchange is bound by existing social structures, personal contacts and relationships. As a result, it seems that group one has four options: (a) change its cognitive mindset and increase its product range and try to shift towards strategic group two or three; (b) create its own price list or increase the range of polished diamonds covered by the prevalent Rapaport price list; (c) be more efficient and attempt to survive in a niche with the hope that it will not dissolve completely; and (d) stay as long as possible and then exit.

The importance of clusters is illustrated by the fact that geographic organisational clustering are explored, for instance, by economists (Krugman, 1996a), business strategists (Chiles and Meyer, 1997) and organisation theorists (Pouder and St. John, 1996; Uzzi 1996, 1997). Geographic organisational clusters, such as the Israeli diamond industry, are structurally a common phenomenon. In many instances they offer important advantages to their members (Uzzi, 1996, 1997; Chiles and Myer, 1997). However, very little is known in academia about the formation of the Israeli diamond industry, the dynamics involved and how it fits into the prevalent academic literature. Absent such knowledge, it becomes difficult to provide valid strategic advice and provide a basis for future research on the Israeli diamond industry.

In line with Chiles and Meyer (1997) it seems that clustering of Israeli diamond firms in a single location in Israel was a critically important way of organising business activity. It provided initially unique benefits to Israeli diammantaires. Locations are claimed to foster small business development (Chiles and Meyer, 1997; Pouder and St.John, 1996; Uzzi, 1993) and, thus, fuel Israel's global national competitiveness in exporting polished diamonds. It is important to note that Israeli polished diamond exporters are legally independent and privately held firms with varying levels and intensity of information exchange, joint problem solving, and trust. These Israeli diamond firms are geographically and socially dense creating more than just an industrial district, but a tightly knit network that has an intrinsic mechanism of securing and policing prevalent norms and values (Spar, 1994; Bernstein, 1992; Benson, 1988).

The research indicated that, while an attractive location will most likely be favoured by many firms early on, there also exists a decisive role for "historic accident" such as World War II. In other words, the location of the diamond industry in Israel may have been more ideally suited in another location. This may be one explanation to its present deterioration. The researcher claims that the fit between the characteristics and structure of the Israeli diamond industry and its environment, is critical for its continuing success. The poorer the fit, the greater the risk of failure, and the more expensive and prolonged action needed by institutions such as the Israeli government to bail the industry, if at all possible. From the fourth exploratory proposition it seems that firms which build their competitive advantages on historically based practices, such as socially embedded exchange, are at high risk of economic failure as the industry embraces new business practices and technology. In other words, as the Israeli diamond industry becomes more rationalised, firms will start embracing new business practices and technologies (such as firms embracing arm's length exchange mechanisms) or they will become extinct. The following is a summary of the four exploratory propositions presented:

Exploratory Proposition One. The research indicated that arm's length exchange increased access to market information and raised the level of a firm's possible exit from unsatisfactory business relations. It provided a mechanism for identifying and exploiting changes in the global environment. In the arm's length view, exchange is rarely ongoing or personal, and involves ingrained trust. Dissatisfaction in business activity was communicated in the market by withdrawal or exit from the business relation (Hirshman, 1970). On the other hand, socially embedded exchange differs principally from arm's length exchange in that actors involved rely on trust, long term horizons, and ingrained belief of joint problem solving.

The researcher indicated that firms in strategic group two who are based on arm's length exchange use, more often, price information in exchange to facilitate a transaction. From exploratory proposition one the researcher concluded that the weaker the ability of prices to deploy information on polished diamonds being exchanged in the Israeli diamond industry, the more will Israeli polished diamond exporters rely on their socially embedded ties to facilitate exchange. The research has furthered the work of Uzzi (1997, 1996); Grief (1989; 1994); and Fombrun (1996), illustrating that socially embedded exchange is utilised in order to reduce some of the uncertainty in exchange. This created the conduit for exchange of goods and services that are difficult to price or enforce contractually through the market.

While informal relations are seen by traditional organisational theorists (Williamson, 1975, 1979, 1981) as random noise, they are seen as crucial indicators in understanding the mechanisms in networks (Uzzi, 1996, 1997). How information and knowledge spreads, and the "noise" one may pick up on the way, are crucial in socially embedded exchange (Uzzi, 1993; Jervis, 1989; Schelling, 1978; Hirschman, 1970). The research through the fieldwork has illustrated that reputation and trust are fundamentally more important in "uncertain" than in "certain" environments. The role of trust and reputation seemed more important when collaboration was needed in order to facilitate exchange. Furthermore, it seemed that trust and

reputation have limitations. As an industry becomes more rationalised, trust and reputation as mechanisms of facilitating exchange become less appealing. Trust becomes essential when the nature of exchange and assets being exchanged have intangible quality, or when it is difficult to have a market valuation price.

Exploratory Proposition Two. Exploratory proposition two examined if social embeddedness, as opposed to arm's length exchange, of Israeli polished diamond exporters operating in the Israeli diamond industry, increased one's probability of success as defined in this doctorate thesis. As trust continues to deteriorate, the researcher's fieldwork indicated that arm's length exchange in the Israeli diamond industry, compared to historically prevalent socially embedded exchange, increased a firm's economic performance.

Although socially embedded exchange is claimed to reduce the complexity of risk taking in exchange by providing expectations of reciprocity (Uzzi, 1996, 1997), it was found to be an inhabiting factor for Israeli polished diamond firms' economic performance. Social capital was found to increase the scale of the transaction between the same actors, but to limit its scope only to these actors. In the past, socially embedded exchange embedded in mutual trust and co-operation was thought to enable Israeli diammantaires to obtain resources and adjust to unforeseen events more efficiently, a point that may no longer be valid. It illustrated that group members may not realise similar returns, as important differences may exist in their stocks of assets. For instance, risk exposure may differ between various group members to the extent that their strategies are characterised by a different degree of fit between their current strategy and their environment. In line with the literature review, it seems that diammantaires, transacting on the oversocialised perspective, are highly constrained by existing social roles and relations among exchange partners. This is because one's role and position in the social system, to a large extent, determines interaction.

The research has indicated that social networks promote economies of time and, in most cases, contracting costs are avoided all together. The research has further indicated that transactions which are straightforward and require little or no transaction specific investment take place through the market. For instance, diammantaires exchanging diamonds fully covered by the Rapaport price list utilised the undersocialised perspective and transacted through the market; where'as opposed, exchange that is uncertain in outcome and require substantial transaction specific investments that cannot be easily transferred to others, was based on the oversocialised perspective and internalises within social networks.

Exploratory Proposition Three. The researcher through exploratory proposition three explored the possible managerial characteristics of the more successful Israeli diamond exporters, in the hope of explaining some of the reasons of the prevalent decline in trust and the stagnant economic activity in the Israeli diamond industry. The operator/owner characteristics were seen as important indicators and facilitators of economic success as the Israeli diamond firms are predominantly family orientated and are involved in all strategic activities. Generally the operator's/owner's characteristics of Israeli diammantaires were found to be generally homogeneous (see table 6-3). This finding is backed up in the literature. Schelling (1978) and Choi et al (1995) claim that actors tend to create groupings similar to others. In line with their work, the researcher has illustrated through in-depth interviews that their rationale holds true in the Israeli diamond industry. The researcher has shown that the homogeneous nature of the Israeli diammantaire was based on fixed and variable identity factors.

The decline in trust in the Israeli diamond industry, as indicated in the research, seemed to stem, to an extent, from the changes in the characteristics of the more successful Israeli polished diamond operators/owners and environmental changes, such as the rationalisation of the industry. It seemed that the younger generation which has the highest level of formal education tends to aggressively seek, through arm's length ties, new opportunities in export

markets. The characteristics of the operator/owner of economically successful diamond firms found in the research study is summarised as: least years in the diamond business (i.e around 15 years); least time members of the Israeli Diamond Exchange (i.e around 10 years); not originating from a diamond family; and having more experience in other fields (enter the diamond industry at around the age of 27 compared to 19 for strategic group one).

An Israeli diamantaire claimed in an interview that “one can differentiate between the generations by age ... The younger generation is wider in outlook and more self confident than its fathers, but the older people are more careful, owing to their experience.” The research indicated that diamond related experience may be less useful in facilitating successful exchange in the Israeli diamond industry. This highlights the finding that trust, based on fixed factors of identity, may no longer be an integral part of the managerial profile of a successful manager.

Exploratory Proposition Four. Looking into the future, the researcher claimed through proposition four that Israeli polished diamond exporters which build their competitive advantages on the use of socially embedded ties, would be at a higher risk of economic failure as the industry became more rationalised, than would those firms who build their competitive advantage on arm's length exchange. The example of the Israeli diamond industry illustrated (as did studies by academic scholars such as Pouder and St.John (1996) and Chiles and Meyer (1997)), that positive effects of social embeddedness and high density of clustering may rise to a critical mass; after which, socially embedded exchange may decrease economic performance as a result of isolation from the markets, information bottlenecks and rationalisation.

Reality is based, to a large extent, on imperfect competition, and exchange is based, to a large extent, on social structures as the conduit through which exchange is undertaken. In line with Darby and Karni (1973) and Choi and Hilton (1995) the research has indicated that, when high uncertainty arises in exchange, actors would use certifiers to facilitate exchange as illustrated by those Israeli diamantaires transacting in polished diamonds not covered by the

Rapaport price list. As market exchange is claimed to become inefficient when there is high uncertainty in the market, those diammantaires transacting on the oversocialised perspective have to examine the possibilities of rationalising the diamonds they transact with. This may be done through creating an extended price list or changing the firm's product mix to polished diamonds covered by the Rapaport price list.

Over embeddedness and decline in trust may reduce the flow of new or novel information into the socially embedded network. Furthermore, such information may become readily available through arm's length mechanisms. Over embeddedness may cause one to lose touch with the market. If actors become overly embedded, adaptation to environmental changes may become a problem (DiMaggio and Powel, 1983). Sudden structural change in resource flows can cause actors whose competitive advantage is based on socially embedded exchange to shift from an asset to a liability (Pouder and St.John, 1996).

The research in line with Pouder and St.John (1996) and Chiles and Meyer (1997) indicated that the dying out of business practices, firms and industries, represents a natural selection of adaptation. As the evolutionary theory and Darwin asserts, old business structures, firms and industries are inevitably replaced with newer and more efficient business practices, firms and industries that better distribute society's scarce resources. The research illustrated that this process is presently taking place in the Israeli polished diamond industry, where polished diamond exporters who have built their competitive advantages on the use of historically based socially embedded ties seem to be at a higher risk of economic failure as environmental changes fundamentally rationalise the basis of business transactions, in comparison to Israeli diamond exporters based on arm's length strategies.

From interviews conducted, it seemed to the researcher that operators/owners of socially embedded firms, in line with Stacey (1996) have created self-fulfilling prophecies that kept them within repetitive loops. This may have caused them to moderate their innovation capacity and

decrease competitiveness. It seemed to the researcher that Israeli diammantaires perceived their activities as desirable, proper and appropriate within the Israeli diamond's cultural context, and were not able to see the larger picture of global competition. They did not necessarily perceive organisational structures and behaviour prevalent in other industries as particularly relevant. Therefore, they may not have been able to adapt to the changing competitive environment. It is interesting to note that Israeli diammantaire's actions, to a large extent, depend of the behaviour of other diammantaires. As a result of the need for conformity, one diammantaire may herd after another in order to appear legitimate. This type of behaviour was labelled "herding" in the literature review. This is one reason illustrated by Pouder and St.John (1996) for the decline of the Micro-computer industry.

