Department of Economics and Business

THE FINANCIAL REVOLUTION OF THE DE BEERS

An innovative internal structure for the diamond empire

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INTRODUCTION

The diamond industry represents one of the most complex and fascinating businesses in the world. This industry can be studied as an example of the market evolution in the last centuries.

Its birth dates back to the 1880s, when the first mine was discovered in Africa. The immediate diamond rush brought several players to search for wealthy investment. Even if the concentration was high, only one producer succeeded: Cecil Rhodes. His success set the basis for the beginning of a huge empire: the De Beers company. Since the establishment of the corporation, its market power overcame the other competitors until the company absorbed all of them: the monopoly of the diamond industry began. Until 1990s the De Beers kept the leading position in the diamond market. For this reason the history of the diamond industry has been made by the De Beers one.

However, a new era started with the new millennium. In 2000 the company had to face a new challenging market because of the development of a multi-channel environment: different figures emerged and soon became an actual threat for the De Beers monopoly. In a short period of time the young giants overthrew the old power of the company. As a response, the De Beers decided to change completely its strategy in order to regain its control. A big advertising campaign and a specific focus on jewellery retailer were the new tools to build up the De Beers new era. Nevertheless the company understood that its transformation could not focus only on a strategic advertising campaign: it also had to rearrange its internal structure. Indeed in 2001 the company turned into a half private and half public corporation. This decision constituted an innovative response to the challenging diamond market of the XXI century. The De Beers was the first one to adopt the mixed financial structure in the gem industry, despite not knowing what the final result would have been.

The aim of my thesis is to try to understand if the De Beers new financial choice constitutes a new good beginning for the company. In order to do so, it was necessary to begin, in Chapter 1, with a brief theoretical introduction about the market inefficiencies – monopoly and oligopoly – and the stock market, which lay down the bases for a further analysis focused mainly on the diamond industry transformation, conducted in Chapter 2: from the single channel market to the multiple channel one. Moreover, in Chapter 3, after a study about the financial sources choices and the evaluation of pros and cons of a possible equity decision, I focused on the different financial structures of the actors that have been taken into consideration so far: the half private and half public choice of the De Beers, the

public profile of its main competitors and finally the private configuration of a diamond industry sample.

In order to understand the response of the De Beers choice with respect to the various players studied, I analysed their profitability indexes, comparing the De Beers ones firstly to its main competitors, and secondly to the companies belonging to the sample.

In conclusion, according to the data analysed, it seems that the De Beers recovered its leading position in the diamond industry, probably thanks to its brave financial rearrangement.

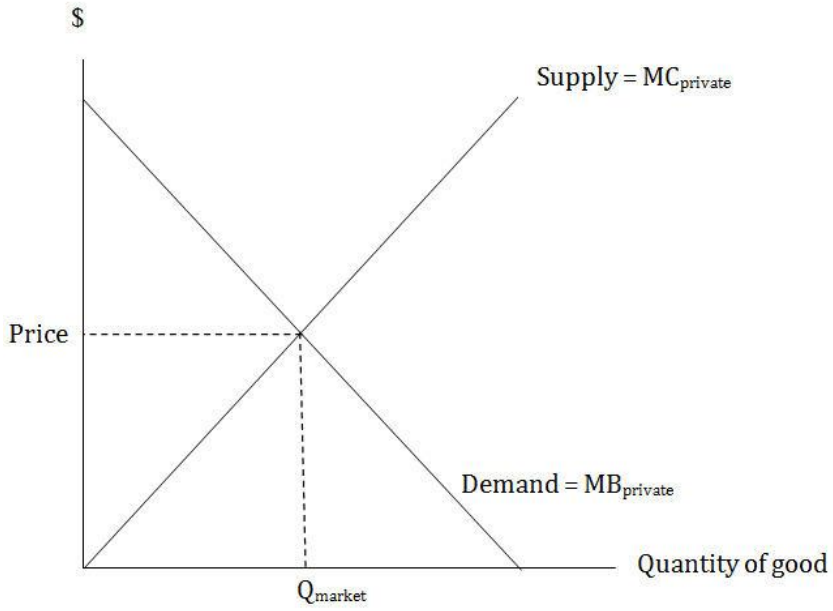
CHAPTER 1: A THEORETICAL OVERVIEW

1.1 MARKET INEFFICIENCIES

In order to understand the impact that the monopoly power has on the market it is fundamental to understand the difference between an efficient and an inefficient market.

An efficient market is the market in which a large and complex list of goods and services are produced in the most efficient way. According to the Economist Eugene Fama, creator of the efficient market hypothesis, "if the market is informationally efficient, and trading costs are zero, the observed market price contains all relevant information"[1]. This production leads to the Pareto efficient equilibrium, namely "an economic state where resources are allocated in the most efficient manner[2]". This situation (cf. fig. 1) is reached when demand equals supply and the price reflects this stability: any agent is indeed a price taker. In equilibrium there are no transactions that may result in a better solution for anyone.

Figure 1: Equilibrium condition under an Efficient Market[3].



[1] Eugene F. Fama, *Market Efficiency, Long-term Returns, and Behavioural Finance*, University of Chicago, Chicago, IL, USA, 17 March 1997, p. 295.

[2] Nicholas Barr, *Economics of the Welfare State*, Oxford University Press, Oxford, United Kingdom, 2012, p.46.

[3] http://cnx.org/contents/29f498d7-3186-4391-b30a-af3a85ef9941@6/Tragedy-of-the-Commons

However, according to Sanford J. Grossman and Joseph E. Stiglitz, it is not always the case:

If competitive equilibrium is defined as a situation in which prices are such that all arbitrage profits are eliminated, is it possible that a competitive economy always be in equilibrium? Clearly not. […] Hence the assumptions that all markets, including that for information, are always in equilibrium and always perfectly arbitraged are inconsistent when arbitrage is costly[4].

Moreover, according to Fama, speculative bubbles are indeed impossible. But as stated by H. Nejat Seyhun, "over the past decade, an increasing number of studies have suggested that capital markets may be subject to inefficient speculative booms"[5]. In addition, Robert J. Shiller stated that: "many investments decisions are emotional or intuitive and not based on information, or are responsive to unexpected news and dramatic events"[6]. Therefore those economists put down the basis for the study of the inefficient market.

The most evident case of market inefficiency constitutes a situation in which there is imperfect competition. This means that only one or few producers dominate the market with a limited range of goods or services. The most important case of imperfect competition is Monopoly.

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[4]Sanford J. Grossman and Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, June 1980.

[5] H. Nejat Seyhun, *Overreaction or Fundamentals: Some Lessons from Insiders' Response to the Crash of 1987*, Vol. 45, No. 5 (Dec., 1990), p. 1376.

[6] Robert J. Shiller, *Speculative Prices and Popular Models*, The Journal Of Economic Perspectives, Vol. 4, 1990.

1.2 THE POWER OF MONOPOLY

Ludwig Von Mises, one of the most influent scholars who belonged to the Austrian school of Economic thought, stated that Monopoly exists when "the whole supply commodity is controlled by a single seller"[7]. In other words, monopoly is the situation of a market in which a single firm is the only seller of a unique product.

In order to achieve the power of monopoly it is necessary to limit competition. Usually a monopoly can reach its unique control over the industry imposing internal barriers to entry: "the incumbent's actions affect both the entrant's conjectures about industry conditions following his entry and the structural barriers to entry. Thus, the entry barriers we observe are partly structural but at least partly endogenous"[8]. A monopoly can limit the free entrance to the market through specific factors, such as exclusive power over important inputs, patents and copyrights, government licenses or franchises, economies of scale and network economies. Exclusive control over important inputs is one of the keys to success: if a single firm controls an input essential to the production of a given product, that firm will have market power.

Natural Monopoly is based on Economies of Scale, meaning "its average cost of production declines as the number of units produced increases"[9]. Sources of persistent Economies of Scale are Network Economies.

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[7] Ludwig von Mises, *Human Action* , Yale University Press, 1963, p. 358.

[8] R. E. Caves; M. E. Porter , *From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competition*, The Quarterly Journal of Economics, Vol. 91, No. 2. (May, 1977), p. 244.

[9] Paul Krugman, *Scale Economies, Product Differentiation, and the Pattern of Trade*, The American Economic Review, Vol. 70, No. 5, (Dec., 1980), Published by: American Economic Association.

1.2.1 THE CONTROL OF THE SUPPLY AND DEMAND: PRICE SETTER

Since there is just one firm that is competing, in the case of Monopoly the price of the product is no longer a given price obtained by the market. Instead, it is decided directly by the strategy of the firm. For this reason a monopoly is called price setter.

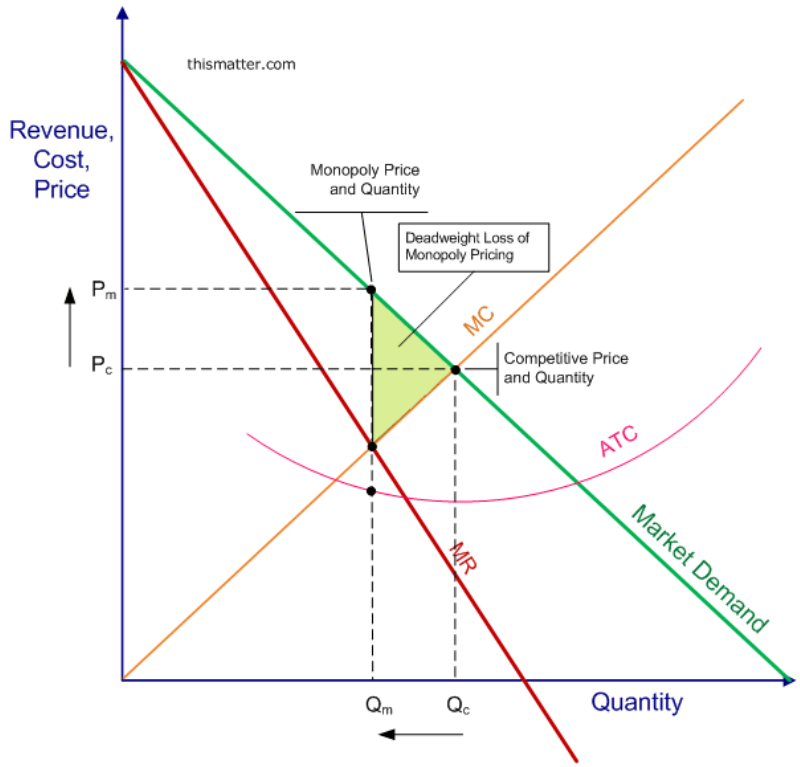
In addition, the monopoly has superior information with respect to the other small traders, as "a large trader has the dual advantage of being the informed party as well as being the price setter"[10]. This is the main reason of market inefficiency. The monopoly, as mainly all other firms, has as main goal profit-maximization. The profit-maximization decision for a monopolist differs from the perfectly competitive one.

When we look at the benefits of expanding output the result in indeed different. For both monopoly and other firms, the marginal benefit of expanding output is the additional revenue the firm will receive if it sells one additional unit of output. In both cases this marginal benefit is called the firm's marginal revenue. For the perfectly competitive firm, marginal revenue is exactly equal to the market price of the product, namely every firm has to accept that price.

The situation (cf. fig. 2) is very different for the monopolist situation. The marginal benefits of selling an addition unit is strictly less than the market price; the cause behind it is that while a perfect competitive firm can sell as many units as it wishes at the market price, the monopolist can sell an additional unit only if cutting the price. The cost of expanding output is the marginal cost at the level of output. Whenever marginal revenue exceeds marginal cost, the firm should expand. On the contrary, whenever marginal revenue falls shorts of marginal cost, the firm should reduce its output. Profit is maximized at the level of output for which marginal revenue precisely equals marginal cost. Usually monopolist charges a price that is higher than the equilibrium price in competitive market, creating a deadweight loss that leads to inefficiency. The difference is called mark-up and depends directly from the price decided by the firm.

[10] Hyun Song Shin, *Optimal Bedding Odds Against Inside Traders*, The Economic Journal, September 1991, p. 1174.

Figure 2: Equilibrium condition under Monopoly[11]



Furthermore, a monopolist can control the quantity of supply and demand of its production through its channel distribution. When there is high demand, it may enhance the supply, while in case of low demand it may limit the supply. In this way the monopolist can maintain a stable and fixed price of the product offered, thus controlling the market.

[11] http://cnx.org/contents/29f498d7-3186-4391-b30a-af3a85ef9941@6/Tragedy-of-the-Commons

1.3 THE OLIGOPOLY

Further along the field between the perfect competition and the pure monopoly lays oligopoly. An oligopoly is much like a monopoly but, contrarily from it, there are at least two firms controlling the market: "oligopoly is a state of industry where a small number of firms produce homogeneous goods or close substitutes competitively"[12]. It is also typically a consequence of cost advantages that avoid small firms from being able to compete effectively.

Oligopolies are identified using concentration ratios[13], an index that measures the proportion of total market share controlled by a given number of firms. When there is a high concentration ratio in an industry, economists tend to identify the industry as an oligopoly.

Like monopoly, oligopoly maintains its position of dominance thanks to barriers to entry, which can be either natural or artificial. Natural barriers are economies of scale, ownership and control of a key scarce resource, high set-up costs and high R&D costs. Artificial barriers are those generated by the firm: predatory pricing or acquisition, and specific features that create value for their products. Those characteristics can lie beneath an aggressive advertising campaign or instead directly trough a strong brand, which is defined by a benchmark.

When competing, oligopoly prefers non-price competition in order to avoid price wars. A price decrease may accomplish strategic benefits, such as market share gain, or entry deterrence. Nevertheless also in this situation the danger is that rivals will simply reduce their prices in response. This can lead to little or no gain, but at the same time it can cause the falling of revenues and profits. Hence, a more beneficial strategy may be the undertaking of non-price competition. Therefore also in case of oligopoly companies act as price setters; differently from the monopoly, firms are not alone, so their price should be decided equally among them.

One of the biggest problems connected to oligopoly is the impairment of collusion. In case of collusion, participants' performance is the same: the firm can enjoy the benefits of higher profits in the long term. In order to avoid that, United States and other countries try to

[12] Kogi Okuguchi*, The Theory of Oligopoly with Multi-Product Firms*, Spinger-Verlag Berlin Heidelberg, 1990, p. 1.
[13] The Herfindahl-Hirschman Index (H-H Index)

limit the possibility of collusion through Antitrust State Regulations.[14]

1.3.1. THE DIVISION OF THE INITIAL POWER AND THEIR STOCKS

The main difference between monopoly and oligopoly is the degree of control: monopolist takes the entire pie of the power while oligopoly divides the cake in few pieces. As a consequence, the monopoly market is totally dependent from that company, which can decide the level of production supplied through the demand. This decision dives the price of the good that may remain stable not only in the goods' market but also in the Stock market.