As the Israeli diamond industry becomes more rationalised and more heterogeneous actors enter, it seems to the researcher that Israeli diamond firms, transacting at arm's length, will continue to gain competitive advantage, while those Israeli diamond firms competing on socially embedded exchange will further lose competitive advantage as indicated by the seemingly high bankruptcy rate in strategic group, one compared to groups two and three, in the past year. It seemed from the research conducted that the Israeli diamond industry should be actively managed in order to increase its likelihood of success. However, without active strategic management, to better the fit between business practices and the global competitive environment, the Israeli diamond industry will have no better chance of success than other global diamond centres. Without active strategic management, the researcher presumes, will the Israeli diamond industry have any better chance of success than a score of other locations with similar or even superior advantages.

In conclusion, the three case studies have illustrated the dynamics and complexities of the coevolution of social and organisational structures in the Israeli diamond industry over the years. It has illustrated three macro classifications of exchange (i.e arm's length, socially based

and a mixture of both) and six prevalent micro models of exchange in the Israeli diamond industry. The research has illustrated the limitations of trust and reputation in the context of the Israeli diamond industry; and has indicated what prevalent macro models of exchange will most likely increase an Israeli diamond firm's economic performance.

11.4 Contributions and Implications to the Body of Knowledge

To receive a Ph.D. one needs to show the ability to research as well as contribute to the growing body of knowledge (Estelle and Pugh, 1993). In addition to answering the four exploratory propositions, the researcher felt the need to bridge, at least, some of the gap between the academic point of view and that of the practitioner. The thrust of this thesis came from the view that there was an acute absence of solid academic work explaining the dynamics of the Israeli diamond industry in the areas of business. As a result, the following points were thought by the researcher to be the contributions of this thesis to the existing body of knowledge. This section is divided into two parts, academic and practical contributions.

Academic contributions: The first academic contribution of this doctorate thesis is drawing attention to the importance of the diamond industry as a fundamental part of : (1) the jewellery industry (Dubois and Duquesne, 1993); (2) global finance (Spar, 1994; Saldern, 1990; Paribas Capital Markets, 1996); and (3) of any industry that is involved, for instance, in drilling, cutting, and polishing (i.e oil exploration and steel cutting; Green, 1981; Lenzen, 1970; Tolansky, 1962). Furthermore, the research links the diamond industry to the academic literature on management, organisational behaviour and structure. It seems that the diamond industry in general, and the Israeli diamond industry in part, has been neglected in the business discipline. This thesis is, to the best of the researcher's knowledge, one of the first attempts in researching the global diamond industry and the Israeli diamond industry in part in the area of business.

The second academic contribution of this doctorate thesis is that it maps out in great detail the intricate web of the global diamond industry. It mainly focuses on the Israeli diamond industry and its Jewish origins. As a result of the exploratory nature of this doctorate thesis, the researcher hopes that it will open the doors for future empirical research on the Israeli diamond industry especially in light of its present turmoils. The researcher thinks it an important area to research because Israel is an important and dominant global diamond centre based on Jewish medieval law (Economist, 1992b; Schnitzer, 1983, 1988; Shainberg, 1987). The doctorate thesis amalgamates and points towards the various sources of information that are not generally available, thus, helping pave the way for future research.

An organisation's ability to create and exchange knowledge within a network has become crucial to success in today's world of globalisation. The third academic contribution furthers the ongoing debate on the advantages and disadvantages of closed - highly dense networks (Chiles and Meyer, 1997; Pouder and St.John, 1996; Uzzi, 1996, 1997). As the Israeli diamond industry is an extreme example of a closed network, it would be of benefit to further analyse how and why such a system evolved (Astley and Fombrun, 1983). It is interesting to note how such a closed and socially embedded network further copes within the new competitive environment (Bettis and Hitt, 1995; Hamel and Prahalad, 1996) dominated by a free flow of information and heterogeneous actors (Bernstein, 1992). In view of the decline of similarly structured industrial geographically dense districts, such as route 128, micro electronic (Pouder and St.John, 1996; Chiles and Meyer, 1997), researching such an industry may highlight some synergism.

Social embeddedness was characterised in this doctorate thesis by a continuous strategic interplay between actors that are vulnerable to the constant threat that an actor will abandon the relationship in favour of unilateral goals. In line with main stream literature the research indicated that when social embedded relations were in place, this was viewed as evidence that

co-operation was occurring. When these relations broke down or failed to emerge, this indicated in many instances that co-operation was prevented. By studying the conditions under which social embeddedness was either nurtured or prevented, the researcher understood better the general phenomena of co-operation and the factors that facilitate it.

In an imperfect market such as the Israeli diamond industry, there can be multiple prices because of disconnections between the various actors. As a result of the varying degrees of social capital some diammantaires may be unaware of what they could offer one another. It seemed that certain diammantaires were connected to certain others, trusting certain others, obligated to support certain others, and dependent on exchange with certain others. In some instances assets got locked into suboptimal exchanges. A diammantaires position and social capital in the network was shown to be an asset in its own right. The intangibility of some products, such as diamonds, raised the fundamental question of the effectiveness of market based exchange compared to internalised forms of exchange.

In line with Burt (1987, 1992, 1997); Coleman (1987); and Granovetter (1985) the research has illustrated that when exchange is confined by models of perfect information, it is based on the undersocialised perspective. On the other hand, when it was based on the complexities of imperfect competition, exchange was grounded on the oversocialised perspective. The significance of this proposition is embedded in the fact that it was especially difficult to ascertain the quality and value of polished diamonds not covered by the Rapaport price list at the time of exchange. It was possible to note that information in the Israeli diamond industry is imperfect. One's knowledge is vastly different based on one's experience and social networks. This situation is further augmented by the fact that a large range of polished diamonds do not have an explicit price. As information is imperfect exchange is bound by existing social structures, personal contacts and relationships.

As opposed to traditional organisational theorists, informal social relations were not seen as random noise. These relationships were seen as crucial indicators in understanding the mechanisms of exchange. The informal relationships are in many cases seen as the structure through which exchange takes place. Nahapiet and Ghoshal (1998) claim that social capital, in the form of high levels of trust and reputation, diminishes the probability of opportunism and reduces the need for costly monitoring processes. The research has indicated that the strong norms and mutual identification that may exert a powerful positive influence on group performance can, at the same time, limit its openness to information and to alternative ways of doing things; hence, producing forms of collective blindness that have disastrous consequences as illustrated in numerous other industries (Nahapiet and Ghoshal, 1998; Pouders and St.John, 1996). The research has indicated that social capital inheres in the relations between and among persons and is a productive asset facilitating some forms of social action while inhibiting others. In other words it may increase the scale of interaction between certain actors but limits its scope to those specific individuals (Uzzi, 1996, 1997; Pouders and St.John, 1996). It may lead to a problem of insiders versus outsiders (Choi et al, 1995).

The fourth academic contribution further builds on the research into competitiveness in socially embedded exchange. For instance, furthering works such as Uzzi (1996, 1997) on social embeddedness in the US garment industry. Uzzi (1996, 1997) claimed that trust and social embeddedness leads to a competitive advantage in exchange. On the other hand, the research on the Israeli diamond industry indicated that initially social embeddedness leads to a competitive advantage. However, as the industry becomes more rationalised social embeddedness leads to a competitive disadvantage. It illustrated that those actors transacting, based on arm's length exchange, have a higher probability for success than those transacting based on socially embedded economic exchange.

Co-operation and exchange mechanisms depend on how one values the future. It means taking risks or relative losses in the short run, in the hope of fostering joint gains over the longer term. The researcher suggests, however, that co-operation will be more easily created when the principle participants are confident of their own longevity. The research indicated that co-operation can be enhanced, it appears, by limiting the number of players in the game. Smaller numbers reduce the problems of collective action and limit free riding. In less tangible terms, smaller numbers also create a more intimate environment, one in which the participants can generally come to know and trust one another.

It seems that co-operation in the Israeli diamond industry appears to be facilitated when procedures are informal and rules are unwritten. This informality may actually enhance compliance insofar as it allows for some flexibility in performance and does not demand that the sanctity of the entire agreement be called into question whenever a violation is suspected. The rules themselves are flexible and can be easily changed to reward good behaviour and punish offenders (Bernstein, 1992). For instance, Israeli hoarding of rough diamonds was not punished from a breaching of a particular rule, but from a total defection from the agreement. Small transgressions are allowed to occur without immediate consequences and without calling the entire structure of the industry into question (Spar, 1994).

It seemed to the researcher from the fieldwork conducted that in order to research trust, one needs to create trust. Past research on trust in the diamond industry was relatively abstract and lacked empirical testing. This doctorate thesis attempted to fill this gap in the literature by measuring trust and guide future researchers on conventions of how to research trust. Analysis of social capital was seen to be centrally concerned with the significance of relationships as a resource for social action. Social capital is a quality created between people (Burt, 1997). Although it has value in use, social capital cannot be traded easily as illustrated in the Israeli diamond industry (Nahapiet and Ghoshal, 1998; Nonaka and Takeuchi, 1995). Social capital

resides in relationships, and relationships are created through exchange. For example, there is mounting evidence demonstrating that where parties trust each other, they are more willing to engage in co-operative activity, through which further trust may be generated.

In reality, there have always been costs associated with trade, for instance the costs of information and co-ordination. The research has indicated that the nature of exchange of intangible products cannot be the same as for explicit products such as electronic goods. It seems that the market value of intangible assets such as diamonds can only be known through high measurement costs. The thesis addressed the issue that some intangible products cannot be readily exchanged in the market, demanding a socially embedded means of exchange, while other types of products can be readily exchanged in the market.

The fifth academic contribution furthers the debate of behaviourally-orientated scholars such as Uzzi (1996, 1997); Burt (1997, 1992); and Nahapiet and Ghoshal (1998). The research illustrated that once analysis moves away from the theoretical economic models of perfect competition, reality is grounded on the complexities of imperfect competition (Schelling, 1978). In such a framework social structures and organisational behaviour based for instance on, trust, reputation and identity, are fundamentally important as facilitators of successful exchange (Khanna et al, 1998; Nahapiet and Ghoshal, 1998; Burt, 1997). Such a framework was believed to be predominant in the Israeli diamond industry. The importance of this approach was based on the fact that valuing a polished diamond at the time of exchange is a very complex and, in many instances, a subjective process. It seems that tangible/explicit assets are valued through the market while intangible/explicit assets are difficult to determine through the market thus, its value in many instances is situation specific and embedded in social relations. As a result, the ability to identify the other firm or actor in exchange rather than the product or service becomes crucial. Such identification may be influenced by external intermediaries in the market.

The sixth academic contribution illuminates some of the factors of economic success or failure for Israeli polished diamond exporters. It furthers the work of scholars such as Cavusgil and Nevin (1981) and Cavusgil and Kipalani (1993). Given the wide variety of variables identified as correlates of business success, the research indicated that it is dangerous to assume that certain characteristics of either the firm or its managers are invariably key success factors. Evidence seems to suggest that much depends on the specific situation of the firm and the industry in which it is competing (Ganitsky, 1989; Louter et al, 1991; Das, 1994; Moini, 1995). However, there appears to be sufficient evidence in this doctorate thesis to draw a number of conclusions. For instance, the research indicated that arm's length exchange was generically a better business strategy than socially embedded exchange, in facilitating exchange in the Israeli diamond industry. Furthermore, the research indicated, in line with Moini (1995), a positive correlation between management attributes and firm success, exists.

Evidence has shown that successful geographically dense industries have experienced great declines in growth. This rise and fall pattern suggests that some geographically dense industries may experience evolutionary phases. As researchers of interorganisational networks have observed, the collectivity of geographically dense industries, would be governed by norms of acceptable conduct. These norms would be institutionalised through patterns of social and professional interactions that evolve over time. Research seems to indicate that the network of interdependencies that were a source of strength in the origination phase becomes a source of inertia and flexibility during environmental jolts. Consequently, clustered firms will be slower to react to a jolt than will their non-clustered competitors. The following points are a summary of the main contributions and implications of this doctorate thesis:

(a) Furthering works such as Uzzi (1996, 1997) on social embeddedness in the US garment industry. Uzzi (1996, 1997) claimed that trust and social embeddedness leads to a competitive

advantage in exchange. On the other hand, the research on the Israeli diamond industry indicated that initially social embeddedness leads to a competitive advantage. However, as the industry becomes more rationalised social embeddedness may lead to a competitive disadvantage. The research illustrated that those actors transacting, based on arm's length exchange, have a higher probability for success than those transacting based on socially embedded exchange.