Differently from this, oligopoly cannot control the price stability of its production: the control is shared. Because of the large size of the companies, in the oligopoly the decisional power is divided further. Big companies indeed finance their operations trough stocks: this is equal to a loss in control.

[14] The main statutes are the Sherman Act 1890, the Clayton Act 1914 and the Federal Trade Commission Act 1914. These Acts, first, restrict the formation of cartels and prohibit other collusive practices regarded as being in restraint of trade.

1.4 STOCK MARKET

The Capital Market is the market in which long-term securities (longer than one year) are traded. The Bond market and the Stock market mainly compose it. The Bond market is the supply and demand for the buying and selling of bonds. It involves both government and corporate bonds in both the primary market (the first sale at issue) and the secondary market (all subsequent sales). Most transactions involving bonds occur over-the-counter. "Bond prices both affect and are affected by the current state of the Stock market"[15].

Investing in a stock means having a percentage of ownership in a firm. The rate of percentage depends on the outstanding stock held. Those stocks are then traded in the Stock Market.

The Stock market is the physical place, usually known as a stock exchange, where brokers gather to buy and sell stocks and other securities. The term is also used more broadly to include electronic trading that takes place over computer and telephone lines. In fact, in many markets around the world, all the stock trading is handled electronically.

1.4.1. THE INTRODUCTION OF THE STOCK EXCHANGE

The trade of the Stocks is made in the Stock Exchange, which is a place, whether physical or electronic, where stocks, bonds, and derivatives in listed companies are bought and sold. "The first stock market simulation was performed by the economist Stigler in 1964"[16].

A stock exchange may be a private company, a non-profit, or a publicly traded company. It also provides a regulated place where brokers and companies may meet in order to make investments on neutral ground. The concept traces its roots back to medieval France and the Low Countries, where agricultural goods were traded for cash or debt.

Most countries have a main exchange and many also have smaller, regional exchanges. A stock exchange is also called a bourse or simply an exchange.

The stock market is dived in primary market and secondary market. The primary market is where new issues of stocks are introduced. Investments funds, corporations, and

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[15] Sattar A. Mansi William F. Maxwell and Darius P. Miller, *Does Auditor Quality and Tenur Matter do Investors? Evidence from the Bond Market*, The journal of accounting research, September 2004.

[16] G.J. Stigler, *Public Regulation of the Securities Market*, Journal of Business, 1964, issue n.37, p 117.

individual investors can all purchase securities. When firms sell securities for the very first time, the issue is an initial public offering (IPO). Subsequent sales of firms new stocks to the public are simply primary market transactions. The secondary market is where the sale of previously issued securities takes place.

There are mainly two types of exchanges in the secondary market for capital securities: organized exchanges and over the counter.

1.4.2. THE INITIAL IPO IN THE PRIMARY MARKET

There is a stage in the life of a company when the necessity of money leads to the decision of going public. This decision is called Initial Public Offering (IPO) of stock to public.

There are several benefits for going public, but the main one is the creations of public shares to use in future acquisition. However, another valuable reason can be the establishment of a market value and its relative price, which provides a readily available yardstick of performance allowing the firm to reward the management team with stock options (this also enhances the reputation of the company). The decision of being public means also a broaden ownership and also a minimization of cost of capital and funding.

However the positive effects of going public are not always worth it. In many countries it is common for large businesses to remain privately owned. This decision may be driven by the high costs of compliance and listing and the loss of control followed after the IPO. Another reason may be the Serbanes-Oxley Act, which sets stricter regulations.

"SOX impose heavy regulatory and financial costs and compliance burdens on a company. Among the key provisions that require implementations are:

1- Section 302 mandates the senior officers of a pubic company to certify that they have established, maintained and designed internal controls to ensure the accuracy of company information found in their periodic reports.
2- Section 404 requires management and external auditors to report on the adequacy of the internal control over financial reporting."[17]

[17] "Sarbanes-Oxley Section 404" in *A Guide for Management by Internal Controls Practitioners*, The Institute of Internal Auditors 2nd Edition, January 2008.

According to those laws, the first task a manager has to compute in order to go public is the selection of the underwriters. Underwriters act as financial midwives to a new issue. Usually they play a triple role: first they provide the company with procedural and financial advice, then they buy the issue, and finally they resell it to the public. This is the reason why they "acts as the dominant market makers"[18].

The second step is the creation of the Registration Statement, which is a detailed and somewhat cumbersome document that presents information about the proposed financing and the history of the firm, existing business and plans for the future. The most important sections of the registration statement are distributed to investors in the form of a prospectus. The prospectus is a formal legal document, which is required by and filed with the Securities and Exchange Commission, which provides "information about the offering, business history of the firm, information related to past financial performance, ownership details and the risks associated with the investment"[19]. This document indeed contains the facts that an investor needs to make an informed investment decision.

There are two types of prospectuses for stocks: preliminary and final. The preliminary prospectus is the first offering document provided by a securities issuer that includes most of the details of the business and transaction in question. Some lettering on the front cover is printed in red, which results in the use of nickname "red herring" for this document. The final prospectus is printed after the deal has been effective and can be offered for sale, and supersedes the preliminary prospectus. It contains finalized background information including such details as exact number of shares, certificates issued and the precise offering price. While the Registration Statement was awaiting approval, underwriters began to firm up the issue price.

There are variables that underwriters may look at when deciding the price: the price-earnings ratios of the firm's competitors, the discounted-cash-flow and the market price. After having received the clearance from the SEC and having decided the price, underwriters fix the clauses. Underwriters can indeed chose the way they sell the stock. May commit to sell all or nothing, in alternative for riskier stocks they could decide for the best-effort basis. According

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[18] Katrina Ellis Roni Michaely and Maureen O'Hara, *When the Underwriter is the Market Maker: An Examination of Trading in the IPO Aftermarket*, June 1999.
[19] Richard H. Pettway and Harjeet S. Bhabra, *IPO Prospectus Information and Subsequent Performance*, Concordia University and University of Missouri-Columbia, October 2000.

to this method underwriters commit to sell as much as possible but do not guarantee the entire amount. Green-shoe allow selling the extra share without fear of loss. Underwriters' gain come from the spread between the price at which they buy and the higher offering price to investors. Sometimes the offering price is less than the true value of the issued securities: investors who bought the issue got a bargain at the expenses of the firm's original shareholders. The costs of under-pricing generally exceed all other issue costs.

It is common to think that shareholders would prefer not to sell stocks in their company for less than its market price, but many investment bankers and institutional investors argue that actually under-pricing is in the interests of the issuing firm: offering a lower price on an IPO raises the price when it is subsequently traded in the market and enhances the firm's ability to raise further capital.

1.4.3. THE EVOLUTION IN THE SECONDARY MARKET

The secondary market works with the primary market with the help of 'spectrum brokers': "the leased spectrum resources from the primary market are traded dynamically amongst cognitive users themselves through the secondary market in a fine time scale, to adapt to time-varying demand and channel condition"[20].

Thanks to its efficiency, the Secondary Market is divided in two stock trading markets: organized exchange and over the counter. However, recently this distinction has been blurring, as electronic trading grows in both volume and influence.

- Organized securities exchange

  "At the Exchange, trading is organized so that options on a particular underlying stock are traded at a unique location on the floor. Each location is thus an observable market place"[21], where buyers and sellers meet on a regular bases to trade securities using an open-outcry auction model. The open-outcry auction model is a vanishing method of communicating on a stock, commodity or futures exchange that involves verbal bids and offers as well as hand signals to convey trading information in the trading pits. Trading pits are the parts of trading floors where trading takes place.

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[20] Hong Xu, Jin Jin, *A Secondary Market for Spectrum*, University of Toronto, March 2010.

[21] Wayne E. Baker, *The Social Structure of a National Securities Market*, The American Journal of Sociology, January 1984.

A contract is made when one trader cries out that they want to sell at a certain price and another trader responds that they will buy at that same price. However this model is becoming less frequently used since more sophisticated technology has been adapted to securities trading.

To be listed for trading on one of the organized exchanges, a firm must apply and meet certain criteria set by the exchange designed to enhance trading. There are several ways to meet the minimum listing requirements. Usually the firm must have earnings greater than $10 million per year and 100$ million market value.

The major organized stock exchanges around the world are the NYSE Euronext and the Nikkei in Tokyo. Other major exchanges include the London stock exchange, the German DAX and the Toronto stock exchange.

Regional exchanges are even easier to list on. The reason why some firms choose to list on more than one exchange is that they believe that more exposure will increase the demand for their stock and hence their price. Many firms also think that there is a certain amount of prestige in being on one of the major exchanges. They may even include this fact in their advertising.

- Over-the-counter

In this market, securities not listed on one of the exchanges trade in the OTC market. This system is not organized in the sense of having a building where trading takes place. Instead, trading occurs over sophisticated telecommunications networks. One such network is called the National Association of Securities Dealers Automated Quotation System (NASDAQ). This organism, "introduced in 1971, provides current bid and ask prices about 3000 actively traded securities"[22]. Dealers make a market in these stocks by buying for inventory when investors want to sell and selling from inventory when investors want to buy. These dealers provide small stocks with the liquidity that is essential to their acceptance in the market.

The regional offices of various brokerage houses usually handle securities that trade very infrequently or trade primarily in one region of the country. Dealers that make a

[22] Robert L. Hagerman and George J. Benston*, Determinants Of Bid-Asked Spreads in the over-the-counter*, Ziarret, Journal of Financial Economic , p.354.

market for stocks that trade in low volume are very important to the success of the over-the-counter market. Without this dealers standing ready to buy or sell shares, investors would be reluctant to buy shares of stock in regional or unknown firms, and it would be very hard for start-up firms to raise needed capital. By providing liquidity intervention, dealers increase demand for thinly traded securities.

There is a substantial difference between how organized and OTC exchanges operate. Organized exchanges are characterized as auction markets that use floor traders who specialize in particular stocks. These specialists oversee and facilitate trading in a group of stocks: floor traders, representing various brokerage firms with buy and sell orders, meet at the trading post on the exchange and learn about current bid and ask prices. These quotes are called out loud. In about 90% of trades, the specialist matches buyers with sellers. In the other 10% the specialists may intervene by taking ownership of the stock themselves or by selling stock from inventory. It is the specialist's duty to maintain an orderly market in the stock, even if that means buying stock in a declining market.

"The other three quarters of traders are executed by the SuperDOT system, an electronic order routing system that transmits orders directly to the specialist who trades in a stock"[23]. This allows a much faster communication among traders than it is possible using floor traders. SuperDOT concerns traders under 100,000 shares and gives priority to trades of under 2,100 shares.

Whereas organized exchanges have specialists who facilitate trading, over-the-counter markets have market makers. Rather than trading stocks in an auction format, they trade on an electronic network where bid and ask prices are set by the market makers.

There are usually multiple market makers for any particular stock. They each enter their bid and ask quotes. Once this is done, they are obligated to buy or sell at least 1,000 securities at that price. Once a trade has been executed, they may enter a new bid and ask quote.

Market makers are important to the economy in that they assure there is continuous liquidity for every stock, even those with little transaction volume. They are compensated not only by the spread (namely "a function of the market demand curve, the competitiveness of

[23] Lawrence Harris and Joel Hasbrouck, *The SuperDOT Evidence on Order Submission Strategy*, February 1996.

the market, and the dealers' cost curves"[24]), between the bid price and the ask price, but also they receive commissions on trades.

1.4.4. THE DESCRIPTION AND EVALUATION OF A STOCK

A share of a stock in a firm represents ownership. A stockholder owns a percentage of interest in a firm, which is reliable with the percentage of outstanding stock held. The earnings of an investor can derive from stock in one or two ways. The first manner is the one in which the price of the stock rises over time; the second is the way through which the firm pays the stockholder dividends. Normally investors earn a return from both sources.

Stocks and bonds differ for various reasons. First of all, investors believe that "stocks should yield more than bonds because stocks are riskier investments"[25]. Stockholders indeed have a lower priority than bondholders when the firm is in trouble. This happens because dividends can be easily changed and stock price increases are not guaranteed. Moreover the returns to investors are less assured. Even if the stock is riskier, it is possible to make a great deal of money by investing in it, something that is very unlikely to happen when investing in bonds. As reported by John Y. Campbell, "another distinction between stock and bonds is the maturity"[26]; as a matter of fact, bonds, differently to stocks, do not mature.

Ownership of stock gives the stockholder certain rights regarding the firm. One is the right of a residual claimant: stockholders have a claim on all assets. In addition they have a claim on incomes left over after all other claimants have been satisfied. If nothing is left over, they get nothing. As noted, however, it is possible to get rich as a stockholder if the firm does well. Most stockholders have the right to vote for directors and on certain issues, such as amendments to the corporate charter and whether new shares should be issued.

There are two types of stock, common and preferred. A share of common stock in a firm consists in an ownership interest in that firm. Common stockholders vote, receive dividends, and hope that the price of their stock will rise. There are various classes of

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[24] Robert L. Hagerman and George J. Benston, *Determinants Of Bid-Asked Spreads in the over-the-counter ,Ziarret*, p.354.
[25] Clifford S. Asness, *Stocks versus bonds: Explaining the equity risk premium*, Financial Analysts Journal, Mar/Apr 2000, p. 97.
[26] John Y. Campbell, *Bond and stock returns in a simple exchange model*, Quarterly Journal of Economics 1986, 101(4): pp.785-803.

common stock, usually denoted as type A, type B, and so on. The differences among the types usually involve two main categories: the distribution of dividends and the voting rights.

Preferred stock is a form of equity from a legal and tax perspective. However, it differs from common stocks in several ways. First, because preferred stockholders receive a fixed dividend that never changes; a share of preferred stock is as much like a bond as it is like common stock. Second, because the dividend does not change, the price of preferred stock is relatively stable. Third, preferred stockholders do not usually vote unless the firm has failed to pay the promised dividend. Finally, preferred stockholders hold a claim on assets that has priority over the claims of common shareholders but after that of creditors such as bondholders.

Less than 25% of new equity issues are preferred stocks, and only about 5% of all capital is raised using preferred stocks. This may be because preferred dividend are not tax-deductible to the firm, while bonds interest payments are. Therefore issuing preferred stocks usually costs the firm more than issuing debt, even if many of the characteristics of a bond are the same.

The most complex and important problem relative to stock is its price evaluation. Common stocks are valued in several ways:

- Book Value Evaluation

According to James A. Ohlson, "accounting assigns an important integrative function to the statement of changes in owners' equity"[27]. For this reason one of the method of evaluation is correlated to the balance sheet of the company, which is published each quarter. This disclosure statement lists the value of the firm's assets and liabilities. The difference between the value of the assets and the liabilities is the book value of the equity of the firm. Each year KPMG, one of the largest professional services companies in the world and one of the Big Four auditors (along with Deloitte, EY and PwC), gives its opinion that financial statement is presented fairly in all material with respect to the company's financial position, in conformity with U.S. generally accepted accounting principles (GAAP).