(b) Within a cluster, actors have similar cognitive frameworks that may insulate them from the market, leading to a loss of touch with the market. Furthering and building on works such as Pouder and St.John (1996) and Chiles and Meyer (1997) illustrating that geographically dense industries need to be managed skilfully in order not to lose sight of the market and become extinct as has happened to the micro-computer industry in the US (route 128) and seemingly transpiring in the Israeli diamond industry.

(c) There seems to be an element of chance to the origin and initial location of geographically dense industries. In some ways, clusters of firms are analogous to forests of trees. Although one cannot anticipate exactly when or where the first seed will land within a field, once the seed is implanted, it is highly likely that more trees will follow once their initial sight is implanted, it is highly likely that more trees will follow once the initial sight is implanted, there may be compelling economic and institutional reasons for firms to locate in the area. The research indicated that, while an attractive location will most likely be favoured by many firms early on, there also exists a decisive role for "historic accident" such as World War II. In other words, the location of many industries such as the diamond industry in Israel may have been more ideally suited in another location. This may be one explanation to its present deterioration. I claim in the thesis that the fit between the characteristics and structure of the specific industry and its environment, is critical for its continuing success. The poorer the fit, the greater the risk of

failure, and the more expensive and prolonged action needed by governmental and private institutions to bail the industry, if at all possible.

Practical contributions: The first practical contribution of this doctorate thesis is to help Israeli polished diamond exporters expose some factors of business success and avert business pitfalls and, thus, help the Israeli diamond Exchange create and sustain a competitive advantage over other global diamond centres. For instance, it seems that economically successful Israeli diammantaires transact in explicitly priced polished diamonds covered by the Rapaport price list through arm's length exchange. The research indicated that new entrants with little past dealings in diamonds may illustrate a better fit with the present competitive global markets leading to a higher probability of economic success. In the conclusion of this doctorate thesis, and in accordance with an agreement between the institutional bodies in the Israeli diamond industry and the researcher, in exchange for their assistance, the research findings will be presented to the board of directors of the Israeli diamond Exchange.

The second practical contribution focuses on mapping out and highlighting the strengths, weaknesses and limitations of socially embedded exchange in relation to arm's length exchange in the Israeli diamond industry, thus, assisting Israeli polished diamond exporters to attain a better strategic fit with their environment, leading to a possible competitive advantage over other global diamond firms.

The third practical contribution focuses on narrowing the gap between the Israeli diamond industry and that of academia. For instance, through co-operation and formal education tailor made for the Israeli diamond industry's needs, thus, giving Israeli diamond exporters additional tools that they did not possess in the past, in order to compete better in the future. The researcher is in the process of attaining such a co-operation between City University Business School (CUBS) and the Israeli diamond industry through a Flexible Master's Programme, (see

appendix seven). The following is a summary of the contributions of this doctorate thesis to the academic literature on social capital:

(a) The advantages and disadvantages of dense geographically dense industries in the context of information flows, aggregated inputs/outputs (value chain), governance and strategic decisions based on relatively homogeneous information and management characteristics.

(b) Illustrating and furthering research on the importance of social capital in complex and uncertain business environments focusing on the Israeli diamond industry.

(c) Illustrate a balanced view (advantages and disadvantages) of social capital in exchange in the context of the Israeli diamond industry. In other words, illustrate some of its limitations and illustrate its evolution over time.

(d) Indicate that the path dependent business strategies prevalent in the Israeli diamond industry disseminated through word of mouth may be limiting the probability of economic success of many Israeli diamond firms. This finding was found to be in line with that found by Chiles and Meyer (1997) and Pouder and St.John, 1996).

(e) The research indicated that social capital is built as a pyramid and responds like a spiral. In other words, trust is built in layers - one level of trust is built on another and the delayering is dissolved in the same way. Once momentum is gathered in the disolvment direction, much effort is needed in order to stop it and/or overturn it. On the other hand, trust building is slow and is a painstaking process.

(f) Furthering research on social networks, it seemed from the research that Israeli diammantaires tend to create groupings of similar others which creates homogeneity which may decrease competitiveness over time.

(g) As opposed to traditional organisational theorists, informal social relations were not seen as random noise. These relationships were seen as crucial indicators in understanding the mechanisms of exchange in many industries. In the context of the Israeli diamond industry, the informal relationships were seen, in many cases, as the structure through which exchange took place.

11.5 Limitations of the Research

One of the limitations of this research is that the researcher was highly dependent on official statistics received from the Israeli Diamond Controller office, Ministry of Trade and Industry on the Israeli diamond exporters. This information may be skewed. To offset this limitation or shortcoming of the research, the researcher, in line with industry experts, assumes that all sampled firms under-declare at around the same value and, thus, offset each other.

Export data was only one indicator for business success, as diamond firms may increase their turnover and profitability by increasing local sales to other diamond exporters at the expense of exporting themselves; as a result official polished diamond export statistics may in some instances illustrate low export activity, wrongly indicating low economic activity and, therefore, a certain bias may be present. The only way the researcher could overcome this bias was through interviewing the exporting firms themselves and assessing their strategy and assuming that, overall, as Israel has no local market for polished diamonds, exporting was the only available indicator for economic activity. The researcher tried to decrease as much as

possible this bias, but Israeli diammantaires were reluctant to discuss in any detail their business practices, especially turnover and levels of profitability.

As a result of the high secrecy and the reluctance of Israeli diamond exporting firms in the Israeli diamond industry to disclose any kind of information, the researcher was forced to depend heavily on the umbrella institutions for secondary information. Some firms refused outright to be interviewed or even talk to the researcher. The firms that consented to be interviewed were characterised as progressive and generally open. The researcher extended the samples as much as possible in order to overcome this bias of homogeneity. In addition, firms which did not have managers that spoke English or Hebrew were classified as unattainable (for in-depth review of the limitations, see chapter five).

In conclusion, as a result of limitations of time, finances, and the reluctance of the actors in the Israeli diamond industry to be employed as a case study example, the researcher had to opt to build the three case studies through 100 individual and independent firm level interviews. To complement those interviews, the researcher contacted numerous umbrella institutions, practitioners and academics. This strategy was employed rather than having fewer in-depth examinations of Israeli diamond exporting firms as a second resort. Numerous attempts to get the consent of a number of Israeli diamond exporting firms to act as test subjects was fruitless. Getting 100 firms to consent to an informal interview was a difficult undertaking within itself.

11.6 Suggestions for Future Research

The absence of a solid theoretical framework in past research on the diamond industry and the Israeli diamond industry in part is surprising. The majority of studies in the area of business had attempted to explain too much thus, lacking focus and depth. The results of this study exposed the need for further focused theoretical and empirical research into the nature and

dynamics of the global diamond industry in general, and the Israeli diamond industry in part. The following are examples of some possible future areas for further research.

Future research may further exploratory propositions two and four which indicated that historic business practices in the Israeli diamond industry, based on socially embedded exchange were inferior to the more prevalent arm's length business strategies. This trend was foreseen by the researcher and industry experts to persevere in the future. Israeli diammantaires may need to restructure their organisational behaviour and organisational structure to realise these needed changes, as illustrated in other similarly structured industries (Chiles and Meyer, 1997; Pouder and St.John, 1996). For instance, the Israeli diamond industry may need to restructure itself in a different way to cope with the global and free information environment.

The dynamics and structures which are needed to facilitate business success in the Israeli diamond industry have not yet come under investigation. Further studies on this issue require an understanding of the global diamond industry and the Israeli diamond industry in part. One must continuously monitor the changing situations in the diamond firms, the diamond industry, and global environmental trends. For instance, how have the changes in the business environment affected business practices in the Israeli diamond industry? These dynamics may lower the presently high barriers to entry and so change the prevalent business practices. This is an interesting area for research covered to some extent by proposition four but, generally, is out of the scope of this doctorate thesis. This maybe undertaken by few in-depth case studies thus, furthering the understandings of the dynamics and complexities involved in this doctorate thesis.

As stated the problem of external validity needs to be addressed. It would be important to further this doctorate study by focusing the methodology and exploratory propositions utilised in this doctorate thesis, onto other global diamond centres, such as India and Belgium, examine if the findings of this thesis are applicable on other global diamond centres and even other geographically dense industry clusters based on socially embedded exchange.

Since this research is exploratory in nature, in depth survey-based research or multiple case study analysis on a hand-full of firms may be able to further substantiate the findings. There is a need to further the findings of this doctorate thesis from its exploratory stage. For instance, to break down the elements of economic success into distinct parts and find out how each part affects an Israeli diamond exporting firm's performance, thus, furthering the findings on the effects of the various managerial characteristics that lead to a polished diamond firm's success.

There is a need to investigate the dynamics involved from the viewpoints of different disciplines, for instance, the view of geographical economics (Krugman, 1996a; Chiles and Meyer, 1997; Pouder and St.John, 1996) and economic anthropology; and research the dynamics involved in the formation of the geographically dense clusters, such as the Israeli diamond industry and how structure affects business practices, and vice versa.

The thrust of this thesis came from the view that there was an acute absence of solid academic work explaining the dynamics of the Israeli diamond industry in the areas of business. This thesis is, to the best of the researcher's knowledge, one of the first attempts in researching the global diamond industry and the Israeli diamond industry in part in the area of business. The following points are discussed, in order to help guide future research in the area.

(a) In order to research trust, there is a need to foremost create trust between the researcher and the industry studied. This is a time consuming process that cannot be hurried or assured to be achieved.

(b) In order to research trust a holistic research method implementing qualitative and quantitative research methods is crucial in-order to understand the existing contextual relations in the industry, in other words, achieving a holistic picture of inter-relationships is crucial.

(c) Sampling a secretive industry such as the Israeli diamond industry has a snowball type effect when a critical mass of interviewees is achieved. In other words, it is painstakingly hard to obtain the first couple of firms to consent to be interviewed, but when a mass of firms have been obtained, other firms are eager to be interviewed out of curiosity and interest of gaining information on others through the researcher.

(d) Timing, persistence and charisma are all crucial ingredients in achieving access to a closed and secretive industry.

In conclusion, the recommendations above are only some possible avenues for further research. Therefore, it may be suggested that future research into the Israeli diamond industry would contribute towards a deeper and wider understanding of the issues and dynamics of international business in the context of the diamond industry as a whole. This doctorate thesis as stated above was exploratory in nature, setting the framework for further research on the industry in business related disciplines.

12.1 Appendix 1 - The Questionnaire (Hebrew and English)

Name of Firm	Address	Phone	Fax

No	Question	Interviewee	Hebrew
1	Name		שם
2	Age		גיל
3	Sex		מין
4	Education		השכלה
5	How long are you in the business?		כמה זמן את/ה בעסק
6	How long are you a member of the Israeli diamond exchange		כמה זמן את/ה חבר בבורסת היהלומים בישראל?
7	Have you worked for another diamond firm? elaborate		האם עבדת עבור חברת יהלומים אחרת? הסבר
8	Are you from a diamond family?		האם את/ה ממשפחת יהלומנים?
9	How many generations ?		כמה דורות?
10	Do you think any of your family will go in your footsteps?		האם אתה חושב שאחד מבני משפחתך ילך בעקבותיך?