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[27] James A. Ohlson, *Earnings, book values, and dividends in equity valuation*, Contemporary Accounting Research; Spring 1995, p. 661

However the book value measures their original cost less depreciation. This may be not a good guide to what those assets are worth today. When a firm raises money to invest in projects, it may lead to a wrong judgment: those projects were worth more than they cost. If it was right, its shares should sell for more than their book value.

- Valuation by Comparables:

When financial analysts need to value a business, they often start by identifying a sample of similar firms. Afterwards they examine how much investors in these companies are prepared to pay for each dollar of assets or earnings. This is often called the valuation by comparable. Usually analysts take into consideration two values:

1. The market value "should reflect the current present value of expected returns from the invention"[28]. Market-to-book-value-ratio, is the ratio between the market value and the book value, considering that market value is generally higher than the book value;

$$Mark-to-Book\ value\ Ratio = \frac{Market\ value\ per\ share}{Book\ value\ per\ share}$$

2. As Andrew W. Alford stated, the Price-Earning valuation method "estimates a firms' stock price as a product of its earnings and the P/E multiple determined by a set of comparable firms"[29]. The Price-Earning Ratio is the ratio between the price and the earnings and it constitutes an the alternative manner trough which we analyse how much investors are willing to pay for each dollar of earnings.

$$\text{P/E Ratio} = \frac{\text{Market Price per Share}}{\text{Annual Earnings per Share}}$$

[28] Zvi Griliches ,*Market Value, R&D, and Patents*, 1984, p. 249

[29] Andrew W. Alford, *The Effect of the Set of Comparable Firms on the Accuracy of the Price-Earnings Valuation Method*,1992, p. 94

The biggest problem for this evaluation is that both the market-to-book-value and the price-earning ratio can vary considerably from stock to stock even for firms that are in the same line of business.

According to Investment Banking Technical Trading[30] this approach has some PROs and some CONs.

PROs and CONs of Using Complements	
PROs	CONs
Easy to calculate using widely available data	Influenced by temporary market conditions or non-fundamental factors
Easy to communicate across a variety of market participants	Not useful when there are few or no comparable companies
Determine a benchmark value for multiples used in valuation	Can be difficult to find appropriate comparable companies for various reasons
Provide a useful way to assess market assumptions of fundamental characteristics baked into valuations	Less reliable when comparable companies are thinly traded

- Dividend Discounted Cash Flow:

As Tobias Olweny states[31], the Dividend Discounted Cash Flow model is a reliable way of stock price evaluation.

The discounted cash flow formula for the present value of a stock is just the same as it is for the present value of any other asset. We just discount the cash flow by the return that can be earned in the capital market on securities of analogous risk.

Shareholders receive cash from the company in the form of a stream of dividends. But this is not enough: investors buy stocks usually expecting to receive a dividend, but they also hope to make a capital gain. The cash remuneration to owners of common stocks may

[30] Investment Banking Technical Trading, Comparable Company Analysis.

[31] Tobias Olweny, *The Reliability of Dividend Discount Model in Valuation of Common Stock at the Nairobi Stock Exchange*, International Journal of Business and Social Science, April 2011.

come in two forms: cash dividends and capital gains or losses.

The expected rate of return that investors expect from this share over the next year is defined as the expected dividend per share DIV_1 plus the expected price appreciation per share P_1-P_0, all divided by the price at the start of the year P_0. This is known as market capitalization rate or cost of equity capital, which are just alternative names for the opportunity cost of capital, defined as the expected return on other securities with the same risks. According to that, all securities with the same risk class are priced to give the identical expected return.

Future stock prices are not easy things to forecast directly, but it is possible looking at what are the determinants of next year price: dividend in year 2 and price at the end of year 2. Thus we can forecast P1 by forecasting DIV_2 and P_2, and we can express P_0 in terms of DIV_1, DIV_2, and P_2. More generally:

$$P_0 = \frac{Div_1}{1 + r_E} + \frac{Div_2}{(1 + r_E)^2} + \cdots + \frac{Div_N}{(1 + r_E)^N} + \frac{P_N}{(1 + r_E)^N}$$

The previous formula is a simplified version of the basic present value formula because we assume constant growth rate for a company's dividends. This does not preclude year-to-year deviation from the trend: it says only that expected dividends grow at a constant rate.

To find its present value we must divide the first year's cash payment by the difference between the discount rate and the growth rate.

$$P_0 = \frac{D_1}{(r - g)} \qquad r = \frac{D_1}{P_0} + g.$$

It is important that we can use this formula only when g is less than r. As g approaches r, the stock price becomes infinite. Obviously r must be greater than g[32] if growth really is perpetual.

[32] g= ROE x plowback ratio
plowback ratio= 1- payout ratio
ROE= EPS/Book Equity Per Share

CHAPTER 2: THE DIAMOND INDUSTRY AND THE DE BEERS

2.1 DIAMOND WORLD

The world diamond comes from the Greek word *adàmas*, which literally means unbreakable but "it goes beyond its purely physical characteristic, as the Jewish word *yahalom* suggests"[33]. Hardness is thus one of the main characteristics that make diamonds such valuable objects: "measured on the Mohs hardness scale, diamonds' rating is a 10, the highest score thanks to the strength of its chemical boundaries"[34]. Luminescence, the ability to catch the light and sparkle with different colours, is another characteristic that adds value to diamonds: diamonds' refraction index is 2.42[35].

For centuries incredible hardness and extraordinary brilliance have made diamonds the most desired among the other gems. In addition, diamonds have always been perceived as mysterious. Supernatural powers have always been associated to the stone in ancient times. According to legends, diamonds may help recover from an illness, protect those who wear it and confer good health. The gem may also, thanks to its vibrations, regenerate the human heart and brain. Diamond is also known as the "reconciliation stone", thanks to its alleged supernatural power of helping husband and wife to make up after a row.

Certain diamonds, more than others, have acquired fame over the years. The Hope stone, a blue-purplish coloured 45.52-carat diamond, was believed to have been grabbed from an Indian's God eye and was therefore associated with a malicious curse for decades. Another well-known diamond is the one embedded in the British Jewellery Crown, which is displayed in the Tower of London. The diamond's name is Koh–I–Noor, 105.602 carats, discovered in the thirteen century in India; the gem changed several owners' hands and survived many wars. The Duke of Brunswick diamond is a 30-carats yellow diamond "It is so conspicuous that I never but once had the courage to wear it, and then it attracted so much notice that I wished it back in its case a thousand time"[36]. These are the words of Mrs Stanford about her necklace.

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[33] *Il Diamante. Mito-magia-realtà*, Arnoldo Mondadori ed., Milano 1981, p.14.
[34] Curzio Cipriani, Alessandro Borelli, *Pietre preziose*, Arnoldo Mondadori ed., Milano 1984, p. 24.
[35] Raffaele Zancanella, *Il diamante. Manuale pratico*, Istituto Gemmologico Italiano ed., Varese 1980, p.23.
[36] John Loring, *Tiffany diamonds*, Harry N. Abrams ed., New York (NY) 2005, p.78.

The formation of diamonds starts deep within the mantle of the earth. The stone is composed entirely by carbon, which generates a diamond when exposed to high temperature and pressure. As Henry Kissinger claimed, "a diamond is just a piece of charcoal that handled stress exceptionally well". Diamonds, in order to reach the surface from the mantle, follow a pathway of volcanic rock formations such as Kimberlite or Lamproite. Afterwards, they are poured out during violent magma eruptions.

The locations of the diamonds deposits determine the mining methods through which diamonds are extracted. Diamonds discovered deep in the earth are drawn through open-pit and underground machines. Those methods are used especially in Kimberlite and Lamproite pipes, which are known as primary deposits.

Kimberlite mines are the main source of diamonds and are situated in southern Africa, Russia and Canada. Those mines are 1 to 2 kilometres underground deep and are carrot shaped. Lamproite mines are not a big source of gems: diamond – rich pipes are really rare.

Alluvial mining methods are very different, the aim indeed is to extract diamonds from deposits of sand, gravel and clay. Riverbeds, shorelines, glaciers and ocean floors are the main alluvial mines, also called secondary deposits, which account for 10 – 15percent of the world's production. Diamonds extracted from those mines are usually high – quality stones given that they retain more volume after polishing; for this reason they command a higher price.

2.1.1 THE HISTORY OF THE DIAMOND TRADE MARKET

The history of diamonds started about 1,000 years ago when traders began to exchange rough diamonds between India and Arabia. "The first diamonds were found in India 8,000 years ago along the Penner, Krishna and Godavari rivers"[37]. Diamonds were used as decorations for religious purposes for their brightness and physical qualities. Prized for their uniqueness and hardness, diamonds where engraved in important pieces of jewellery and were the symbol of wealth, status and well–being.

Before being sold in the European market, diamonds where made more sophisticated through the help of the cutting and the polishing manufacturing. Royalties and aristocrats began to wear them thus increasing their demand year after year. After a few years the first diamonds centres appeared in Venice and Bruges.

[37] *The Global Diamond Industry*, Bain&Company ed., Antwerp 2011.

In the sixteenth century, because of the necessity of more advanced trading facilities and more developed cutting and polishing techniques, the centres were moved to Antwerp and Amsterdam. The latter "became the principal European cutting centre and remained significant until World War II and the destruction of the city"[38]. With the shifting to the new centres, diamonds became increasingly more popular; royalty and wealthy women asked for more fashion items with diamonds to attend significant social events; this rapidly increased the demand for diamonds.

For this reason India's supply was no longer sufficient and Indian trade started to suffer. The discovery of Brazilian and South African mines put the basis for an expansion of the market. In the meantime, the birth of another centre in London made the diamond trade even more widespread.

1870 was the year of the diamond rush: massive deposits near the confluence of the Vaal and the Orange rivers were discovered. This was the beginning of the huge commercial production (around 133carats production in one year) that continued throughout four continents and lasted more than a hundred years.

Nowadays one of the richest diamond mine is in Russia, which produces alone almost one-quarter of the global output. The second high volume diamond deposit is in Botswana. Together they produce 70% of the entire supply. Other deposits are in Australia, Canada and South Africa.

2.1.2 THE DIAMOND TRADE MARKET: FROM MINE TO FINGER

In order to understand the dynamics behind the diamond industry, it is necessary to follow the diamond path, also called the value chain. According to Raphael Kaplinsky and Mike Morris:

the value chain describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of

[38] Christine Gordon, *Diamanti*, Tectum ed., Antwerp 2000, p.172.

physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use.[39]

Along this route there are several actors such as miners, dealers, craftspeople and jewellers. All of them have to face different challenges and have their own environment. These players' chain is fundamental to create what the demand asks for.

Eight steps compose the value chain of the final product creation:

1. Exploration of a potential diamond deposit is the first stage. In this stage specialists seek diamond sources; after finding them, they evaluate Kimberlite and Lamproite pipes that may contain diamond minerals. Producers then decide to develop and build new mines if the discovered pipes are promising.
2. Diamond production and processing are the next steps. According to the type of mine found, the production may change: open-pit for earth deposits or underground mining techniques. This is followed by the diamonds' processing phase and the final extraction of rough diamonds.
3. The third stage involves rough diamond sorting into categories and their subsequent sale. Classification and preparation for sale are made via specific machines. Subsequently, diamond trade is conducted in the main centres such as London, Moscow and Antwerp. There are several sales channels: auctions, spot sales and sight holders, which are the most relevant. Sight holders have a purchasing system, which differs from the other sales channels, because it involves a selected group of verified buyers that are allowed to buy rough products.
4. The fourth stage is the one through which a rough diamond becomes polished. The main transformations are made by means of cutting and polishing techniques which required making fundamental decisions such as determining the optimal cut, cleaving or sawing to break the rough diamond into pieces,

[39]Raphael Kaplinsky and Mike Morris, *A Handbook for Value Chain Research*, September 2000 http://www.bdsknowledge.org/dyn/bds/bds2search.details2?p_phase_id=395&p_lang=en&p_phase_type_id=1

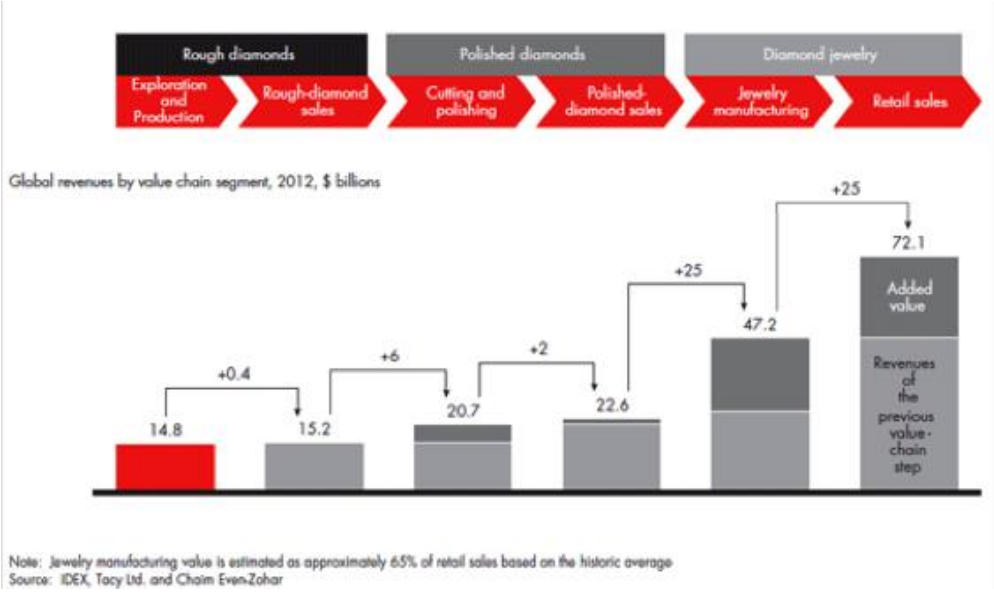
bruiting to give the diamond the desired shape, polishing to cut the facets as well as the final quality inspection. Cutting requires high knowledge, specific tools and equipment. In the world there are thousands of small cutting centres: India and Asia are the most highly populated. Because government are supporting local infrastructure and talent, cutting spots are emerging also in Botswana.

5. Wholesale purchase of polished diamonds by jewellery manufacturers can be done directly or indirectly. Direct sale is made by cutters, while dealers buy from them and resell the final diamond to the public, making the indirect purchase. The main centre in is Antwerp, not only for diamonds, but also for all gems in general. Recently India and China are becoming more important countries opening new trade sites.
6. The sixth stage is jewellery design and manufacturing. The manufacturing sector is fragmented. There are more than 1,000 actors in the world who may use either in–house or outside designers to create their products; due to the low cost of labour, they are mainly based in India and China. Over a decade, from 2000 to 2010, the jewellery-manufacturing sector grew from 27% to 55%[40]. Experts of the diamond industry believe that these two Asian Tigers are becoming the new huge suppliers. Asian markets indeed hold the key of a future growth in the global manufacturing business.
7. More than quarter million retailers compose the seventh stage. This step is made of a network of jewellery retailers that sell to consumers around the world. Numerous players fight in this sector in order to gain their market share, setting pressure on prices and competing for polished stones. The network includes independent stores or mass-market chains; some of them are specialized in luxury and high–end market while others in low–end jewellery. The main example is Walmart jewellery versus Harry Winston. In China, local chains maintain their strong position and have caused a crisis among independent retailers. Between 2000 and 2010 the market share for small retailer dropped by 1.6%[41] per year.
8. The final step is the consumption of jewellery. Demand is driven by millions of users around the world who are fascinated by the beauty of diamond jewellery.