No	Question	Interviewee	Hebrew
11	How long is the firm operating?		כמה זמן החברה פועלת?
12	How long are you in this firm?		כמה זמן את/ה בחברה?
13	Are you also a manufacturer?		האם את/ה גם יצרן?
14	No. of employees?		מס' עובדים?
15	Do you advertise? (if no jump to 21)		האם את/ה מפרסם? (אם לא קפוץ לשאלה 21)
16	What kind of media? (Mag., film, newspaper, TV)		איזה סוג מדעיה? (מגזין, עיתון, קולנוע, טלוויזיה)
17	Where do you advertise?		אפוא אתה מפרסם?
18	How many times do you advertise / \$?		כמה פעמים את/ה מפרסם / \$?
19	When did you start to advertise?		מתי התחלת לפרסם?
20	Do you go to shows ? (If no go to 25)		האם את/ה מבקר בתערוכות? (אם לא קפוץ לשאלה 25)
21	How many times a year?		כמה פעמים בשנה?
22	Which shows?		איזה תערוכות?
23	When did you start to go to shows?		מתי התחלת לבקר בתערוכות?
24	Do you exhibit in shows? (If no go to 29)		האם את/ה מציג בתערוכות? (אם לא קפוץ לשאלה 29)
25	How many times a year?		כמה פעמים בשנה?
26	Which shows?		איזה תערוכות?
27	When did you start exhibiting in shows?		מתי התחלת להציג בתערוכות?

No	Question	Interviewee	Hebrew
28	Do you have any special / own cuts? Which		האם יש לך/ה חתכים מיוחדים? איהם
29	Do you have a homepage/ website		האם יש לך/ה אתר באינטרנט. אם כן
30	Are you a sight holder? dates?		האם את/ה בעל סיימז תאריך
31	Do you have an export department?		האם יש לך/ה מחלקת יצוא?
32	What are your main product lines?		מה הוא קו המוצרים העיקריים שלכם?
33	Where are your main markets?		מה הם השווקים העיקריים שלכם?
34	What problems do you have to receive rough/polished diamonds?		מה הם הבעיות בלהשיג יהלומי גלם/ מלוטש?
35	Where do you receive rough diamonds/polished diamonds?		מאיפה אתם משיג את הגלם/ המלוטש?
36	Can you elaborate on your success / failures over the years?		האם את/ה יכול לפרט את ההצלחות/ כישלונות בעבר?
37	What events or conditions lead to close business relations with your suppliers?		איזה מאורעות או תנאים מובילים ליחסים קרובים וסובים עם ספקי?
38	What events or conditions lead to close business relations with your customers?		איזה מאורעות או תנאים מובילים ליחסים קרובים וסובים עם לקוחות?
39	What does it take to succeed in the business?		מה זה לוקח להצליח בתעשייה הזו?

40. How important are the following factors for export success?

V. Crucial C. Imp. N.I. Not Relevant

No	Question	1	2	3	4	5	Hebrew
1	Consistent Quality						כות מוצר אחידה
2	Firm Reputation						ישוב של החברה
3	Meeting Delivery dates						פקה בזמן של מוצרים
4	Matching customer specifications						פקה צרכי הקוח
5	Personal visits by owner/director						ורים אישיים ע"י בעל/אז מנהל
6	After sales service						רות לאחר מכירה
7	Skills at negotiating						הנות שכנוע על המכר
8	Word of mouth between customers						לאחון בין הלקוחות
9	Advanced technology						ולוגיה מתקדמת
10	Motivation of sales force						טיבציה של צוות המכירות
11	Contact at exhibition/fair						ע בתערוכות
12	Lower price than competitors						יד נמוך יותר מחתמים
13	Advertising						סוט
14	Extended credit						וראי
15	Assistance by government agencies						רה ע"י מוסדות ממשלתיים
16	Assistance by government						רה ע"י הממשלה
17	Special discounts						חות מיוחדות
18	Frequent two-way communication with customers						שיה שוטף עם לקוחות
19	Maintaining good relations with brokers						ירה על יחסים טובים עם ווורים
20	Maintaining good relations with customers						ירה על יחסים טובים עם וותות
21	Maintaining good relations with suppliers						ירה על יחסים טובים עם כפקים

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Appendix Three - Raw Export Data 1984 - 1996 in Value Terms (US\$)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Name	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927

[illegible]

Appendix Four - Addresses of Population Sampled									
No	Company Name	Survey	Int.	Build.	Suite	P.1	P.2	P.3	P.4
1	L.I.D Israel	ok	6300	N	11	Elishayov D	Leviev M	Leviev L	
2	Schachter & Namdar Polishing Works	ok	3433	M	1437	Tannenbaum Eliot	Namdar A	Namdar Moshe	Greenberg D
3	Fabrikant & Salant Diamonds	ok	5644	Y	568	Salant Yigal	Salant Avner	Rierner Moshe	
4	Lorenzi Diamonds	no	5771	Y	1971	Yossi Lorenzi	Yossi Mair		
5	Aharon Schwartz & Sons	ok	5666	Y	1372	Schwartz U	Schwartz A		
6	E.F.D Diamonds	ok	2315	M	2342	Kaufman E	Kaufman Z	Steinberg Yossi	
7	M.Schnitzer & Co.	ok	3387	M	1236	Schnitzer M	Schnitzer S	Gertler A	
8	Cohen & Sons (Orion)	ok	2440	M	B2	Cohen Y	Cohen J	Cohen S	Wertheimer B Z
9	H.R. Diamonds	ok	3560	M	1945	Hollander C	Rosenthal R		
10	Yahalomei Espeka (Israel)	no	6292	N		Sussholz A	Sussholz P	Avraham Fluk	
11	Asher Dume	ok	3337/8	M	1042	Dalumi A		Yerushalmi R	Itzhaki K
12	Lustig & Samuels	ok	3327	M	1031	Lustig S	Samuel D		
13	S.N.L. Fancies	ok	3433	M	1437	Tannenbaum E	Namdar A	Namdar M	Greenberg D
14	Cimera Ltd.	ok	5797	Y	1879	Ratzersdorfer Charlie			
15	Avraham Traub	ok	3541	M	2142	Traub A			
16	Lili Diamonds	ok	2874	M	2133	Siman-Tov Y	Siman-Tov I	Siman-Tov A	
17	Rachaminov Diamonds Ltd.	ok	2421	S	1401	Rachminov N	Kropfeld R	Eden	
18	Apple Diamonds Ltd.	ok	3607	M	2139	Apfelbaum M	Apfelbaum S S	Tyberg N	
19	Delta Diamonds	ok	5500/1	Y	1564	Haimoff Avner	Haimoff U	Mandler I	Mizrahi A
20	Paz Diamonds	ok	3311	M	937	Fouzaioff B Z	Fouzaioff P	Fouzaioff B	
21	S. Juwal & Co.	no	2285	S	801	Juwal Shlomo	Juwal Arnon	Mor L	
22	Dov Diamonds	ok (20)	3308	M	932	Shimshowitz Sitso			
23	Raphaeli-Stschik	ok	5300	Y	874	Stschik Gershon	Raphaeli Nahum		
24	B.Y. Meirov Gem Ltd.			Y					
25	Waldman Diamonds (W.D.C)	ok	5353	Y	961	Waldman L	Waldman Alexander		Simion
26	Ellaz Diamonds	ok	3506/7	M	2400		Garty Avri		
27	Rachel Levy Diamonds	ok	3530/2	M	1835	Levy R			
28	Komiya Israel Ltd.			N					
29	Rosy Blue Sales	ok	6441	N	907	Mehta A			
30	Avi Paz Diamonds & Co.	ok	3284	M	838	Paz A			
31	Joseph Nadel	ok	2436	S	1501	Nadel J	Gilis O		
32	Samuel - Rozenbaum	ok	3235	M	840	Samuel I	Rozenbaum A		
33	Diaram (1993) Ltd.			N					
34	Tasaki (Israel) Ltd.	no	5628	Y	1668	Ebisutani Masanobu			
35	Eiul Diamonds	ok	2554	M	131	Fouzaioff Amos	Mossayoff E		
36	Jediamex Diamonds Ltd.	ok	2718/9	S	501	Joffe David			
37	Ubexdiam Ltd.	ok	5250	Y	762	Bannai Itzik	Kuzi Yossi		
38	E.M.A Diamonds Mfrs. Ltd.		5684/5	Y	1965	Medding J	Erich Y	Meir A	
39	Capucelli Diamonds	ok	2588	M	1538	Nissim S			
40	Shraga Kahana & Sons	ok	2306/7	S	701	Kahana Shraga	Kahana Moti		
41	Savransky Nahum & Sons	ok	5376	Y	1180	Savransky Avi	Savransky Nahum		
42	Aviezer Imbar	no	2269	S	503	Imbar A			
43	Yerushalmi Diamonds	ok	3237	M	2231	Yerushalmi Benny	Yerushalmi Oved	Yerushalmi Danny	Yerushalmi Zion
44	S.R.D	ok	3235	M	840	Samuel I	Rozenbaum A		
45	Belami Diamonds Co.	no	6318	N	609	Rubens G	Delevy D		
46	Kuperman Bros	ok	2842	M	336	Kuperman Shlomo	Kuperman Ehud	Serok Gil	Kuperman Udi
47	Mordechai Ganz	no	3013	M	8Mid				
48	Eran Diamonds	ok	3808/9	M	2155	Sayag Yehuda			
49	Daniel Lagziel	no	2822	M	B2	Legziel D			
50	Keren-Or Diamonds	ok	2341	S	901	Schwartz Zachi			
51	Zwiebel Diamonds	ok	2929/30	M	1637	Zwiebel David	Zwiebel Elazar	Zwiebel Joshua	Zwiebel Doron
52	Gembel (1982) Ltd.	no	2251	S	401	Mehta Chetan	Mehta R		
53	I.C.N. Diamonds Ltd.			N					
54	Molad-Moldawsky	ok	2288/24	S	control	Molad Itzhak	Moldawsky Motti		
55	Eliazarov Reuven & Sons Ltd	ok	5392	Y	1471	Eliazarov R	Eliazarov Dani	Eliazarov G	Eliazarov M
56	Michael Zion			M					
57	Y & A Hausman	ok	5630	Y	1675	Yigal Hausman			
58	Nathanel Avi Diamonds Ltd	ok	3177	S	1005				
59	Eshed-Diam Ltd. Gemstar	no	2852	M	542	Eshed A	Lagziel I	Lampel M	Lewkowicz Rami
60	Cosmos Diamonds Ltd.	ok	5870	Y	1694	Zilbershats J	Elron Zvi		
61	Moskovich Bros	no	2389/30	S	1210	Moskowitz Yossi			
62	Gal-On Ilan	ok	6365	N	301	Gal-On I			
63	I.D.I Izakov Diamonds Israel			M					
64	Ben Abraham Diamonds Ltd.	ok	3412	M	1338	Abraham B			
65	X.L. Diamonds Ltd.		2830	M	242	Danziger Zvika	Golde Nachum		
66	Parouz Diamonds Co. (1987)		5341	Y	1070	Neikenbaum Noam	Neikenbaum Moshe	Neikenbaum Tova	
67	Gafni Diamonds	ok	5456	Y	1294	Yuval gafni			
68	Segaldiam Ltd.			S					
69	Thangam Co.		5233	Y	662	Mr. Tagra			
70	Rieger Arie Diamonds Ltd.	ok	3545/6	M	1853	Rieger Arie	Rieger Steve	Abramovici Hannan	
71	Astra Diamonds Mfrs.			Y					
72	Diadeb Diamonds (1979)			M					
73	Silberberg - Blankitny			Y					
74	Ultra Gems Israel Ltd.			M					
75	G.B.S.R Ofakim 1987 Ltd.	no	n/a	N	716	Eliba S	Ben-Rei A	Greenberg S	
76	Belisdiam Ltd.	ok	3297	S	1111	Brachfeld H	Brachfeld R	Dr. Hemmendinger R	Parter A
77	Shir Diamonds	ok	2828/9	M	148	Shoval Rafi	Polak Shlomi	Zuulunov Igal	
78	Zikri Eli Ltd.	no	2835	M	236	Zikri Eli	Zikri Dani		
79	El-Bar			M					
80	David Arabov & Sons Ltd.	ok	2292	S	107	Alon			
81	Katz Haim	ok	5397	Y	293	Katz Haim			
82	Frei Joseph			Petah-Tikva	Bourse				
83	Poligem	ok	3426	M	1354	Serri Shalom	Serri Yehiel		
84	Marquis Diamonds Ltd.	ok	2915	M	1337	Elias Effi			
85	Zvi Kish & Son	no	2347	S	908	Kish Zvi	Kish Raphael		
86	Zvi Or Diamonds Ltd.		5509	Y	478	Gal Zvi			
87	Papir Shalom	ok	5551	Y	563	Papir Shalom	Papir Ran		
88	Ajami Diamonds	ok	2864	M	742	Rabih D	Ajami A	Atzmon Israel	
89	Penta Diamonds Ltd.	ok	2524/5	M	2225	Rozenberg Izi	Zuaretz Avigdor		
90	Yosef Ovadia Ltd	ok	5304/5	Y	974	Ovadia Yosef			
91	Meshulam Israel	ok	5622	Y	1661				
92	M Bashan Trading Co.	ok	2971	M	24	Bashan Mickey			
93	Onyx Diamonds Ltd.	no	2596	M	1137	Dvash Shachar			
94	Weinstein S & Sons	ok	2223	S	209	Shavit Benjamin	Weinstein Israel	Shavit David	