[40] *The Global Diamond Industry*, p. 48.
[41] Ibid., p.50.

Many outsiders are concerned about the lack of transparency in this industry in particular regarding the setting of prices (cf. fig. 3).

Figure 3: Diamond industry value chain[42]



2.1.3 DIAMOND PRICES

Another feature that makes a diamond unique in its nature is the lack of fixed prices.
Generally speaking, "asset pricing, like the rest of economics, faces the special challenge that data are generated naturally rather than experimentally"[43], indeed diamond prices are set either by the main producers, or by a diamond certificate.

There are different key factors that determine the price of rough and polished diamonds. As far as rough diamond pricing is concerned, the main actors are the supply and the level of dealers' speculation. Although the market of rough diamonds showed a steady growth at 3%[44] per year, for decades, the economic crisis in the 1980s and 2000s affected this positive tendency: prices dropped because of the diffidence of consumers. Players acting in the middle of the value chain had difficulties in receiving financial support and the overall

[42] http://www.bain.com/publications/articles/global-diamond-report-2013.aspx

[43] John Y. Campbell, *Asset Pricing at the Millennium*, Harvard University Cambridge, Massachusetts, May 2000.

[44] *The Global Diamond Industry*, p.42.

pipeline got stuck by an oversupply of inventories. However, history shows that the rough diamond market has always been able to recover from any economic crisis very quickly.

Regarding the pricing of polished diamonds, the most influencing factor is the consumer demand. Thanks to the players in the middle of the value chain competition is always intense and the demand remains high. Consequently, the prices for polished diamonds show a considerable stability, unlike rough diamond pricing. The reason why inventories do not play a key role for polished diamonds is because, over the years, industries have become more and more fragmented, therefore none of them has enough stockpiles to independently affect global pricing trends. Moreover, it is in the cutters and manufacturers' interests to sell their inventories as soon as possible in order to gain liquidity for their own business.

2.2 THE SINGLE-CHANNEL PIPELINE: THE DE BEERS

1870 marks a milestone in the history of diamonds: it was in this year that huge diamond deposits were discovered in South Africa, mainly in the area where the two rivers Vaal and Orange flow together. This discovery ignited a diamond rush: everyone wanted to obtain the control over this treasure. The winner of the competition was Cecil Rhodes, a British businessman and politician, who quickly became a leading figure in the diamond market of the XIX century. He understood that "firm's competitive position fundamentally relates to the uniqueness of a bundle of assets"[45]. Indeed, he came up with the idea that controlling the production of diamonds in the new deposits was the first step towards balancing the supply and demand and controlling the price of diamonds. This is how he succeeded in creating an empire (cf. fig. 4). He started buying claims of small mining operations: among them there was also the one owned by the De Beers brothers.

It was this mine that made his luck: by 1887 Rhodes became the owner of all the claims of De Beers mine. At the same time, another personality emerged as a leading competitor in the diamond rush: Barney Barnato. As Rhodes had done, he became the dominant shareholder of an entire mine, the Kimberely mine, together with another enterprise, the French Company. Rhodes started looking for expansion, which he identified in the mine held by Barnato. Therefore, after gathering as many financial partners as he could, Rhodes first made an offer

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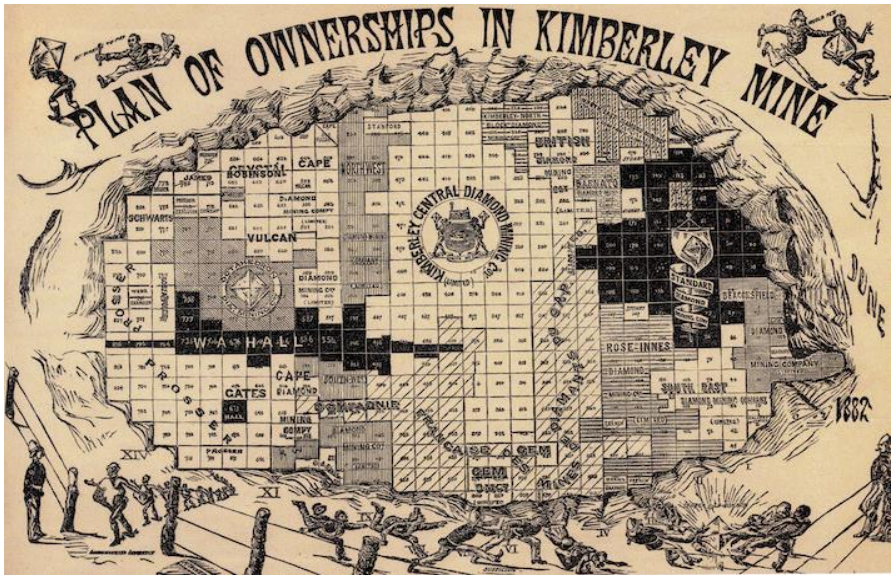
[45] Ingemar Dierickx and Karel Cool, *Asset Stock Accumulation and Sustainability of Competitive Advantage*, Fontainebleau, France, March 1987

to the French Company and convinced Barnato to let him take over. Then he started buying all the shares of Kimberely Central which were not held by Barnato. Finally, Rhodes gained the control of 60% of the Kimberely stock and, on 13th of March 1888, he established his own company, the De Beers Consolidated Mines ltd., which closed its first year of existence with a profit of over $400000. This is the reason why the Kimberley mine is also called the "De Beers New Rush"[46].

Figure 4: Cecil Rhodes' plan of ownership in Kimberley mine[47]



The encouraging beginning of the De Beers company led Rhodes straight to success. In 1900 he was in charge of an enterprise, which controlled almost 90% of the entire production of rough diamonds. In other words, he succeeded in his aim to control prices by controlling the supply, as he was basically ruling a monopoly in the diamond market.

Soon after establishing his company, Rhodes set an agreement with the London Diamond Syndacate, an organization of London diamond merchants that was buying and selling the outputs of the main diamond producers.

However, Rhodes' luck began to be threatened, first by new competitors, later by the economic crisis. Actually, in 1908, new diamond deposits were discovered in South-West Africa, and soon they became the source of nourishment for new diamond industries born in Germany in the first years of the XX century, such as the Premier mine, established in 1903.

[46] *Il Diamante. Mito-magia-realtà*, p.72.
[47] http://www.jennifermcveigh.com/for-readers-book-clubs/history

Moreover, in the 1920s, local African Governments also started entering the diamond business since other deposits were found out elsewhere in Africa. Rhodes tried to fight against the other competitors by buying rough diamonds especially in the new African mines of Angola, Zaire, Lichtenburg and Namaqualand, in order to stabilize the price and work for market stability.

However, despite his effort to keep his control in the diamonds market and compete with other industries, and despite surviving the worldwide recession that hit the jewellery industry in 1907, Rhodes could do nothing against a threat no one could control: the economic crisis of 1929, which crashed the US stock market causing the Great Depression. It was a financial disaster: not only did it strike the world industry, but also the diamond one.

For over ten years the demand for diamonds collapsed and many minor industries had to go out of business. The Rhodes era came to an end: indeed he was replaced by a new chairmanship, Ernest Oppenheimer, whose goal was to obtain the control of both buyers and sellers not only inside the gold industry but also in the diamond industry: "From the very start I expressed the hope that, besides gold, we might create, step by step, a leading position in the diamond world"[48].

To achieve this goal, the new leader of the De Beers decided to use its strained resources to buy the companies that had to step aside the business: with this strategy the company took control of the Southern African production that was not controlled by the Governments. However, the demand for diamonds was not recovering form the crisis, so Oppenheimer had to shut down all the De Beers mines in South Africa in 1932.

At the same time, Oppenheimer created the Diamond Corporation (Dicorp), an association with the aim to buy and trade rough diamonds not only from its producing members, but also from producers of South Africa that did not belong to it. In this way "the basis of the modern diamond market was settled"[49].

In addition, in 1934 all the major diamond producers and the Dicorp agreed to establish the Diamond Producers Association (DPA): each producer agreed to provide a percentage of the total supply. Moreover, all the members of the DPA agreed to market their stones through the Diamond Trading Company Limited (DTC), a sister company of Dicorp. At last, Dicorp, the rough diamond buyers, and the DTC, the rough diamond seller, merged together establishing the Central Selling Organization (CSO), the organization through which

[48] "Birth of the Modern Diamond Industry" in *Diamonds&Diamond Grading*, GIA ed., 2009, p.18.
[49] *Il Diamante. Mito-magia-realtà*, p.84.

Oppenheimer could finally control the single-marketing channel of rough diamond (the DPA disbanded in 1987).

Even though it took around twenty years to recover from the economic crisis of 1929 (it was actually only in 1952 that De Beers finally sold off stockpiled diamonds), Oppenheimer's company turned out to be the most important diamond supplier when World War II began in 1940. Indeed during the war the demand for rough diamonds reached a new height. The trend kept its rhythm also after the global conflict, so Oppenheimer established the De Beers Industrial Division in order to control the high demand, and he also gave birth to the Diamond Research Laboratory, where new industrial applications for diamonds could be developed.

Even when the world finally recovered from the war, the sales of diamonds kept increasing: the most affluent countries were the United States, Europe and Japan.

2.2.1 DE BEERS: THE DEVELOPMENT OF POWER TROUGH THE CSO

De Beers succeeded in creating a single agency called Central Selling Organization (CSO), which handled the majority of the production of rough diamonds on a global scale. The CSO was indeed the sales arm of the De Beers for almost 67 years. It also put the basis for the single channel market: the system through which the supply and the prices were controlled and decided by the De Beers.

CSO main divisions were the Diamond Corporation (Dicorp) and the Diamond Trading Company (DTC). Dicorp's aim was to purchase rough diamonds, then the CSO valuation Actuarial Guideline valuated and sorted them and finally DTC sold them to the consumers.

The company established and supported its strong marketing strategy. This was based on the following factors:

- A diamond stockpile, in order to maintain and stabilize the demand and supply equilibrium
- $200 million per year, as annual budget for the strong global advertising campaign
- A global network of outside buying offices
- A strong client network with control over distribution
- Quota provisions with its CSO partners that guaranteed equal sharing of oversupply challenges

The CSO processes regulated the demand and supply fluctuation and represented a unique phenomenon: the company choose 300 firms in the commercial sector with a solid reputation and a stable financial situation. Those characteristics were fundamental to be reactive to the new market needs. With the help of intermediaries, the members of the organization, who were mainly cutters or traders, actually acted as wholesalers. Ten times per year they communicated their diamond requests to intermediaries, who, in turn, reported them to the CSO. Afterwards, the 300 firms travelled to London, where they were offered a certain amount of diamonds. Every purchase session was called "sight": this is the reason why CSO buyers were named sight holders. The offers did not always match the requests, but the offered parcel had to be either purchased entirely or rejected. Moreover the price could not be discussed. After the sight holder had accepted the parcel, the payment method was arranged.

Therefore, the CSO established itself as the main entity in the entire market by imposing its prices and structures to the whole diamond industry:

The organization, which may be considered the most exclusive club in the world, was regulated by strict norms and the minimum transgressions to its rules could lead to a suspension of the next sight session. There was a long list of firms waiting for entering in the club, an additional proof of its ability and its prestige.[50]

The Diamond Information Centre (DIC) and the Diamond Promotion Service (DPS) were established to assist the company during its marketing efforts. Because it was fundamental to enlighten costumers about the products offered, the DIC sustained De Beers promotional campaign providing information about diamond jewellery and gems through the media. The other body, the DPS, supported promotional activities, such as training programs and point–of–sale.

At that time De Beers' mining control was easier than today, when mines are in the hand of many more companies. De Beers indeed owned the biggest mines in the world and had quotas and, consequently, partial control over the residual mines. Its mine production accounted for a significant percentage of the global supply of gems. As a smart investor, the company actualized a diversification strategy investing in diverse industries outside the diamond industry to provide other capital gain sources.

In addition De Beers' diamond purchase was made through contracts. One of the most

[50] Ibid., p.189.

important was with a Russian producer Alrosa. The Russian producer committed a percentage of their output to the CSO, but also kept a part of their marketing purposes. However, De Beers purchased not only from Russian mines, but entered into a partnership with another producer: the government of Botswan. The name of the partnership was Namdeb and controlled the coastal diamond mines in Namibia. The two entities shared profits but also operating expenses. In this way De Beers was not just exploiting a country, but it was supporting its development:

Whether this measure of control amounts to a monopoly, I would not know, but if it does, it is certainly a monopoly of a most unusual kind. There is no one concerned with diamonds, whether as producers, dealer, cutter, jeweller, or costumer who does not benefit from it. It benefits not only the shareholders of diamond companies, but also the miners they employ and the communities that are dependent on their operations. We are conscious of our responsibilities not only to our shareholders, to the industry as a whole and to the consuming public, but also to the governments of the countries in which we operate[51].

Moreover De Beers' satellite buying offices in Antwerp, Tel Aviv and all around Africa continued to operate. The high number of large–scale contracts and many independent companies made the control of distribution really hard.

2.2.2. THE COLLAPSE OF THE SINGLE CHANNEL MARKET

The tumble of the single channel market began in the 1960s and 1970s. Since the CSO allowed only 300 firms to join the diamond supply, many producers tried to use alternative ways instead of following the classical buying and selling rough diamond path of the unified De Beers.

After the 1970s diamond companies started to test different sales channels: in 1980 Zaire broke the CSO by trading on the open market. Between 1980 and 1990 the economic and stock exchange crisis made diamond an attractive investment; for this reason dealer began independent trading. In 1990 USSR began to sell diamonds outside CSO/DTC and diluted De Beers' market position, while Angola raised output and launched independent

[51] Harry Oppenheimer, De Beers 1995 Annual Report.

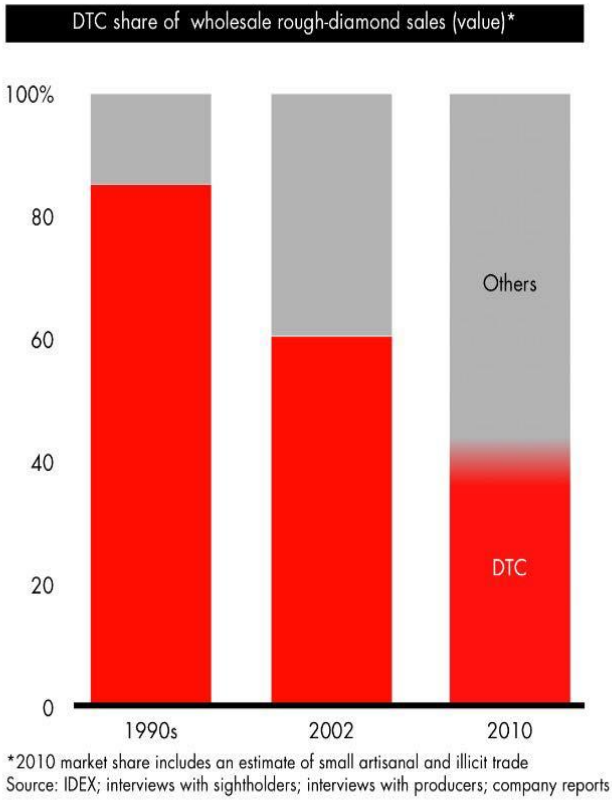
trading. In 2000 Australia terminated its arrangement with CSO/DTC after failing to agree on new conditions.

In addition, in the 1990s, many mines were discovered. Deposits in Russia, Canada and Australia started to weak the southern African role in the market.

Political changes played a fundamental role in the De Beers' market position. The single-channel market was suffering many changes that put the basis for the new era: some producing countries were creating their own exports and their own internal cutting industries. Moreover auctions and spot sales, which involved immediate payment and delivery, began to be a good channel for rough diamond producers, causing a decrease in sight holders' power.

The latest change happened in the early 2000s, when the European Commission accepted a guarantee made by the De Beers, promising the reduction of the purchase of rough diamond by the ALROSA, the largest Russian diamond company. As a consequence, sales dropped in 2006 and stopped definitively in 2008.

Figure 5[52]



[52] *The Global Diamond Industry*, p.12.

2.3 THE MODERN CHANGING MARKET

The De Beers reign gave fuel to a massive fragmentation and independence in the world of diamonds market. What happened over the last three decades in the diamond industry has been nothing but a great revolution, which reflects broader global trends, such as the growth of new economic powers, including China and India; the high development of technology; the threat of terrorism and the affirmation of independence by Third World countries.

As a consequence, De Beers started losing control over the diamond industry, as can be seen by the decrease in the number of its members: "there were around 125 sight holders in 2000, down from about 300 in the mid 1980s"[53].

2.3.1 FROM THE SINGLE CHANNEL MARKET TO THE MULTI CHANNEL DISTRIBUTION

By establishing the Central Selling Organization (CSO), Oppenheimer achieved his goal to control both the demand and the supply of the diamonds market stage in communication and organization. Indeed, in the 1990s, this organization was considered the nucleus of the world diamond industry: it controlled the outflow of diamonds by buying, holding them, and then selling only when the demand rose, together with the price.

However, in the XXI century the monopoly set by De Beers Company started to be overtaken by new emerging realities, which finally transformed the diamonds market into a multi-channel entity. Four new actors emerged from this transition: Russia, China, Canada and the company led by Lev Leviev.

This shift from single channel market to multi channel market (cf. fig. 6) happened for two main reasons: the new diamond producers – Russia, Canada and Australia – started seeking more control over the diamonds deposits in their own territories; the production of diamonds increased so much that it was impossible for De Beers to keep the control of all the supply and demand of the market.

The active players competing with the De Beers in the XXI century diamond industry were ALROSA, De Beers, BHP Billiton and Rio Tinto:

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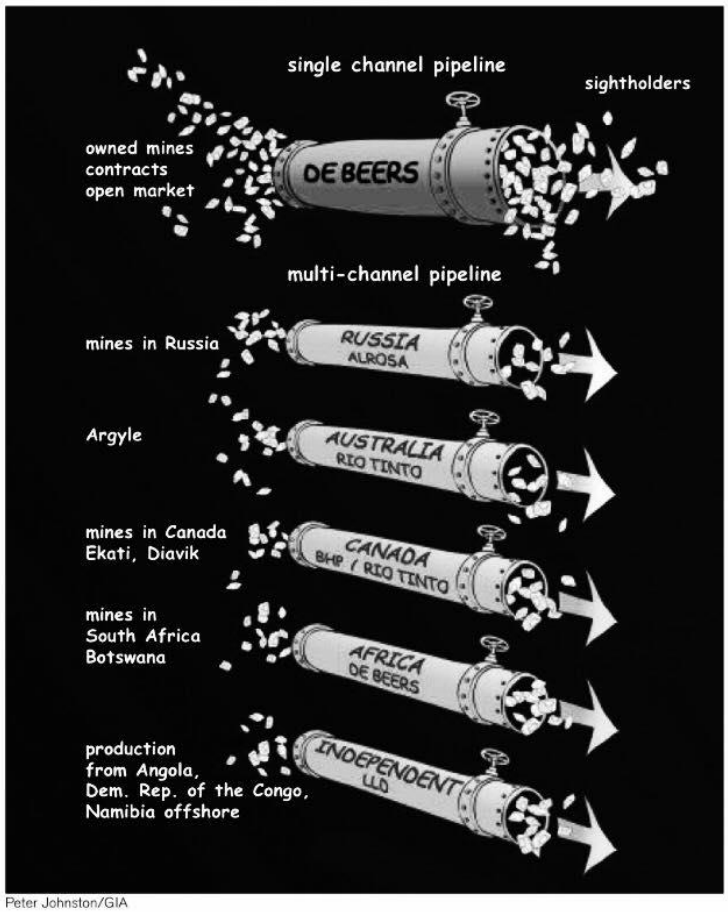
[53] *De Beers: addressing the new competitieness challenge*, June 2007 https://services.hbsp.harvard.edu/services/proxy/content/36441602/36477715/50f495cb90be8030c881c17c26176ba1, p.5.

Overall, about 75% of diamonds by value were mined by large vertically integrated producers, including De Beers (total revenue of $4.9 billion in 2000 and diamond revenues of $3.5 billion); Rio Tinto, a U.K. minerals and diamond producer (total 2000 revenues of $10 billion and diamond revenues of $360 million); BHP Billiton of Australia, a minerals and diamond producer (total 2000 revenues of $18.4 billion and diamond revenues of $493 million; and the state-owned Alrosa of Russia (total 2000 revenues of $1.7 billion and diamond revenues of $1.5 billion).[54]

Figure 6: From the single channel to the multi channel market[55]



Peter Johnston/GIA

Where once there was a single channel–De Beers–the modern multi-channel market for diamond rough consists of many different pipelines.

Nowadays the diamond industry is accepted in its multi-channel status. In order to gain power and control over the diamond market, a new rush to diamonds started in the first decade of the XXI century, as producers started investing in explorations in order to find new deposits and control the production of the gem. As a matter of fact, from 2001 to 2008 the

[54] Ibid., p. 4.
[55] "The Modern Diamond Market" in *Diamonds&Diamond Grading*, GIA ed., 2009, p.3.

investment of diamond industries reported a 26% growth per year, since the need to locate new diamond sources was impelling because the reserves of existing mines were declining. The competitors of this diamond rush - ALROSA, De Beers, BHP Billiton and Rio Tinto - spent up to 3.5% of their entire earnings on exploration between 2006 and 2010[56].

At the same time these top four players had to face the economic crisis of 2008, which forced them to reduce their investments in exploration. Actually, the most important need was to focus on the existing sources and understand how to optimize them, instead of looking for new ones.

2.3.2 ALROSA, RUSSIAN MINES

Russian entrance in the diamond business occurred in the 1950s, when rich diamond deposits were discovered in Mir mine, located in Siberia. Small diamond-cutting industries had already been present in Russia since the XVII century, but it was thanks to this disclosure that this country began to play a leading role in the diamond business, since both cutting and polishing manufactories expanded on an international scale. Moreover, Russia could be proud of the reputation of excellence it had in the diamond-cutting market.

Nevertheless, it is important to say that the development of Russia in the diamond business goes hand in hand with its history. In the 1980s, the Russian totalitarian regime wished to bring modernization to the country. De Beers company took advantage from this situation and started doing business with the Soviet diamond industries: first, by signing an agreement between the CSO and the government of Moscow, to which they granted a billion dollar loan and a large portion of Soviet stockpile of diamonds as collateral for CSO. Then, in 1990, they signed a five-year agreement: De Beers had all the rights on Russia's future diamond production.

However, history was playing on the side of Russian interests: the nationalist feelings that were ruling Russia in this period influenced also the diamond market. Consequently, new domestic industries began to appear on Russian soil: Sakha, semi-autonomous from the central authority and primary dealer of diamonds, and Alrosa, linked to the Russian government. The latter was fostered by Brilliantly Alrosa, which had to give support to the national diamond polishing industry. By the first years of 2000s, Russia had finally established ninety diamond polishing factories and had all it needed to start dealing with its

[56] *The Global Diamond Industry*, p. 25.

old partner – De Beers - in order to get the maximum profit it could gain from the gem business. After a legal war that ended with Russia putting its hands over a huge stockpiles of diamonds previously controlled by CSO, a new five-years compromise was signed by the two parties, in order to give a new balance to diamond pricing. At that time, priced were facing ups and downs because of the conflict between Alrosa and CSO. However this agreement soon generated an outcry from the European Union, which in 2005 accused Russians and De Beers of trying to manipulate diamond pricing:

This Decision is addressed to De Beers société anonyme, incorporated in Luxembourg ('De Beers SA'), a holding company of the De Beers Group of companies ('De Beers'). The subject matter of the procedure is De Beers' purchase relationship with ALROSA Company Ltd ('ALROSA'), the second largest diamond producer on the worldwide market, concerning rough diamonds which are to a large extent distributed and/or processed in the European Economic Area ('EEA'). In its preliminary assessment, the Commission considered that De Beers' purchases from ALROSA raised concerns under Article 82 of the EC Treaty and Article 54 of the EEA Agreement, which prohibit abuses of a dominant position, in that they reduce access to a viable source of alternative supply of rough diamonds for potential customers and hinder the second biggest competitor from competing fully with De Beers. [57]

However in 2007 a court decision discharged both Alrosa and De Beers:

In its commitments, De Beers has undertaken to modify its market conduct in various ways. The Commission considers that these commitments are sufficient to address the competition concerns identified in its preliminary assessment. In particular, following a transitional period from 2006 to 2008 during which De Beers' purchases will be reduced and which is necessary to build a competitive distribution system for the quantities of diamonds previously sold by De Beers, De Beers undertakes to refrain from all purchases of rough diamonds from ALROSA as of 2009. By freeing up the portion of diamonds from ALROSA previously resold by De Beers and, upon lapse of the transitional period, by discontinuing De Beers' purchase relationship with ALROSA entirely, the commitments address the concern of reducing access to a viable source of

[57] *Commission Decision elating to a proceeding pursuant to Article 82 of the EC Treaty and Article 54 of the EEA Agreement*, Case COMP/B-2/38.381– De Beers, of 22 II 2006, p.2. http://ec.europa.eu/competition/antitrust/cases/dec_docs/38381/38381_1065_1.pdf

alternative supply of rough diamonds and hindering the second biggest competitor from fully competing with De Beers.
In the light of the commitments offered, the Commission considers that there are no longer grounds for action on its part and, without prejudice to Article 9(2) of Regulation (EC) 1/2003, the proceedings in this case should therefore be brought to an end. [58]

Despite all the highs and lows that Russian diamond industries faced during history, something that never changed was its main characteristic, namely its vertical integration. This means that business involvement concerned all the eight stages of the diamond industry, a feature that obviously helped increase the profits, as a piece of diamond jewellery is worth way more than a rough diamond crystal.

Nowadays Russia has gained an important position on an international scale, in the cutting, trading and especially in extracting sectors: "Russia extracts about 38,5 million carats of diamonds per year, for a value of about 2,5 billion of dollars. Alrosa exports more or less 150 millions of dollars in diamonds"[59].

2.3.3. RIO TINTO, AUSTRALIAN MINES

Another country that emerged in the late years of the XX century and put spokes in the wheels of De Beers Empire was Australia.

The Australian Argyle mine was one of the biggest producers by volume of rough diamonds in the world: Almost 800 million carats were produced in 26 years[60]. However in 1980 it was still controlled by CSO, which handled the release of these rough diamonds, a safe supply for its cutting industry settled in India.

The first disagreements took place in the 1990s when, due to a world recession, De Beers had to stop buying Argyle's diamond supplies in favour of the high number of small diamonds produced by Russians. Therefore, the London based company that was holding Argyle mine – Rio Tinto group – had to decide what to do with the stock of rough diamonds committed (but not yet purchased) by De Beers. The group then decided to solve this problem by moving their business from the industrial to the jewellery market.

Actually, until then, the diamonds extracted from the Argyle mines were intended for

[58] Ibid. p.9.
[59] Christine Gordon, *Diamanti*, p. 50.
[60]http://www.riotinto.com/documents/MediaSpeeches/RTDM_consolidated_presentations_final.pdf

the industrial market, since those stones were too small and too difficult to cut to appeal to the fashion industry. They needed to be clearer, therefore Rio Tinto decided to shift its investments in the process to produce polished diamonds, which would be suitable for the fashion world. They optimized the process by giving their huge quantity of rough, small diamonds to low-wage Indian cutting industries, which had to turn them into precious stone to be delivered to the luxury market of diamonds. The most famous ones were the "cognac" and the "champagne" diamonds, around which Rio Tinto group decided to develop a massive marketing and advertising strategy in order to create their own market, especially pushing the market of cheap piece of jewellery studded with Argyle small and precious gems.

Having established a relationship early on with India, when it was an emerging diamond and jewellery manufacturing hub, we knew that our diamonds could be competitively cut and polished to maximise their appeal. We repositioned our brown stones as Champagne Diamonds, registered this trademark in several countries, and established a grading system for the diamonds that was endorsed by the Gemmological Institute of America. This recognition would prove invaluable in convincing wholesale and retail jewellers of the merit of the champagnes in future marketing campaigns.[61]

In this way the volume of their consumers increased and Rio Tinto was able to handle all the processes inside the market of diamonds: CSO was completely cut out from its business, even thought De Beers still controlled the majority of diamond supply thanks to its African diamond mines.

The latest history of Rio Tinto relates to its expansions towards the Canadian mines and its decision to develop their business by going underground. As a matter of fact, by 2005 the Argyle mine was near exhaustion, therefore the enterprise had to find other ways to keep their mine alive. As a result, they made a billion dollar investment and they also had to sign a Participation Agreement with the indigenous people of Argyle area to recognize them as main landlords.

After this massive move to save their interests, Rio Tinto had to face the attempt to be taken over by of BHP Billiton, their first rival. By merging together, Rio Tinto and BHP Billiton would have created a new enterprise that would have become the biggest diamond producer in the world: as said by Mr Lucas of Leob Aron, this would have been *"a perfectly balanced*

[61] Robyn Ellison, *Diamonds are for everyone*, Mines to Market, Issue 1, http://m2m.riotinto.com/article/diamonds-are-everyone

merger with considerable synergy"[62].