95	Yehuda Levi	no	3807	M	642	Levi Yehuda	Levi Atzmon	Levi Avi	Miller Maoz
96	Ueda Diamonds Trading Ltd.			Y					
97	Shirtal Diamonds Ltd.	ok	2381	S	1007	Volner Haim			
98	Kashi Diamonds & Sons	no	3591	S	719	Kashi Yehuda	Kashi Benny	Kashi Yossi	
99	Emma Janover Diamonds Ltd.		3101	S	405	Janover Emma			
100	Katz Avraham			Y					
101	L.D.Z Diamonds Ltd.			Y					
102	Solitaire Diamonds Ltd.	ok	3063	M	633	Gerstler Henri			
103	Ben-Yona - Sadeh Ltd.		6313/4	N		Sadeh E	Ben Yona Y		
104	Jogdian (Israel) 1988	ok	2427	S	1409	Jogani H	Metha A		
105	Diamex Ltd.		6305	N	406	Paskesv E	Katz J		
106	Bekdian Diamonds Ltd.	no	5845	Y	661	Mucznik N	Manor D		
107	Ilan Gertler Diamonds	ok	5566	Y	1475	Gertler Ilan			
108	Levavi Eliezer Diamonds (1985)			M					
109	Namdar Mati	no	5549/55	Y	1491	Namdar Mati			
110	S.H. & A. Diamonds Ltd.			M					
111	Nethanel Nissim	ok	2482/3	S	1719	Nissim Netanel			
112	Empimex Diamonds Ltd.		2577	M	231	Edel Moshe	Putermilch S		
113	Shanel Diamonds Ltd.	ok	3373/31	M	1153	Itan Haim			
114	Forum Diamonds Ltd.	ok	3374	M	1154	Lerner Rafi			
115	Hochberg Diamonds Ltd.		3520	M	2336	Hochberg C			
116	Denia	no	3536	M	1840	Helen			
117	Duek Rony Diamonds Ltd.		6337	N	807	Duek R			
118	J.K.D. Trading Ltd.			Y					
119	Yedgar Yosef			M					
120	Menly Diamonds Ltd.			M					
121	Niru Diamonds Ltd.	ok	2963	M	2243	Bamecha Ranjeet	Markus Herbert		
122	Ickovic Zvi & Sons Ltd.		6417	N	803	Ickovic Z	Ickovic M	Ickovic I	
123	Spain Diamonds Ltd.		3586	M	2042	Casif Meni			
124	Almi Diamonds Ltd.	no	2847	M	342	Mizrachi Nissim	Yedgar J		
125	Kronfeld - Freund	no	2523	M	2332	Freund Shimon	Kronfeld Motti		
126	Aliah Diamonds Ltd.	ok	3159	M	248	Bronner M	Katz Y	Israel H	
127	Lior Diamonds (1988) Ltd.	no	3424	M	1352	Rachel	Lior	Lion	
128	Levi & Itzhakov	no	2884	M	1047	Levi Eliyahu	Itzhakov Simcha		
129	Regev Brothers	no	5530	Y	1594	Regev Rafi	Regev Michael	Regev Shimon	
130	Nessimi Amir	ok	5437	Y	1094	Nissimi Amir			
131	Steinmetz R. & Sons Ltd.	ok	3537	M	1842	Steinmetz Daniel			
132	Odiro Diamonds			*					
133	Protea Diamonds (Israel)		6261/64	N	605	Duek Nisim			
134	I.D.T.C.		2530	M	2236	Grochovsky A			
135	Kishut Diamonds	ok	2257	S	407	Polak Meir	Poplicher Benny	Ben-Naim Guy	Polak Eran
136	Mark Sapir Diamonds Israel Ltd.			Y					
137	Arjav Diamonds International	no	2804	M	435	Mukesh P	Mehta A		
138	Reev Diamonds		3171	M	1736	Tehrani Maurice	Tehrani William		
139	Moshe Erlich Diamond Mfg. & Exp. Ltd.	ok	5193	Y	461	Erlich Moshe			
140	Dubinsky Ralph	ok	3447	M	1454	Dubinsky R			
141	Korn Diamonds Co. Ltd.	ok	3321/2	M	947	Korn Kobi	Korn Arnon	Korn Reuven	Steinlauf Max
142	Moussayoff Ami			Y					
143	Meirow Israel & Sons	no	2486	S	1803	Meirow Israel			
144	Aarohi Diamonds (Israel)	ok	6371	N	101	Bhansali R			
145	D.C. Diamonds			M					
146	Weil Stephen Diamonds			M					
147	G.N.N. Diamonds Ltd.	no	3185	M	634	Netzer P	Giladi Haim		
148	Pinhas David Mfg. & Exp.		0	*					
149	Herskovitz Josef	ok	3475/6	M	1631	Herskovitz J			
150	Brima Joe Ltd.	ok	2904/5	M	442	Brima J			
151	Leybel Elieil			M					
152	Avtalyon Eyov		n/a	Y	1465	Eyov A	Eyov D		
153	Regent Diamonds Ltd.	ok	3150	M	955	Eitany Rony			
154	Brachfeld S. Mfrs. Ltd.	ok	5285	Y	862	Brachfeld S Shmuel	Rozalyn		
155	David Aharonoff Diamonds & Co.	ok	2903	M	440	Aharonoff D			
156	Topel Ishai	ok	2479	S	1711				
157	Levy Moshe	ok	2463	S	1707	Levy Moshe			
158	Sorum Diamonds Ltd.	ok	5198	Y	483	Klein Michael	Hershler Meir		
159	E.V. Diamonds Co. Ltd. Evens		3240			Einhorn B	Wilhien D		
160	Ami Kranner			Y					
161	Inbar & Avrahami	ok	5433	Y	1261				
162	Australia Diamonds Ltd.	ok	5669	Y	1864	Hacmon yossi			
163	Tombard-Dime Diamonds Ltd.	ok	5791	Y	393	Modi Nimish			
164	Nagahuri & Lagziel Diamonds		2822	M	B-2	Daniel			
165	H.S. Diamonds Ltd.		5277	Y	868				
166	Amos Appleberg	no	5555	Y	276	Appelberg A	Appelberg R		
167	Yosi Glick		3512	M	1739				
168	Kessel Diamonds Mfrs. Ltd.	ok	6321	N	602	Kessel Noam	Kessel Gil	Kessel Ra'anan	
169	First International Diamonds Ltd.	ok	5846	Y	1893	Anatar Oved			
170	Avnir Diamonds	no	3260	M	1255				
171	Saraf Diamonds Ltd.		5477	Y	1479				
172	Nardla Gem Ltd.	no	3263	M	2040	Narczyz Haim	Narczyz Tania		
173	Grunstein Ch. & Co.			S					
174	Gadi Herzlich Diamonds Ltd.	no	5240	Y	1161				
175	Paras Diamonds (Israel) Ltd.	ok	3253	M	755	Roshi Abraham			
176	Geffen Edelman Dia. Edelman Arik	no	2566	M	235	Edelman A			
177	Melinda Diamonds Ltd.	no	2584	M	356				
178	Beck Eden	ok	2213	S	111	Eden shlomo			
179	Tai Or	ok	5056	Y	170	Robinson Menachem	Noam Ziv		
180	Shai Nissim	ok	3795	S	912	Shay Nissim			
181	Sun Diamonds Ltd.	ok	5383	Y	1176	Weissfeld Aryeh	Daniel		
182	Supreme Diamonds Ltd.	ok	2439	S	1504	Navon Yehuda			
183	Yachdav Diamonds Ltd.	no	2319	M	1548				
184	Carib Diamonds Ltd.	no	2323	S	709				
185	Liviu Schwartz	ok	5337	Y	1066	Liviu			
186	Ronen Lazarov Diamonds	ok	5374	Y	1175				
187	Fuzdian	no	2705	M	353				
188	Perlman Ygal & Co.	ok	5305	Y	966				
189	Bleiweiss Moshe & Dov	ok	2589	M	335	Bleiweiss Moshe	Bleiweiss-Lavi D		
190	Mizrachi Ofer	no	6388	N	801	Mizrachi Ofer			

12.5 Appendix 5 - The Firms Interviewed

Stratum 1:

No	Rank	Firm interviewed	Actor interviewed	Position	Export US\$m	Time hour
1	1	L.I.D. Israel	Moshe Levayov	Owner/Manager	356	1 3/4
2	2	Schachter & Namdar Pol.	Moshe Namdar	Owner/Manager	247	1
3	3	Fabrikant & Salant Dia.	Avner Salant	Owner/Manager	157	1/2
4	5	Aharon Schwartz & Sons	Uri Schwartz	Owner/Manager	77	3/4
5	6	E.F.D Diamonds	Yossi Steinberg	Owner/Manager	58	1
6	7	M.Schnitzer & Co.	Moshe Schnitzer	Owner/Manager	55	1
7	8	Cohen & Sons (Orion)	Aharon Tamar	Owner/Manager	50	1/2

* Firms with exports exceeding US\$50m (1996)

Table 12-5-1: Population Sampled from Stratum 1

Stratum 2:

No	Rank	Firm interviewed	Actor interviewed	Position	Export US\$m	Time hour
1	9	HR Diamonds	Charlie Hollander	Owner/Manager	50	1 1/4
2	11	Asher Dlume	Meir Dlume	Owner/Manager	44	1
3	12	Lustig & Samuels	Bran Eli	Owner/Manager	35	3/4
4	13	S.N.L Diamonds	Moshe Namdar	Owner/Manager	34	1
5	14	Chimera Ltd.	Ratzersdofer Charlie	Owner/Manager	34	1
6	15	Avraham Traub	Avraham Traub	Owner/Manager	33	1
7	17	Rachaminov Diamonds	Eden Rachamiov	Owner/Manager	31	1 1/4
8	18	Apple Diamonds	Marcelle Apfelbaum	Owner/Manager	30	1 1/2
9	19	Delta Diamonds	Haimoff Avner	Owner/Manager	27	2 1/4
10	20	Paz Diamonds	Pinhas Fouzaioff	Owner/Manager	27	2
11	22	Dov Diamonds	Shimshowitz Sitso	Owner/Manager	27	1
12	23	Raphaeli-Stschik	Gershon Stschik	Owner/Manager	27	1 1/2
13	25	Waldman Diamonds	Simion Levy	Owner/Manager	26	1 3/4
14	26	Eliasz Diamonds	Garty Avri	Owner/Manager	25	1
15	27	Rachel Levy Diamonds	Rachel Levy	Owner/Manager	24	3
16	29	Rosy Blue Sales	Dilip Shah	Manager	23	1
17	31	Joseph Nadel	Gillis Orgad	Owner/Manager	23	3/4
18	32	Samuel Rozenbaum	Ilan Samuel	Owner/Manager	22	3/4
19	30	Avi Paz Diampnnds	Smulik Izakovitz	Owner/Manager	23	1 1/5
20	16	Lili Diamonds	Shani Siman-Tov	Owner/Manager	31	3/4