Indeed Rio Tinto had to fight against the BHP takeover by finding funds to protect themselves, because, at that time, they also had to deal with the payment of Alcan, a mining company bought in Canada. Therefore the decision made by Rio Tinto was to sell off their big coalmining interests to the United States in order to get as much liquidity as possible.

2.3.4 BHP BILLITON, CANADIAN MINES

The two main sources of diamond in Canada were discovered in 1991 and in 2003. The first one, Ekati, was opened in 1998 and boasted such a high quality of stones that they were compared to the precious African and Russian diamonds. The Australian company BHP Billion controlled this mine: at first they signed a three-years agreement with De Beers, to whom they sold around 35% of the entire production. Subsequently, they decided to turn to an independent market:

The BHP Billiton group has decided to not renew its marketing agreement with the Diamond Trading Co. (DTC), the wholly-owned diamond marketing arm of the De Beers group, with respect to the production from the Ekati diamond mine in Canada's Northwest Territories. BHP Billiton (then BHP Ltd) signed a three-year marketing agreement with De Beers in July 1999 to sell 35% (by value) of Ekati's total run-of-mine production (MJ, March 12, 1999, p.169). That agreement is due to expire at the end of this year, and this Wednesday De Beers announced that it has been notified that BHP Billiton will not renew the agreement.[63]

The other relevant Canadian mine was Diavik, which opened in 2003. Rio Tinto was its major shareholder, together with the Canadian company Aber Resources Ltd., partly owned by the famous retailer Tiffany&co. Tiffany&co was the first "the world's first – and so far, only – retailer-turned-miner"[64] which could secure to itself a significant source of diamond thanks to the control of Diavik. However, it was not long before Aber bought Harry Winston Company, Tiffany's rival and leader in the diamond market. To get full advantage of this new acquisition, Aber decided to change its name into Harry Winston Diamond Company.

As had been the case with the other companies analysed so far, national feelings were

[62] The Wall Street Journal, http://www.wsj.com/articles/SB984931118144036379
[63] http://www.infomine.com/news/xmlnews/welcome.asp?newsXML=MJ093.xml
[64] John Loring, *Tiffany diamonds*, p.151.

flowing also throughout Canada, affecting the diamond trade. Indeed the government tried to contrast the control of foreign companies over Canadian mines by establishing a law, which obliged all the mining firms to the engagement of Canadian manpower in all the main processes of diamond extraction and manufacturing.

2.3.5 LEV LEVIEV, ANGOLAN MINES

Lev Leviev LLD was established in 1990. After being one of the clients of De Beers, this company started getting into business with the Russian Alrosa, with whom it agreed to form a joint diamond-manufacturing venture. "The venture, called Ruis (short for Russia/Israel), had direct access to Russia's rough diamond resources. Eventually, Leviev acquired full control of Ruis, which in 2002 manufactured $140 million in polished goods."[65]

The turning point for Lev Leviev was when Russian companies started selling its stockpile of rough diamonds without discrimination. Leviev started buying as much as he could, using his profit for the acquisition of Angolan mines of rough diamonds. With this acquisition he gave birth to The Angolan Selling Corporation, getting in return the support of the Angolan government either in the selling operation or in the concession of alluvial mines.

'The government of Angola has obviously profited from this venture,' Leviev says. According to his figures, in pre-Leviev 1998, Angola's tax revenue from diamonds was under $10 million. But the Leviev era is different. Tax revenue from diamonds totaled $60 million in 2000 and was already at $49 million after the first nine months of 2001. Leviev says he expects that once Angola's mining sector becomes more formalized and new ventures start producing diamonds, revenue benefiting Angola could exceed $100 million.[66]

Lev Leviev's presence in African territories led him to create a big empire. After renaming his company LLD Diamonds, he started expanding in other region, such as Congo and Namibia.

Basically, Leviev took advantage of De Beer's retreat from this African region caused by the conflict diamonds, namely the misuse of diamond trade in order to finance a regime of

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[65] Russel Shor, *A Review of the political and forces shaping today's diamond industry*, Gems&Gemmolgy, Fall 2005 p.209.

[66] Robert Weldon, *Lev Leviev Angolan Connection*, Professional Jeweller Magazine, February 2002, http://www.professionaljeweler.com/archives/articles/2002/feb02/0202dn1.html

war and terror.

LLD Diamonds had everything under control: the mining of its own rough diamonds, the purchase of rough diamond in the open market and the direct distribution of fashion diamonds. The broad domination of all these relevant passages allowed LLD Diamonds to eclipse the other leaders of the diamond trade, such as Rio Tinto and BHP Billions. However, in recent years, De Beers has made some attempts at regaining control over the African mines that have been taken over by LLD Diamonds.

2.4 THE REACTION OF THE DE BEERS: PRIVATIZATION

The new century began with many challenges for the De Beers. For this reason throughout the 1990s the company was partially reinvesting itself to meet the new requirements of the rough diamond industry. De Beers' effort in the new century became more active, dynamic and pronounced.

The rapid and dramatic increase in the quantity of diamonds flowing around the De Beers' pipeline and not across it signed for the most notable dare. Not only internal but also external forces created pressure; Asian countries were in recession, namely lower demand and consequently lower sales volume for the diamond industry. In the meantime the supply of precious stones increased, especially for inexpensive and low quality gems.

The industry started to decline: manufacturers continued with their production but the number of consumers kept decreasing, as they needed liquidity to finance the purchase of their high-end goods. Retailers made volume-discounted production in order to drive down prices and let the industry start again. The result was an increase in consumers' demand albeit for low quality gems. Profit margins dropped in several segments of the diamond market.

The De Beers control over the supply of rough diamonds decreased from 80% to 65% in 1990s[67]. The opening of mines outside the company control, like the new Australian and Canadian mines, weakened even more its market position.

However the company maintained its power with 50% of the world's annual value production. In order to prevent possible erosion, De Beers aggressively changed its traditional way of doing business.

In 2001, Nicholas Oppenheimer, the De Beers' chairman, decided to purchase $17.6 billion of the De Beers. The Anglo American mining company, Debswana and the Oppenheimer family were the purchasing partners: ''we are bringing financial muscle; the Oppenheimers are bringing literally generations of experience"[68], said Tony Lea, Anglo American's finance director.

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[67] "The Modern Diamond Market" in *Diamonds&Diamond Grading*, p.13.

[68] Alan Cowell, Rachel L. Swarns, *$17.6 Billion Deal to Make De Beers Private Company*, The New York Times, London February 16 2001, http://www.nytimes.com/2001/02/16/business/17.6-billion-deal-to-make-de-beers-private-company.html

In the same year, Oppenheimer declared the De Beers Investment (DBI) the new consortium. The consortium brought about a big change by buying all the outstanding shares and taking the company private. The shares of the DBI were unequally among the three parties differently; the Oppenheimer family and the Anglo American Corporation had 45%, while the Debswana had only 10%.

The Anglo American Corporation and the De Beers owned shares in the other; Ernest Oppenheimer, the English founder, in a way of protecting the family, structured the organization. In order to eliminate the mutual holding, it gave Anglo American a stake in the De Beers with the De Beers no longer holding Anglo stock.

Analysts suggested that the decision was taken also for legal reasons: De Beers management may pursue controversial initiative without stockholder pressure or scrutiny. In May 2001 the plan went trough and the De Beers became a privately owned company: as said by Mr Oppenheimer, ''once De Beers goes private, it has no intention of disappearing behind locked doors''[69].

2.4.1. FROM CSO TO DTC

Even before its privatization, De Beers understood that it had to face a big change. In January 1999 it decided to renovate the entire company's organization, from the consumers' relations to the advertisement campaign. In addition "a management transition took place with Gary Ralfe as managing director of the De Beers Group, Gareth Penny as managing director of DTC, and Stephen Lussier as head of marketing"[70]. De Beers also teamed with a consulting company to carry on the review.

As first change, in mid 2000, the CSO was renamed Diamond Trading Company (DTC). In order to celebrate the passage to the new millennium, in 2000 Nicky Oppenheimer presented a 203,04 carats diamond whose name was "Millennium Star". The stone represented also the beginning of the new marketing strategy supported by the famous slogan: "Millenniums come and go, but diamonds are forever"[71]. At the same time De Beers introduced the new logo, called the *Forevermark* (cf. fig. 7), which was made up by a star embedded in a diamond.

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[69] Ibid.
[70] *De Beers: addressing the new competitieness challenge*, p. 18.
[71] Christine Gordon, *Diamanti*, p. 29.

Figure 7: the De Beers Forevermark

The choice of renew wasn't just a decorative one. De Beers wanted to modify the entire way of doing business; according to the new structure, the company was no longer the monopoly of the whole diamond trade and so the only market from whom sight holders can buy rough diamonds; on the contrary, the De Beers wanted to be voluntary chosen by sight holders. In this way the company would control the demand instead of the supply, as it was in old times.

The aim of the De Beers reorganization was based on the Supplier of Choice programme. This programme was designed to link the company with sight holders: they had to work together to the market and sell diamonds.

In the same year the company understood that the $200 million used for the advertising campaign were not enough. De Beers' budget was just 1% with respect to the 10-20% of the luxury brand budget.

The Supplier of Choice sight holders, before buying diamonds from the DTC, had to demonstrate both their ability of creating value and their financial stability: as said by Paul Rowley, De Beers vice president of global sight holder sales, the company is "very keen to see the sight holder brand become more robust. Through our best practice principles and financial governance we're looking for more transparency and to make sure that sight holders are in a financially strong position to take the industry forward with us"[72].

According to the company, there are indeed several techniques through which it is possible to make a gem more valuable before the actual selling of the stone: innovative advertising campaign, creative market plans more focused on the diamond, like proprietary

[72]http://www.diamonds.net/News/NewsItem.aspx?ArticleID=47233&ArticleTitle=De+Beers+to+Unveil+Sightholder+Requirements+in+July

cuts or private label jewellery lines. For this reason DTC put special importance on sight holders who operated in speciality markets. Other factors may affect the DTC's selection; it was relevant the sight holders' financial strength, their market position, location, marketing strategy and technical expertise.

Sight holders, in return, could get well-tailored diamonds according to their needs. In addition, sight holders were entitled to assistance in trade marketing advertising, sales planning, client evaluation, accounting management and training.

To avoid any negative reactions to its Supplier of Choice initiatives, De Beers decided to assign the European Commission as reviewer. Modifications made by the European commission were well accepted as they were making the company more than welcomed in the industry.

Thanks to the reduction of the Supplier of Choice sight holder list, many significant players were dropped especially in Israel and Antwerp. This decision caused some reactions; the company had to face lawsuits and formal resolutions.

In 2004, a higher supply of $500 million of rough diamonds for the manufacturers outside the Supplier of Choice programme were offered to the market. The year after, the programme enlarged its lists adding 11 sight holders, but promising the fixed review every six months.

Because of the persistent critics, the De Beers decided to modify the structure of the programme and renaming it Supplier of Choice 2 in 2007.

The basics of the new policy are:

- A need for a more cooperative partnership with sight holders
- Greater emphasis on ethical business practices
- Twelve-month extension of ITOs (intentions to offer), which estimate sight holder allocations
- Simplified application process to become, and remain, a sight holder
- Greater human involvement in the selection process, which was run mostly by a computer under SoC I.[73]

[73] Rob Bates, *De Beers launches Supplier of Choice II*, JCK magazine, March 2007, http://www.jckonline.com/article/285374-De_Beers_Launches_Supplier_of_Choice_2.php

2.4.2 DE BEERS PARTNERSHIP WITH LVMH

De Beers' goal in 2000 was very different from the past centuries. In the new era, the company aspired to the creation of a diamond brand different from the others, thanks to its name known since 1940s. De Beers desired to be associated with the brand of other luxury names, such as big elite retailer like Harry Winston and Tiffany.

In order to be linked to such luxury brands, the De Beers decided to partner with the manufacturer LVMH Moet Hennessey Louis Vuitton. LVHM and De Beers aim was to distribute a new luxury retail division.

For this reason, the generic De Beers name was divided. The advertising acquired the new time honoured slogan name "A Diamond is Forever", in memory of the Forevermark, while the De Beers' original name remained only for LVMH luxury brand. As reported in the De Beers/LVMH merger procedure:

De Beers has developed a dual- branded strategy. The new company formed with LVMH is aimed at developing a retail strategy for the De Beers brand based on the De Beers name, which has a very strong consumer awareness and credibility. The DTC, the sales and marketing arm of De Beers, will use the Forevermark icon and Diamond is Forever in its generic advertising campaign. [74]

The joint venture was named De Beers LV, which has exclusive worldwide rights for the luxury goods branded De Beers. As first stage, it opened stores in London, New York and Tokyo: in few years the venture invested in 150 stores all around the world since the company was mainly concentrated on marketing to direct consumers.

De Beers' mining companies and the DTC remained independent from the De Beers LV. De Beers LV indeed bought its polished diamonds from sight holders or other sources and not rough stone from its mines. In this way the new company cut the connection between the production and the selling side. The management on operational envelopment of De Beers LV was all in the hand of the LVMH.

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[74] *Case No COMP/M.2333 De Beers/LVMH, REGULATION (EEC) No 4064/89 MERGER PROCEDURE*, p.9. http://ec.europa.eu/competition/mergers/cases/decisions/m2333_en.pdf

Actually this distinction and separation of the new venture were made also for legal purposes: De Beers was already sued for several lawsuits in the US mainly derived from 1990s, when the company used to rule the diamond trade market.

The De Beers, together with the new entity, decided to settle a significant lawsuit for antitrust violation in the diamond market sale. In the following year the company faced a class action due to the high diamond price fixed in the industry.

In 2006, the venture became the new De Beers Diamond Jewellers. Among the many changes De Beers had to face, the company had to reposition itself as a good corporate citizen. In the eyes of consumers, the branding strategy was indeed less important than its corporate responsibility. In 2001 De Beers introduced the ethical business standards for its sight holders and itself, called BPP:

To ensure that the journey from mine to finger meets the highest ethical standards, we have a mandatory, third party assured, code of ethical business conduct – the Best Practice Principles Assurance Programme (BPPs) – that applies not only to our own operations, but also to our Sight holders, contractors and suppliers[75].

Diamonds have always symbolized milestones in every people's lives; everything is thus linked to their emotional importance. Consumers rely on and believe in the brand they choose to inform and help them in the best decision. In order to do so, the company had to be fare about the quality of the stone and must use the highest professional and ethical standards. Sight holders as well have to meet same expectations.