* Firms with exports between US\$50 - 20m (1996)

Table 12-5-2: Population Sampled from Stratum 2

Stratum 3:

No	Rank	Firm interviewed	Actor interviewed	Position	Export US\$m	Time hour
1	35	Elul Diamonds	Amos Fouzaioff	Owner/Manager	20	3/4
2	36	Jediamex Diamonds	David Jofee	Owner/Manager	19	1 1/2
3	37	Ubexdiam	Yossi Kuzi	Owner/Manager	19	1 1/2
4	39	Capucelli Diamonds	Simcha Nissim	Owner/Manager	17	1
5	40	Shraga Kahana & Sons	Shraga Kahana	Owner/Manager	17	1
6	41	Savransky Nahum & Son	Avi Savranski	Owner/Manager	16	3 3/4
7	43	Yerushalmi Diamonds	Benny Yerushalmi	Partner/Owner	16	3/4
8	48	Eran Diamonds	Eran Sayag	Owner/Manager	15	1 1/2
9	50	Keren-Or Diamonds	Efi Or	Owner/Manager	15	1
10	51	Zwiebel Diamonds	Joshua Zwiebel	Owner/Manager	15	1 1/4
11	44	S.R.D	Ilan Samuel	Owner/Manager	16	3/4
12	54	Molad-Moldawsky	Motti Moldawsky	Owner/Manager	15	3/4
13	60	Cosmos Diamonds	Elron Zvi	Owner/Manager	13	1 1/4
14	62	Gal-On Ilan	Zahavit Gal-On	Owner/Manager	13	1
15	64	Ben Abraham Diamonds	James Abraham	Owner/Manager	12	1
16	57	Gafni Diamonds	Gafni Yuval	Owner/Manager	12	1 1/2
17	70	Rieger Arie Diamonds	Steve Rieger	Owner/Manager	11	1 1/4
18	58	Nathanel Avi Dia	Haya Arad	Manager	14	1 1/4
19	57	Y & A Hausman	Yigal Hausman	Owner/Manager	14	1
20	46	Kuperman Brothers	Gil Serok	Manager	16	1

* Firms with exports between US\$20 - 10m (1996)

Table 12-5-3: Population Sampled from Stratum 3

Stratum 4:

No	Rank	Firm	Actor	Position	Export US\$m	Time hour
1	76	Belisdiam	Parter Ami	Owner/Manager	10	1
2	77	Shir Diamonds	Shoval Rafi	Owner/Manager	9	1 1/2
3	80	David Arabov & Sons	Alon Arabov	Owner/Manager	9	2
4	81	Katz Haim	Katz Haim	Owner/Manager	9	3/4
5	83	Poligem	Serri Yechiel	Owner/Manager	9	1 1/4
6	84	Marquise Diamonds	Efraim Elias	Owner/Manager	9	1
7	87	Papir Shalom	Ran Papir	Owner/Manager	9	3/4
8	88	Ajami Diamonds	Atzmon Israel	Manager	9	2
9	89	Penta Diamonds	Noam Ziv	Owner/Manager	8	1 1/2
10	90	Yosef Ovadia	Ovadia Yosef	Owner/Manager	8	1 1/2
11	91	Meshulam Israel	Israel Meshulam	Owner/Manager	8	1
12	92	M.Bashan Trading Co.	Mickey Bashan	Owner/Manager	8	2
13	94	Weinstein S & Sons	Benjamin Shavit	Owner/Manager	8	1/2
14	102	Solitaire Diamonds Ltd.	Gestler Henri	Owner/Manager	7	2
15	104	Jogdiam (Israel)	Hogani H	Owner/Manager	7	1 1/4
16	107	Ilan Gertler Diamonds	Ilan Gertler	Owner/Manager	7	1
17	111	Nethanel Nissim	Nethanel Nissim	Owner/Manager	7	1 1/4
18	114	Forum Diamonds	Rafi Lerner	Owner/Manager	7	1
19	121	Niru Diamonds	Ranjeet Barmecha	Owner/Manager	6	1
20	130	Nessimi Amir	Dana Shmolovitz	Owner/Manager	6	3/4
21	131	Steinmetz R & Sons	Steinmetz Daniel	Owner/Manager	6	1
22	135	Kishut Diamonds	Eran Polak	Owner/Manager	6	2
23	139	Moshe Erlich Dia. Manu.	Moshe Erlich/chpter11	Owner/Manager	6	1
24	140	Dubinsky Ralph	Dubinsky Ralph	Owner/Manager	6	1/2
25	141	Korn Diamonds	Arnon Korn	Owner/Manager	6	1/2
26	144	Aarohi Diamonds (Israel)	Ashuk Sha	Manager	5	2
27	149	Herskovitz Josef	Herskovitz Josef	Owner/Manager	5	2
28	150	Brima Joe	Joe Brima	Owner/Manager	5	1
29	153	Regent Diamonds	Eitany Rony	Owner/Manager	5	3/4
30	154	Brachfeld S Mfrs.	Rozalyn Brachfeld	Owner/Manager	5	3/4
31	156	Topel Ishai	Ishai Topel	Owner/Manager	5	1
32	157	Levy Moshe	Levy Moshe	Owner/Manager	5	3/4
33	158	Sorum Diamonds	Hershler Meir	Owner/Manager	5	1
34	161	Inbar & Avrahami	Inbar Yossi	Owner/Manager	5	1
35	162	Australia Diamonds	Yosi Hacmon	Owner/Manager	5	1
36	163	Tombar-Dime Diamonds	Modi Nimish	Owner/Manager	5	1 1/2
37	168	Kessel Diamonds Mfrs.	Ra'anani Kessel	Owner/Manager	5	2
38	169	First International dia.	Anatar Oved	Owner/Manager	5	1
39	175	Paras Diamonds (Israel)	Roshi Abraham	Manager	4	1
40	178	Beck Eden	Eden Shlomo	Owner/Manager	4	3/4
41	179	Tal Or	Noam Ziv	Owner/Manager	4	1 1/2
42	180	Shai Nissim	Shai Nissim	Owner/Manager	4	1 3/4
43	181	Sun Diamonds	Daniel Weissfeld	Owner/Manager	4	1
44	182	Supreme Diamonds	Navon Yehuda	Owner/Manager	4	1
45	186	Ronen Lazarov dia.	Ronen Lazarov	Owner/Manager	4	1 1/2
46	189	Blelweiss Moshe & Dov	Dov Blelweiss	Owner/Manager	4	1
47	188	Perlman Yigal & co.	Yigal Perlman	Owner/Manager	4	1
48	126	Aliya Diamonds	Hani Israel	Owner/Manager	6	2
49	185	Liviu Schwartz	Liviu Schwartz	Owner/Manager	4	3
50	155	David Aharonof dia.	David Aharonof	Owner/Manager	5	3/4
51	113	Shanel Diamonds	Iton Haim	Owner/Manager	7	1/2
52	97	Shital	Haim Volner	Owner/Manager	8	1 1/4
53	XXX	XXX	Y.G	Owner/Manager	XXX	1 3/4

* Firms with exports between US\$10 - 4m (1996)

Table 12-5-4: Population Sampled from Stratum 4

Appendix - Six Findings

Appendix - Six Findings

No	Company Name	G21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14A	Q14B	Q14C	Q15	K	Q18	Q19	Q20	Q21	Q22	Q24	Q25	Q27	Q28	Q29A	Q29B	Q30	Q31	1 - Full rep	2 - Part rep	
1	L.D. Ltd.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14A	Q14B	Q14C	Q15	K	Q18	Q19	Q20	Q21	Q22	Q24 <td>Q25</td> <td>Q27</td> <td>Q28</td> <td>Q29A</td> <td>Q29B</td> <td>Q30</td> <td>Q31</td> <td>1 - Full rep</td> <td>2 - Part rep</td>	Q25	Q27	Q28	Q29A	Q29B	Q30	Q31	1 - Full rep	2 - Part rep		
2	Schoeller & Bender Palfinger Works	1	2	1	2	4	1	5	2	3	1	2	3	1	5	4	2	1	5	1	3	29	1	12	8	30	13	0	0	1	2	1	11	11	1	2500	100	1	30	3	10	2	1	10	1	5	10	1	3	5	0	0	1	1	2	105
3	Fabritius & Seibert Diamonds	2	1	2	3	2	1	2	2	2	2	2	3	1	2	2	5	4	2	1	1	1	41	1	12	20	18	0	1	2	1	18	16	1	200	30	0	1	16	5	1	2	5	0	0	0	1	0	1	1	2	30				
4	Levitt Diamonds	3	4	2	2	3	3	1	3	3	1	2	1	3	2	5	5	3	2	5	1	1	46	1	12	27	24	0	1	2	1	48	24	1	180	86	6	1	75	20	1	10	20	1	8	10	8	1	1	1	0	2	45			
5	E.F.S. Diamonds	5	1	3	4	2	2	1	3	5	2	3	1	2	2	5	5	2	3	1	1	38	1	15	18	10	2	0	0	1	28	10	1	500	15	0	1	30	25	1	4	20	1	3	2	0	1	1	0	2	60					
6	H. Scherer & Co.	1	1	1	1	2	3	1	2	4	3	3	1	2	1	5	5	3	3	1	1	7	36	1	15	45	35	0	0	0	1	35	25	1	80	30	0	1	20	10	1	3	1	3	3	0	0	0	1	0	2	60				
7	Cohen & Sons (Israel)	1	3	1	2	5	1	5	5	2	2	4	2	3	1	5	5	5	1	3	1	3	42	1	12	20	7	0	1	2	1	50	20	1	100	20	0	1	15	20	1	3	10	1	2	5	1	0	0	1	1	2	90			
8	H.R. Diamonds	2	2	2	1	2	2	5	2	3	1	4	4	4	4	4	4	4	1	2	1	3	52	1	12	32	20	1	1	2	1	20	15	1	8	15	3	1	60	15	1	10	15	1	2	4	0	1	1	0	1	2	75			
9	Yahalom Elspeth Benati	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29	1	15	5	5	5	0	1	2	1	40	5	1	200	30	0	1	10	10	1	3	4	0	0	0	0	0	0	1	1	2	60			
10	Asher Dime	2	2	1	1	2	2	2	2	3	1	3	1	3	2	3	3	3	1	2	1	1	29	1	15	5	5	5	0	1	2	1	40	5	1	200	30	0	1	10	10	1	3	4	0	0	0	0	0	0	1	1	2	60		
11	Jordig & Samuels	1	1	1	1	3	2	2	2	1	4	1	2	4	5	5	5	1	3	1	1	53	1	15	25	20	1	1	1	0	35	25	1	15	10	0	1	10	25	1	4	10	1	3	4	0	0	0	1	1	2	45				
12	S.M. Fox (P)	1	1	2	4	2	1	5	2	3	1	2	3	2	5	5	3	1	1	1	1	45	1	12	22	13	0	0	1	1	14	13	1	80	12	2	1	11	6	1	2	5	1	1	2	0	0	0	0	2	60					
13	Samuels Ltd.	1	1	2	3	3	5	4	5	2	3	4	5	1	5	5	2	1	5	1	1	43	1	15	10	2	0	1	5	0	11	11	1	20	10	0	2	3	3	0	0	0	0	0	0	0	0	0	0	2	60					
14	Amichai Leuch	1	1	1	3	1	2	5	1	2	1	4	1	4	3	3	3	2	2	1	1	47	1	12	24	20	1	0	0	1	8	13	11	1	70	6	0	1	26	15	0	0	0	1	1	2	0	0	0	0	2	60				
15	(U)Diamonds	1	1	3	4	3	4	3	2	4	4	2	5	5	3	2	3	1	1	25	1	12	5	2	0	2	0	1	2	1	15	5	1	120	8	3	1	100	3	1	5	2	1	5	2	1	1	1	1	0	2	45				
16	Rechenitz Diamonds Ltd.	2	2	1	3	4	2	2	3	4	1	5	2	5	4	5	3	2	1	2	25	1	15	5	0	5	0	0	1	2	1	32	5	1	70	13	0	1	5	3	1	6	1	2	0	1	1	0	2	75						
17	Agile Diamonds Ltd.	2	1	3	5	2	1	2	1	2	1	5	1	5	5	2	1	1	1	2	30	1	12	25	15	1	1	2	1	13	13	0	0	4	8	1	2	13	1	1	13	0	0	0	0	0	0	0	0	0	2	90				
18	Delta Diamonds	1	1	1	3	2	4	3	4	2	3	3	2	5	5	3	2	2	1	1	53	1	12	35	20	1	0	0	1	14	14	1	70	15	0	1	30	10	1	2	4	1	2	2	0	0	0	1	0	2	135					
19	Paz Diamonds	1	2	1	4	2	3	1	2	3	3	2	4	2	5	5	2	2	2	1	1	70	1	10	50	35	1	0	0	1	37	37	1	0	25	60	1	40	10	1	2	5	1	1	0	0	1	0	2	180						
20	Leuch & Co.	1	1	2	4	3	4	1	1	4	2	5	1	5	5	5	5	1	2	1	1	45	1	12	22	13	0	0	1	1	18	13	1	85	12	2	1	11	5	1	2	5	1	1	2	0	0	0	0	1	45					
21	Rey Diamonds (P)	2	1	2	4	3	3	1	1	4	1	3	4	4	4	4	4	5	1	3	1	1	55	1	12	21	20	0	0	0	1	29	20	1	50	14	5	1	50	11	1	4	7	1	2	6	1	1	1	1	90					
22	B.Y. Moore & Sons Ltd.	1	1	2	3	2	3	4	3	2	2	3	2	4	5	2	2	2	1	1	32	1	12	10	0	1	0	0	0	0	0	0	0	2	1	55	7	3	1	15	5	1	1	3	2	1	3	0	1	0	1	2	120			
23	Waldman Diamonds (W.D.C.)	1	2	1	3	2	2	2	2	2	2	4	4	4	4	4	4	5	1	2	1	2	48	1	20	22	20	0	0	0	0	17	17	1	25	10	0	1	25	12	1	2	10	1	1	2	0	0	1	0	2	60				
24	Eliaz Diamonds	5	2	1	1	3	1	1	5	5	5	1	3	5	5	5	5	3	1	1	1	90	0	10	35	11	1	0	0	0	0	13	13	0	0	2	0	1	30	13	1	1	13	0	0	0	0	0	0	0	0	2	120			
25	Rachel Levy Diamonds	2	1	1	2	4	5	3	4	2	5	3	4	2	5	5	4	2	2	1	3	33	1	12	14	8	0	1	2	0	18	14	1	200	15	0	0	0	0	1	2	2	1	2	2	0	0	1	1	1	0	60				
26	Haray Ben Sahn	1	1	1	2	4	4	5	3	4	2	5	3	5	5	4	2	2	1	1	3	33	1	12	14	8	0	1	2	0	18	14	1	200	15	0	0	0	0	1	2	2	1	2	2	0	0	1	1	1	0	60				
27	Ati Paz Diamonds & Co.	2	1	1	5	3	4	4	2	1	5	3	4	3	5	5	4	1	1	1	1	43	1	12	17	13	0	0	0	1	13	13	1	180	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	90		
28	Joseph Nadel	3	1	1	2	3	4	5	5	5	3	5	5	3	5	5	5	1	2	1	1	47	1	15	17	15	0	1	2	0	52	17	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	45			
29	Semuel - Rosenbaum	2	1	1	1	2	1	2	4	4	1	1	2	4	2	1	5	1	1	1	1	1	43	1	10	21	20	0	0	2	1	12	12	1	25	25	0	1	30	10	1	15	10	1	10	10	0	1	0	0	1	2	45			
30	Damon (1987) Ltd.	3	1	2	3	3	4	1	1	4	2	5	1	5	3	5	5	1	2	1	1	42	1	12	21	16	1	1	2	1	13	13	1	0	6	16	1	1	20	1	3	1	1	1	0	1	0	1	0	1	1	45				
31	Yamli (Israel) Ltd.	1	1	2	4	3	4	1	1	4	2	5	1	5	3	5	5	1	2	1	1	42	1	12	21	16	1	1	2	1	13	13	1	0	6	16	1	1	20	1	3	1	1	1	0	1	0	1	0	1	1	45				
32	Yamli (Israel) Ltd.	1	1	2	4	3	4	1	1	4	2	5	1	5	3	5	5	1	2	1	1	42	1	12	21	16	1	1	2	1	13	13	1	0	6	16	1	1	20	1	3	1	1	1	0	1	0	1	0	1	1	45				
33	Yamli (Israel) Ltd.	1	1	2	4	3	4	1	1	4	2	5	1	5	3	5	5	1	2	1	1	42	1	12	21	16	1	1	2	1	13	13	1	0	6	16	1	1	20	1	3	1	1	1	0	1	0	1	0	1	1	45				
34	Yamli (Israel) Ltd.	1	1	2	4	3	4	1	1	4	2	5	1	5	3	5	5	1	2	1	1	42	1	12	21	16	1	1	2	1	13	13	1	0	6	16	1	1	20	1	3	1	1	1	0	1	0	1	0	1	1	45				
35	Yamli (Israel) Ltd.	1	1	2	4	3	4	1	1	4	2	5	1	5	3	5	5	1	2	1	1	42	1	12	21	16	1	1	2	1	13	13	1	0	6	16	1	1	20	1	3	1	1	1	0	1	0	1	0	1	1	45				
36	Yamli (Israel) Ltd.	1																																																						

12.7 Appendix 7 - Application form for the Flexible Masters



CITY
University
BUSINESS SCHOOL

City University Business School
Frobisher Crescent, Barbican Centre
London EC2Y 8HB



ISRAEL DIAMOND INSTITUTE
מכון היהלומים לישראל

נפתחת ההרשמה

**למסלול לימודים ניהול (גמיש) לתואר שני (MSc)
במנהל עסקים המותאם לצורכי היזמים
הישראלים**

* אין צורך בתואר ראשון !!

* לימודים גמישים !!

* משך הלימודים שנה וחצי עד שנתיים !!

The programme will enable Israeli diamond traders to increase their knowledge and skills, thus providing opportunities for greater competitive advantage. At the same time we will make sure to safeguard all confidential and strategic information and details of the industry.

The programme is fully tailored to your needs and would be at Postgraduate level, leading to an MSc in Business Management (18 months - 2 years), with the possibility to exit the programme at the Postgraduate Diploma stage (approximately 1 year duration).

Each module consists of two course self managed study, intensive three day course, further study and a work applied assignment. The programme will be taught in English. The course will take place at the house or near a by expert faculty from City University Business School (CUBS).

Admission to the programme is for anyone who has professional qualifications and experience allowing access to progression in the industry or like a good first degree.

A similar tailor made course is priced at around \$19,000, but with the help of the Israeli Diamond Institute and other bodies, it is hoped to lower the price drastically. In parallel an additional discount would be given to groups.

The Course is scheduled to commence in the summer of 1996 and will be based on 3 - 4 semesters.

עודד זה המוסד ליזמים הישראליים הרואים ידע והיכרות יסודית עם סיוע השוק וזמן בתחום תחומי העליון במחירים נמוכים. יסודית יסודית, העליון במחירים נמוכים.

תוכנית הלימודים מותאמת לצורכי היזמים הישראליים. תוכנית זו תאורטית ופועלת בשיתוף עם מוסדות לימודים בישראל. תוכנית זו תאורטית ופועלת בשיתוף עם מוסדות לימודים בישראל.

שנה תוספת שנה וחצי עד שנתיים. שיתוף עם מוסדות לימודים בישראל. תוכנית זו תאורטית ופועלת בשיתוף עם מוסדות לימודים בישראל. תוכנית זו תאורטית ופועלת בשיתוף עם מוסדות לימודים בישראל.

תואר הקבלה: אנשים בעלי תעודות מקצועיות בשפה הישראלית, יסודית מוכנה בתחומי היזמים או אנשים בעלי תואר ראשון מוכן.

קורס בעל תוכנית דומה המועבר באנגליה עלה בסביבות \$19,000. הרצתו לאפשר ליזמים הישראליים להשתתף בקורס ידע חשוב זה בסכום נמוך יותר. מכון היהלומים גורמים אחרים נחשבו לשיתוף זה. הנחת מידע זה ידוע לקבוצות וכן גם מומים לבנות תוכנית סימון תואר לימוד קורס זה.

אחראי מוסד CUBS UNIVERSITY מותאמת למידות את מטרות האישים והמוסדות של הורשם.

The final content of the programme will be developed together with representatives from the Israeli diamond industry, but the following overview outlines the modules for the first part of the course (Postgraduate Diploma).

- Strategy**
Understanding of what strategy is, and why it is hard to do business without strategic analysis and vision. Business diagnostics, corporate governance and stakeholder analysis. Advanced analytical thinking. Business options, competitive analysis, implementation and control.
- International Industry Analysis**
Understanding of the diamond industry worldwide, trends and changes. Further work on sustainable competitive advantage formulation.
- International Business**
Understanding of differences in business systems, cross cultural differences, cross cultural management, networking.
- Finance**
Understanding of the major systems and tools, in particular those of investment and hedging; short term vs long term risk; positioning; and problems of foreign currency and loan management.
- Marketing**
Understanding of customer relations and customer driven business. Marketing analysis, planning and control; services vs product marketing; marketing of luxury and fashion goods; branding and the value added factor; image and reputation.
- Information Technology Management**
How to make IT work for the industry in strategy, marketing and operations.
- Managerial Skills**
How to motivate people, leadership, working with teams, influencing and negotiating skills.
- Business Simulation**
Computerised 'business game', role playing competing firms.

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12.8 Appendix Eight - Explanation of Tuckey - HSD

Rarely will the population variance be precisely known or even the mean of the population as a whole. However, in some cases the variance of the population can be assumed to a very close approximation on the basis of past experience. To use the Tuckey-HSD tool, the researcher had to assume that all the population stratum have the same variance. The researcher thinks that this claim is reasonable because the researcher is studying three different strategic groups within one homogeneous industry, thus, the discrepancies from the mean of each population stratum is thought to be very close. In addition the claim of equal variance was shown to exist (see appendix - 9).

The researcher used a one-way, and not a two-way analysis, of variance. In this research there are two generic variables: the firm operator/owner interviewed; and the Israeli polished diamond exporting firm itself. The researcher was able to measure differences between the Israeli polished diamond exporting firms with specific operators/owners managing them. The researcher was not able to measure the errors that may have been implemented in the study in relation to different abilities of the firm operators/managers. In other words, it is impossible to transfer the operators/owners between the various Israeli polished diamond exporting firms and see how these changes affect the results. If this was a viable option, the researcher would have implemented a two-way analysis of variance that takes this error into account.