In order to gain reliability, De Beers had to deal with two diamond industry problems: the diamond conflict, and so the origin of the stone, and the treatment's threat. The Blood Diamond Conflict became public in 1990s. Angola and Sierra Leone mines were trading diamonds in charge of arms, causing human sufferings and wars. Corrupted regimes were indeed profiting from the gems industry and were cancelling away every romance allure from the stone. The industry response to that was a process called the Kimberley Process (KP), an agreement signed in 2003 by fifty-three nations. Every nation promised and assured that any diamond crossing borders had to carry KP certificates insuring any involvement in the conflict and so their legitimate use. In 2007 the number of nations increased to seventy-four, even if EU and US adopted separate but equal strict measures.

[75] *Ethics, Report to Society* 2010, p.35. https://www.debeersgroup.com/content/dam/de-beers/corporate/documents/Archive%20Reports/RTS10_Ethics_June_2011.PDF

The other big issue for the diamond industry was the treatments threat. Treatments became an acute problem in 1990, when the permanent and irreversible diamond colouring was revealed. Irradiation and HPHT treatments are the colour enhancement methods that in recent years have been applied to change the colour of natural diamonds as well as laboratory created diamonds.[76] In order to remain the frontrunner, De Beers invested only in natural diamonds, receiving from the BPP a leadership position in disclosing and detecting treatments of all kinds. In addition De Beers worked very hard to assure free treatment diamonds purchase to its consumers.

In 2007,De Beers corrected its BPP to incorporate both the KP (with strict trading disclosures, including human rights and money laundering to fund terrorist activities), and disclosure practises for stone treatments:

To support ethical standards more broadly we work with sectoral initiatives such as the Responsible Jewellery Council, and comply with and promote the Kimberley Process and the Extractive Industries Transparency Initiative protocols. Together, these initiatives assure the provenance of our diamonds and facilitate the responsible distribution of the revenues our business generates in producer countries.[77]

[76] Sharon Ferber, *Diamond Color Treatments and identification*, http://www.gci-gem.com/pdf/diamond%20color%20treatments%20and%20identification.pdf
[77] *Ethics, Report to Society 2010*, p.35.

CHAPTER 3: FINANCIAL STRUCTURES AND PROFITABILITY IN THE DIAMOND INDUSTRY

3.1 FINANCIAL SOURCES CHOICE

Corporations have to make daily investment decisions while calculating and estimating the approximate value of those investments. Firms also have to decide how to finance themselves, according to their financial sources choices. Usually corporations invest in long-term assets, like property plan, equipment and in net working capital. There are mainly two alternatives – the internal and the external one - in investment funding, which however are both made inside the company: indeed "the choice of internal versus external financing is endogenous"[78]. The main difference between internal and external investments is that the first one has limited flexibility but high control, while with the second companies have flexibility, but they must give up control in order to access it. Usually managers prefer internal funds because of the avoidance of the risk and all the costs related to stock issuance.

Providing internal finance to be engaged in business activities means using cash generated internally: it is possible to take advantage of the existing supply of capital, namely the cash flow from depreciation or from retained earnings. Shareholders are happy to plowback cash to the firm, if those investments increase shareholder value. This happens only when "it involves undertaking positive Net Present Value investments"[79]. However, one problem with the use of internal funds can be a lack of flexibility and decreased capital, which means that a company may result vulnerable if it suddenly needs cash and none is available.

On the contrary, external finance involves the use of money, which does not belong to the company: they come from outside sources to fund planned activities. External finance requires either going into debt or giving up control through equity. Sources of external funding can be limited if a company does not seem like a good investment prospect or appears to be a poor credit risk. This can limit opportunities for external finance, as a company might not be willing to pay high interest or take other trade-offs to access capital.

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[78] W. Park, *Internal Versus External Equity Funding Sources and Earnings Response Coefficients*, March 2000, p. 4. https://tippie.uiowa.edu/accounting/mcgladrey/workingpapers/00-02.pdf
[79] Roman Inderst and Holger M. Muller, *Internal versus External Financing: An Optimal Contracting Approach*, The Journal of Finance, June 2003, p. 1034, http://people.stern.nyu.edu/hmueller/papers/bund.pdf

Debt is one of the most important sources of external financing. The company decision regarding the amount of money borrowed from the outside is called debt policy. When companies borrow money, they promise to make regular interest payments and to repay the principal. However, this liability is limited, therefore shareholders have the right to default on the debt if they are willing to hand over the corporation's assets to the lenders. They will decide to do so only if the value of the assets is less than the amount of the debt. Lenders are not owners of the firms so they do not have voting power. There is an almost endless variety of securities, but they primarily differ for maturity and interest rate, such as bank loans, notes, floating rate bonds, unsecured debentures, zero coupon bonds, commercial papers and money multiplier notes. Usually financial institutions (like pension funds, banks, insurance companies and mutual funds), own the majority of corporate debt, even if during the financial crisis those figures have weakened their key role.

Equity is the other source of external financing. Preferred stocks and common stocks are the main tools for the equity funding. Preferred stocks promise a fixed dividend, but if the board of directors decides to skip the dividends, holders of the preferred have no recourse. Common stocks are residual claim, which participate to the upsides and downsides of the company. The stockholder receives its earnings, with respect to the firms' assets, and cash flows that are left over after the firms' debts have been paid. Common stockholders own the corporation and have the right control. When a company decides to create stocks, ownership is divided and dispersed. For instance, companies with publicly traded shares are vulnerable to takeover: Frank Easterbrook and Daniel Fischel argue that "firms go public in easy to acquire form: no poison pill securities, no supermajority rules or staggered boards"[80].

One of the main differences between debt and equity deals with taxes: tax authorities treat interest payments as a cost and therefore the company can deduct interests when calculating its taxable income. For this reason, according to Miller "the value of the firm can be increased by the use of debt since interest payments can be deducted from taxable corporate income"[81]. Interest is paid from pre-tax income, whereas dividends and earnings come from after-tax income. Preferred dividends are not tax-deductible: this is one reason why preferred stock is a less important source of financing than debt. Another difference deals with the value of the investment.

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[80] Frank H. Easterbrook, Daniel R. Fischel, *The Economic Structure of Corporate Law*, Harvard University Press, 1996 Boston (MA) USA, p. 205.
[81] Merton H. Miller, Bruce D. Grundy, *A Celebration of Markets*, vol.1., University of Chicago Press, 2002, Chicago (IL), p. 92.

According to Myers:

firms with risky debt have an incentive to underinvest in value-increasing projects. This occurs because shareholders, who control the investment decision, bear the entire cost of the projects but only receive a fraction of the increase in firm value – part of it is shared with the debt holders. Since the cost of the underinvestment problem increases with a firm's growth opportunities, firms with good growth opportunities have an incentive to finance their operations with equity rather than debt.[82]

For a manager the hardest decision is to find a combination of debt and equity that may maximize the market value of the firm. According to Modigliani and Miller (MM) the firm overall value is independent from its capital structure. MM studied the double effect the borrowing decision has on a firm value. High rates of borrowing increase the expected rate of return on shareholders' investments, but the higher risk related to it cause a decrease in the expected rate, perfectly offsetting the final outcome. MM in the book "Cost of capital, corporation finance and the theory of investment" stated that:

given this assumption, the theorist has concluded that the cost of capital to the owners of a firm is simply the rate of interest on bonds; and has derived the familiar proposition that the firm, acting rationally, mill tend to push investment to the point where the marginal yield on physical assets is equal to the market rate of interest. This proposition can be shown to follow from either of two criteria of rational decision-making which are equivalent under certainty, namely the maximization of profits and the maximization of market value. According to the first criterion, a physical asset is worth acquiring if it will increase the net profit of the owners of the firm. But net profit will increase only if the expected rate of return, or yield, of the asset exceeds the rate of interest. According to the second criterion, an asset is worth acquiring if it increases the value of the owners' equity, i.e., if it adds more to the market value of the firm than the costs of acquisition. But what the asset adds is given by capitalizing the stream it generates at the market rate of interest, and this capitalized value will exceed its cost if and only if the yield of the asset exceeds the rate of interest. Note that, under either formulation, the cost of capital is equal to the rate of interest on bonds, regardless of whether the funds are acquired through debt

[82] Stewart C. Myers, *Determinants of Corporate Borrowing*, Sloan School, M.I.T., Cambridge, MA, October 1976, revised version received July 1977, p.174.

instruments or through new issues of common stock. Indeed, in a world of sure returns, the distinction between debt and equity funds reduces largely to one of terminology.[83]

MM theory states that it does not work just for debt-equity trade-off, but also more generally between long-term and short-term debts. The offset result works for any financial instruments. The assumption of the perfect capital markets lays down the basis for the formal proof of the MM proposition 1. According to that theory, also the overall cost of capital is the same regardless the mix of securities issued to finance the firm. The overall cost of capital, also Weighted Average Cost of capital (WACC) is the expected rate of return on a portfolio of all the firm's outstanding securities. MM finds out some complications regarding the independence of the WACC from the capital structure, such as taxes. MM proposition 2, state that the expected rate of return on the common stock of a levered firm increases in proportion to debt-equity ratio, expressed in market values. This proposition works under same assumptions: no taxes, no bankruptcy costs, no asymmetric information, all rational agents and efficient market conditions.

However there are consultants who provide different advices for companies that are not sure about which one would be the most appropriate or effective way of financing. Their role is usually the review of financial documentation and the plan activity in order to offer balanced advice. Some maybe too small firms decide to keep funding internal. On the contrary, big firms indeed may decide to benefit from external sources of capital: in this way they would not be at risk from the increased debt or loss of control.

Nevertheless, despite the consultants' advice, a firm has to take in consideration that there are both pros and cons of going public.

83 Franco Modigliani and Merton H. Miller, *Cost of Capital, Corporation Finance and the Theory of Investment*, The American Econimic Review, Vol.48, June 1958 , the p. 261-262.

3.1.1 PROS OF GOING PUBLIC

As reported by the London Stock Exchange on the article "A practical guide to listing"[84], the main benefits of going public are:

1. Access to capital for growth

Generally, the main reason for a company to float on the market is the need of a capital to invest. Therefore the first and immediate benefit of going public is the certainty to gain a direct access to capital, which can be used for the company's growth. Indeed the opportunity of raising equity finance is guaranteed both during the initial listing and at a later stage with further capital-raisings.

2. Providing a market for the company's shares

The external agreed price of the stock creates liquidity in the shares and give shareholders the chance to decide the value of their holdings. In addition it enables existing investors (venture capitalists or owners) to leave the stock market either on floating or on subsequent moment.

3. Employee commitment

A public market boosts employees' commitment by rewarding them with something of clear value. If the company is private, it can be hard for employees holding shares or options to understand their real value, since there is no objective market valuation or ability to buy or sell shares. On the contrary, when the company is traded in the stock market, the value of shares held by employees is crystal clear, so they are able to see exactly what those parts are worth.

4. Ability to take advantage of acquisition opportunities

For a company being listed in the stock exchange means gaining control over a considerable capital and receiving an issue paper, which on the market has the same value of an acquisition currency: " [it] provides access to an acquisition currency and transparency around the value

[84] http://www.londonstockexchange.com/companies-and-advisors/listing/float/practical-guide-to-listing.pdf

of the business"[85]. These two elements allow companies to have enough potential to acquire either private or quoted companies.

5. Higher public profile

A company that floats on the market inevitably receives attention by the press and analysts, drafting economic and financial reports. In this way, the company outline becomes more high-profiled: its awareness and products are enhanced. Consequently, it is easier to attract board members of a certain level and to keep the shares desirable.

6. Reassurance for customers and suppliers:

Before entering in the stock market, all the companies have to undergo a rigorous process of evaluation of their balances. Afterwards, they receive a regulatory approval, which lend them a high level financial profile. As a consequence, the company results more reliable and it gains credibility. For this reasons the company has better relationships with customers and so higher valuations from investors. The possibility of default is thus less perceived.

7. Greater efficiency

The urgent necessity of reporting rigorous reports pushes the company to opt for high-quality methods of controlling management information, and to enhance the business productivity as a whole.

However, the decision of going public can have also drawbacks, which depend on different business factors, such as managers, owners, prospects and operations. As a matter of fact, the decision of floating on the public market and raising money through the selling of shares and stock (equity finance) is cheaper than finding economic support by banks (debt finance), as it can cause more risks in case of economic crisis. However, it is also a dangerous choice, since it can consequently lead to a loss of control to the detriment of the managers of the traded company.

[85] Guy Rigby, *The pros and cons of listing your business in the stock market*, Real Business, October 2011, http://realbusiness.co.uk/article/8131-the-pros-and-cons-of-listing-your-business-on-the-stock-market

3.1.2 CONS OF GOING PUBLIC

A company has to evaluate both sides of the medal when deciding whether going public or keeping its private asset. As said before, the sale of company shares entails the entrance of outsiders in the decisional table, which provokes a considerable loss of control to the detriment of the managers of the listed company. However, this is just one of the problems which are likely to happen to a firm when going public. Other downwards of entering in the open market are the following[86]:

1. Susceptibility to market conditions

Any kind of economic threat can affect the open market and all the companies floating on it. Indeed, despite its high profile, a good firm cannot control the consequences of market instability: its shares value may decrease, causing a loss in liquidity and a decrease of interest in costumers and investors.

2. Disclosure requirements and ongoing reporting

The request of rigorous disclosures obliges the companies to make a considerable investment as far as administration and management are concerned: for instance, they have to use the services of a nominated advisor in order to meet the rigid market expectations. And provide an ongoing reporting. Indeed they have to be sure to lean on reliable information systems.

3. Loss of privacy

The interests that press shows towards companies trading in the open market becomes a curse for a firm especially when business is not going well: a high-profiled company is always on the first page, therefore when a bad decision is taken, it just cannot be hidden. On the contrary, it provokes great resonance, and it can directly affect the company share value. However, the loss of privacy affects also the managers of the firms, since they lose the autonomy they enjoyed when the company was still private.

4. Costs and fees:

When going public, a company (especially a small one) has to consider that the costs of flotation may neutralize the benefits. As a matter of fact, a firm cannot underestimate the administrative costs required by the need of providing constant disclosures for a long amount of time: indeed the process of getting into the stock market can take months. Therefore, "the mounting financial, disclosure, and corporate governance costs of remaining public in today's

[86] Taken by London Stock Exchange, *A practical guide to listing*

regulatory environment, exacerbated by the Sarbanes-Oxley Act of 2002 […] are causing many companies to question the value of being public"[87].

5. Management time

As the flotation process requires a lot of time, a company can use up a considerable piece of its whole management time only to follow the procedure, while it could be invested in the actual run of the business.

[87] Marc Morgenstern, *Going private: a reasoned response to Sarbanes-Oxley?*, p.1 https://www.sec.gov/info/smallbus/pnealis.pdf

3.1.3 HALF PRIVATE AND HALF PUBLIC INTERNAL STRUCTURE

Another possibility for companies is the establishment of public-private partnerships (PPPs). This kind of financial structure has come out as an alternative way to take part in the economy.