To the researcher's knowledge, the Tuckey-HSD test is the only statistical tool available that permits the researcher to compare and contrast the means of more than two population stratum. For instance, the Kruskal Wallis Test, with less stringent assumptions compared to the Tuckey-HSD, assuming normal distribution of the population, allows the researcher to compare and contrast only two population means. The researcher is in need of comparing three population stratum. Therefore, the researcher chose Tuckey-HSD as the statistical tool to be used in analysing the qualitative part of this doctorate thesis. The first step that Tuckey-HSD calculates is the means of the K stratum as follows:

$$\bar{X} = \frac{\sum_{j=1}^{n_j} X_{ij}}{n_i}$$

Where n_i denotes the number of sample observations in group i , j denotes the j th observation, X is the observation itself and where K specifies the number of population stratum or groups sampled from the population. Then an estimate of the common mean from the sample data is calculated (overall mean) as follows:

$$\bar{X} = \frac{\sum_{i=1}^k \sum_{j=1}^{n_i} x_{ij}}{n}$$

The test of equality of population means is based on a comparison of two types of variability. The first is variability about the individual sample means with K groups of observations. It is referred to in SPSS as **variability**

within the groups. Second, is the variability among the K groups. It is referred to in SPSS as **variability between the groups.**

To measure variability within the groups, there is a need to calculate the sum of the squared deviations of the observations about their sample mean of each K population stratum (denoted as $SSW = SS_1 + SS_2 + SS_3 + \dots$). So the first stage is to measure the variability of each group by calculating the sum of squared deviations (variance) of the observations about their sample mean $\bar{X}_i$ as follows:

$$SS_i = \sum_{j=1}^{n_i} (X_{ij} - \bar{X}_i)^2$$

The total within groups variability, depicted as SSW , is the aggregate of these sums of squares over all K groups as follows:

$$SSW = SS_1 + SS_2 + \dots + SS_K$$

Next there is a need to measure the variability between groups. It is based on the discrepancies between the individual group means and the overall mean (Between group sum of squares SSG).

$$SSG = \sum_{i=1}^K n_i (\bar{X}_i - \bar{X})^2$$

The total sum of squares is the sum of the within groups and between groups sums of squares.

$$SST = SSW + SSG$$

The decomposition of the total sum of squares into the sum of two components, within-groups and between groups sum of squares, provides the basis of the Tuckey-HSD test as depicted in the following figure (figure 56).

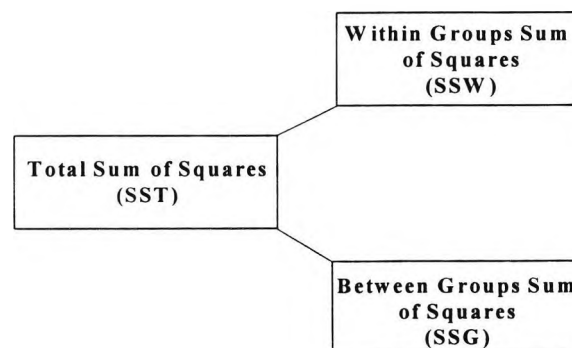


Figure 12-8-1: Tuckey - HSD

If the null hypothesis that the population means are all the same is true, each of the sum of squares SSW and SSG can be used as the basis for an estimate of the common population variance. To obtain these estimates, the sum of squares must be divided by the appropriate number of degrees of freedom leading to the within-group square means. This will depict an unbiased estimate of the population variance.

$$\text{MSW} = \text{SSW}/(\text{n}-\text{k})$$

If the population means are equal, another unbiased population estimate of the population variance is obtained by the between-group square means (MSG).

$$\text{MSG} = \text{SSG}/(\text{K}-1)$$

Thus, MSG and MSW are two unbiased estimates of the population variance. When the population means are not equal, the between-group mean square does not provide an unbiased estimate of the common population variance. If the null hypothesis is true, it would be reasonable to expect these estimates to be quite close to each other. The greater the discrepancy between these two estimates, all being equal, the stronger would be the suspicion that the null hypothesis is not true. The test of the null hypothesis is based on the ratio of mean squares (in the case of this doctorate thesis the confidence level has been set at the 95% point).

$$\text{F} = \text{MSG}/\text{MSW}$$

Thus, if this ratio is quite close to one, there would be little cause to doubt the null hypothesis of equality of population means. However, if the variability between groups is large compared to the variability within groups is considerably different than one, the null hypothesis is rejected. In other words, if the variability around the sample means is small compared with the variability among the sample means, the researcher would be inclined to doubt the null hypothesis that the population means are equal.

12.9 Appendix Nine - Reliability and equality of Variance

Reliability. Usually one develops a scale or test that is composed of a variety of related items. The responses to each of the items can be graded and summed, resulting in a score for each case. A question that frequently arises is - How reliable is our test? A reliable test behaves similarly. In other words, the test yields similar results when different actors administer it and when alternative forms are used. Therefore, when the conditions for making the measurement change, the results of the test should not. The reliability test examines the correlation between this test and all other possible tests containing the same number of items, which could be constructed from a hypothetical universe of items that measure the characteristics of interest. The reliability test tells the researcher how much correlation to expect between the test and all other possible tests measuring the same thing. It is the squared correlation between the score a person obtains on a particular test (observed) and the score he would have obtained if questioned on all the possible items in the universe (true score).

02 Feb 98 SPSS for MS WINDOWS Release 6.0

RELIABILITY ANALYSIS - SCALE (ALPHA)

Reliability Coefficients 52 items

Alpha = .7352

Equality of Variance

SPSS for MS WINDOWS Release 6.0

*** ANALYSIS OF VARIANCE ***

VAR00052 (Group 0,1,2)
by VAR00001 (Independent)
VAR00002 ... VAR00050
with VAR00053 (Dependent Success/Failure)
HIERARCHICAL sums of squares
Covariates entered FIRST

Source of Variation	Sum of Squares	DF	Mean Square	Sig	F of F
Covariates	.254	1	.254	.612	.437
VAR00053	.254	1	.254	.612	.437
Main Effects	19.363	38	.510	1.228	.234
VAR00001	3.393	4	.848	2.045	.099
VAR00002	.867	3	.289	.697	.558
VAR00003	1.357	3	.452	1.091	.360
VAR00004	.743	4	.186	.448	.774
VAR00005	2.023	4	.506	1.219	.312
VAR00006	.963	4	.241	.580	.678
VAR00007	2.522	4	.630	1.520	.208
VAR00008	3.218	4	.804	1.939	.116
VAR00009	2.354	4	.589	1.419	.239
VAR00010	1.923	4	.481	1.159	.338
VAR00011	1.590	4	.397	1.006	.411
VAR00012	.563	4	.141	.356	.839
VAR00013	3.157	3	1.052	2.664	.056
VAR00014	1.055	4	.264	.668	.617
VAR00015	2.087	4	.522	1.163	.332
VAR00016	2.504	3	.835	2.113	.108
VAR00017	2.224	4	.556	1.407	.242
VAR00018	1.985	4	.496	1.256	.297
VAR00019	2.035	4	.509	1.288	.285
VAR00020	3.623	2	1.812	4.586	.054
VAR00021	1.129	4	.282	.714	.585
VAR00022	17.216	33	.522	1.638	.052
VAR00023	0.898	1	.898	2.008	.160
VAR00024	9.520	10	.952	2.988	.050
VAR00025	14.113	31	.455	1.012	.470
VAR00026	17.048	31	.550	1.354	.150
VAR00027	.081	1	.081	.206	.651
VAR00028	4.910	1	4.910	12.527	.051

VAR00029	1.603	4	.401	1.022	.400
VAR00030	1.998	1	1.998	5.097	.056
VAR00031	14.324	33	.434	.932	.578
VAR00032	11.503	26	.442	.968	.520
VAR00033	.067	1	.067	.147	.703
VAR00034	7.990	21	.380	.982	.513
VAR00035	5.227	20	.261	.477	.967
VAR00036	1.302	8	.163	.297	.965
VAR00037	.170	1	.170	.310	.580
VAR00038	4.787	16	.299	.622	.858
VAR00039	7.192	20	.360	.764	.746
VAR00040	.011	1	.011	.024	.877
VAR00041	4.131	8	.516	1.158	.333
VAR00042	7.654	13	.589	1.322	.219
VAR00043	.209	1	.209	.468	.496
VAR00044	3.290	6	.548	1.318	.258
VAR00045	6.016	8	.752	1.807	.087
VAR00046	.563	1	.563	1.238	.269
VAR00047	.390	1	.390	.865	.355
VAR00048	.542	1	.542	1.201	.276
VAR00049	.004	1	.004	.008	.929
VAR00050	.219	1	.219	.478	.491

100 cases were processed.
0 cases (.0 pct) were missing.

Furthermore, through the following Tuckey - HSD test, the researcher concluded that the export size of the three strategic groups was not significantly different at the 5% level.

Sum of	Mean	F	F		
Source	D.F.	Squares	Squares	Ratio	Prob.
Between Groups	2	4.4802E+15	2.2401E+15	1.0928	.3394
Within Groups	97	1.9883E+17	2.0498E+15		

Multiple Range Tests: Tukey-HSD test with significance level .050
- No two groups are significantly different at the .050 level

12.10 Appendix 10 - Explanation of the Questionnaire

* Q1 - Q21 are on a 1 to 5 Scale

- q1) How important is quality of the service given to successful export activity
- q2) How important is firm reputation to successful export activity
- q3) How important is firm meeting delivery dates to successful export activity
- q4) How important is a firm matching all customer specifications to successful export activity
- q5) How important are personal visits by firm operators/owners to successful export activity
- q6) How important is after sales service to successful export activity
- q7) How important are negotiating skills of firm operators/owners in facilitating successful export activity
- q8) How important is word of mouth between customers on the qualities of the firm to facilitate successful export activity
- q9) How important is advanced technology to facilitate successful export activity
- q10) How important is the motivation of the firm's sales force to facilitate successful export activity
- q11) How important is contact at exhibitions and fairs to facilitate successful export activity
- q12) How important is the firm having a lower price than its competitors to facilitate successful export activity
- q13) How important is the firm's advertising mix to facilitate successful export activity
- q14) How important is offering extended credit in relation to competitors to facilitate successful export activity
- q15) How important is any assistance provided by Israeli government agencies in facilitating successful export activity
- q16) How important is any assistance from the Israeli government to facilitate successful export activity
- q17) How important are "special discounts" to facilitate successful export activity
- q18) How important is frequent two way communication with customers to facilitate successful export activity
- q19) How important are good relations with diamond brokers to facilitate successful export activity
- q20) How important are good relations with customers to facilitate successful export activity
- q21) How important are good relations with suppliers to facilitate successful export activity
- q22) What is your age
- q23) What is your sex (1 - Male)
- q24) How many years of formal education do you have
- q25) How many years have you been in the diamond business
- q26) How many years have you been a member of the Israeli diamond Exchange
- q27) Have you ever worked for another diamond firm before (1 - Yes)
- q28) Do you come from a diamond family (1 - Yes)
- q29) What generation are you in the diamond business
- q30) Do you think any of your family members will continue in your footsteps (1 - Yes)
- q31) How many years has this firm been operating
- q32) How many years in this firm
- q33) Is the firm also a polished diamond manufacturer
- q34) How many factory workers do you have
- q35) How many office workers do you have

- q36) How many subcontractors do you regularly use
- q37) Do you advertise
- q38) How much on average do you spend a year on advertising
- q39) How many years have you been dvertising
- q40) Do you visit diamond shows/fares/exhibitions
- q41) How many times a year do go to diamond shows/fares/exhibitions
- q42) How many years have you been visiting shows/fares/exhibitions
- q43) Do you exhibit in shows/fares/exhibitions
- q44) How many times a year do you exhibit in shows/fares/exhibitions
- q45) How many years have you been exhibiting in shows/fares/exhibitions
- q46) Do you have any special/own polished diamond cuts (1 - Yes)
- q47) Do you have/use email (1 - Yes)
- q48) Do you have a home page (1 - Yes)
- q49) Are you also a CSO sight holder (1 - Yes)
- q50) Do you have an export department (1 - Yes)

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