There are three main factors which make this mixed kind of asset more efficient and more valuable than a mainly public or private one: firstly, the kind of ownership structure of the assets, which are needed to provide a certain service; secondly, the support from both sides during a business transaction; thirdly, the sharing of risks coming from a deal.

Therefore, the PPP can be considered an asset, which "combines the strong sides of both the public sector and the private sector"[88]. What all these features seem to guarantee is a doubled control over accountability, better efficiency, and a stronger relationship with investors and the other business players. However these partnerships have always been aroused suspects and suspicions.

As claimed by professor Graeme Hodge in his article *The Risky Business of Public-Private Partnerships*, "PPPs to date seem to have provided only limited opportunity for meaningful levels of transparency or public participation"[89], since the actual lack of disclosure in its administrative regulations develops an absence of clarity in how partnerships are arranged. "They are quite different in that private finance is used, they typically involve complex contractual arrangements and they also assume different governance and accountability arrangements"[90].

[88] Graeme A. Hodge, Carsten Greve, *The Challenge of Public-private Partnerships: Learning from International Experience,* p.2

[89] Graeme Hodge, *The Risky Business of Public-Private Partnerships,* in The Australian Journal of Public Administration, December 2004, p.9.

[90] Ibid., p. 46.

3.2 DE BEERS AND ITS MAIN COMPETITORS FINANCIAL CHOICES

In the diamond industry the financial choice is quite multi-coloured (cf. fig. 8). The main diamond industry drivers, De Beers and ALROSA, decided to adopt a half private and half public asset; on the contrary, Rio Tinto and BHP Billiton are listed, while Lev Leviev, as Endiama, decided to remain private.

Figure 8: Diamond industries financial structure choices[91]

- DE BEERS

In 2001 Nicholas Oppenheimer decided to purchase $17.6 billion of the De Beers. The Anglo American mining company, Debswana and the Oppenheimer family were the purchasing partners.

In the same year, Oppenheimer declared the De Beers Investment (DBI) the new consortium. The consortium brought about a big change by buying all the outstanding shares and taking the company private. The DBI shares were unequally divided among the three parties: the Oppenheimer family and the Anglo American Corporation together controlled the 45%, while the Debswana only a 10%. In addition in 2011:

Anglo American Plc. agreed to buy the Oppenheimer family's 40 percent stake in De Beers for $5.1 billion in cash, ending the dynasty's 80-year ownership in the world's largest diamond miner.

[91] http://www.bain.com/Images/PR_BAIN_REPORT_The_global_diamond_industry.pdf

The transaction will increase Anglo's holding in De Beers to as much as 85 percent [...]. The deal will add to underlying earnings in the first year of acquisition.[92]

- ALROSA

Alrosa, as the De Beers, decided to turn private in 2012. In that year, precisely on March 16th, the Alrosa Supervisory Board decided to meet in Moscow to prepare the probable privatization of Alrosa shares belonging to the Republic of Sakha and the Russian Federation. This is what was reported in the proposal:

When preparing a decision on the privatization of the shares of ALROSA being the federal property, first, the Government should take into account position of ALROSA's Supervisory Board that deems the compulsory retention of the controlling interest to be indispensable (the Russian Federation must retain 25%+1 share, and the Republic of Sakha (Yakutia) must retain 25%+1 share); and second, it should coordinate preparing privatization decisions with respect to ALROSA together with the Republic of Sakha (Yakutia), with due account for the factors as follows:

– OJSC ALROSA is a local economic mainstay, budget revenue generating and socially significant enterprise for the Republic of Sakha (Yakutia), and the complete withdrawal of the Russian Federation from ALROSA's authorized capital entails the risk of failure to guarantee the Company's continuing socially responsible policy;

– the complete withdrawal of the Russian Federation from ALROSA's authorized capital will result in the necessity to redeem the USD 1 billion Eurobonds placed in 2010 and mature in 2020 from their holders, which will deteriorate ALROSA's macroeconomic indicators, including the progress rate and completeness of the investment program;

- the Law of the Republic of Sakha (Yakutia) "On management and disposal of the shares issued by ALROSA being the state property of the Republic of Sakha (Yakutia)" stipulates for a restricted reduction of the participation interest of the Republic of Sakha (Yakutia) in the Company's authorized capital – the governmental bodies of the Republic must ensure that the Republic retains not less than 25 percent plus one (1) voting share of OJSC ALROSA as the state property[93]

The privatization was granted only thanks to the preservation of the control over

[92] http://www.bloomberg.com/news/articles/2011-11-04/anglo-american-agrees-to-buy-de-beers-oppenheimer-stake-for-5-1-billion

[93] http://eng.alrosa.ru/meeting-of-alrosa-supervisory-board-15/

Alrosa activities with the Russian Federation and the Republic of Sakha. In addition: "in terms of events and event dates, privatization of seven (7) percent of ALROSA's shares being the federal property, and privatization of seven (7) percent of ALROSA's shares being the property of the Republic of Sakha (Yakutia)"[94].

- BHP BILLITON

On 29 June 2001 was created the BHP Billiton Dual Listed Company. The merger of the BHP BILLITON Limited and the BHP Billiton Plc. created the company.

BHP Billiton Plc. is located in London while BHP Billiton Limited with the combined BHP Billiton Group is in Melbourne. A single management team rules the two companies. Moreover, BHP Billiton Plc. and BHP Billiton Limited have the same Board of Directors and both companies' shareholders have identical voting and economic rights. In the same year in BHP Billiton decided to list the BHP Billiton Limited in the Australian Security Exchange. BHP Billiton has also two American Depository Receipt listing on the New York Stock Exchange. The BHP Billiton Plc. has two different listings: the premium on the London Stock Exchange and the secondary on the Johannesburg Stock Exchange.

- RIO TINTO

Rio Tinto, similarly to BHP Billiton, operates with a dual listed company (DLC). Rio Tinto Plc. and the Rio Tinto Limited compose the DLC. The two companies are registered in different countries, the first one in England, while the second in Australia. The two companies are managed together with the same Board of Directors and their shareholders have the same voting and economic value.

The two companies operate in different markets. The Rio Tinto Plc. shares:

are in the London Stock Exchange with the shares trading through the Stock Exchange Electronic Trading Service (SETS) system. Rio Tinto plc American Depositary Receipts are listed on the New York Stock Exchange. Rio Tinto plc delisted from NYSE Euronext Paris with effect from 23 February 2012, and from NYSE Euronext Brussels with effect from 1 June 2014.
Rio Tinto plc discloses the number of shares in issue, the number of treasury shares and the

[94] Ibid.

number of publically owned shares, in its monthly Total Voting Right announcement.[95]

The Rio Tinto Limited shares are instead listed on the Australian Securities Exchange (ASX): "the ASX is the principal trading market for Rio Tinto Limited shares. The ASX is a national stock exchange with an automated trading system. As at 7 April 2015, there were 424,192,412 publicly held Rio Tinto Ltd shares on issue"[96].

- LEV LEVIEV

Lev Leviev is en example of private company. This company had decided not to go public and to have a total internal funding structure. Like this company, many others in the diamond industry took the same decision: more than a quarter-million retailers that sell jewellery to consumers around the world remain private.

3.2.1. DE BEERS vs. ITS MAIN COMPETITORS' PERFORMANCE

Although all the diamond industries reported a rapid growth long the last decades, yet the two leaders of the sector, ALROSA and De Beers, were the only one reaching the highest value in sales profitability indexes and in rough diamond sales.

There is not a unique reason beyond their winning positions. Nevertheless, it can be assumed that the factors that set the basis to become the best companies were either internal choices, or external factors.

- Internal choices

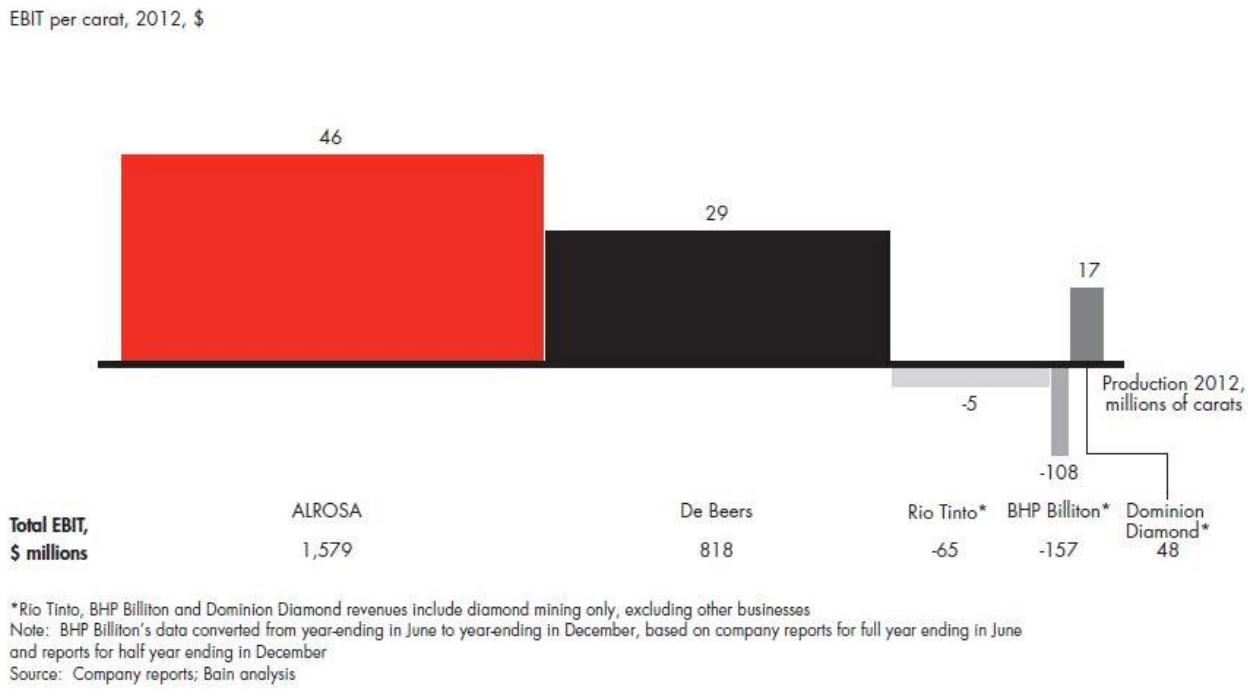
De Beers and ALROSA both have a public-private financial structure. Moreover both companies have their public part embedded in mines corporations, while the private one is mainly concerned with the manufacture process. This division between the parts made the decisional power internal and private, while the mining issues public, which had indeed diversified owners, because of the always-increasing need of funding.

Another internal factor is the decision of having long-term contracts with holders instead of stipulating contracts with always-different independent investors. In this way

[95] http://www.riotinto.com/investors/shareholder-structure-4942.aspx
[96] Ibid.

ALROSA and De Beers had the possibility to propose lower-priced products thanks to the long-term relationship with their holders and more stability in sales. Indeed, the reduced price obtained by the high amount of product and the massive number of loyal consumers gives the chance to "sell diamonds to the masses without them being perceived as a mass-market item"[97]. This can be also considered the reason why the two companies achieved the highest operating income, both in absolute value and in per carat: in 2012, ALROSA had an EBIT per carat of $46, De Beers had an EBIT per carat of $29, while Rio Tinto and BHP Billiton had a negative EBIT per carat, $-5 for the latter and $-108 for the former (cf. fig. 9). Therefore lowering costs results in a final higher profit.

Figure 9[98]



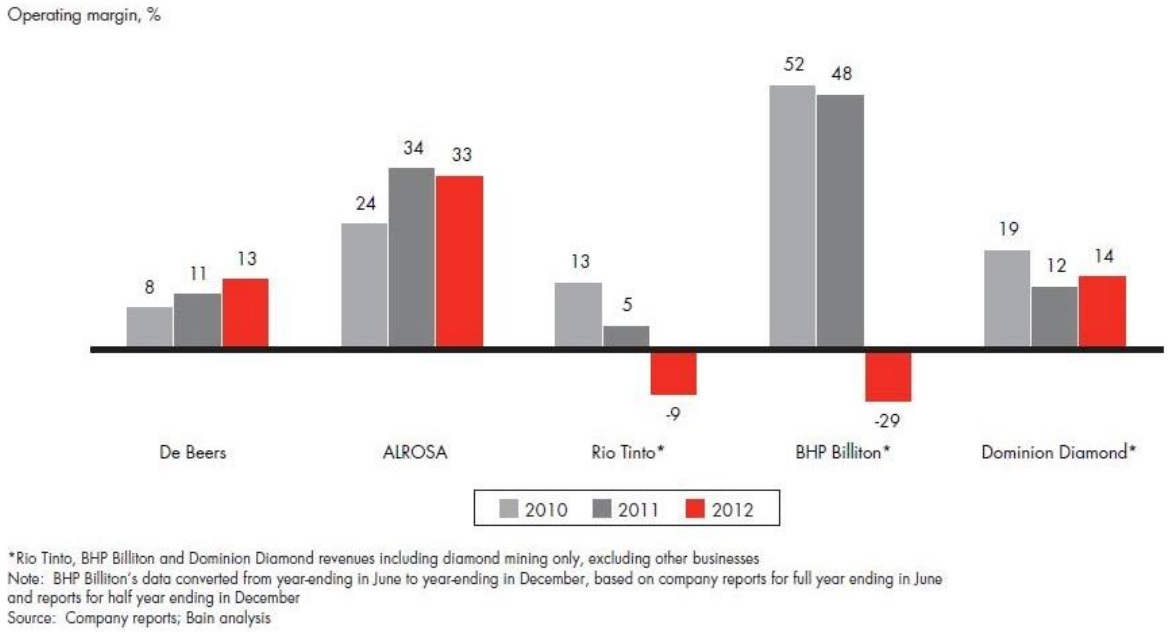
*Rio Tinto, BHP Billiton and Dominion Diamond revenues include diamond mining only, excluding other businesses
Note: BHP Billiton's data converted from year-ending in June to year-ending in December, based on company reports for full year ending in June and reports for half year ending in December
Source: Company reports; Bain analysis

[97]Debora L. Spar, *The Cooperative Edge: The Internal Politics of International Cartels*, Cornell University Press, Ithaca (NY) 1994, p.48.
[98] http://www.bain.com/Images/BAIN_REPORT_The_global_diamond_report_2013.pdf , p.11.

Another internal reason may derive again from the half private partnership: the decisional power is indeed more concentrated and the resolution is fastest and less costly.

In addition, differently from their competitors, ALROSA and De Beers have maintained their operating margin positive (cf. fig. 10). De Beers is the only company that from 2010 increased its operating margin, from 8% to 13% in 2012; ALROSA had a big rise between 2010 with 24% and 2011 with 34%, with a 1% decrease in the subsequent year. Rio Tinto recorded a drop from 13% to -8% in three years. In the same way, but with even worse numbers, also BHP Billiton had huge fall, from 52% operating margin in 2010 to -29%.

Figure 10[99]



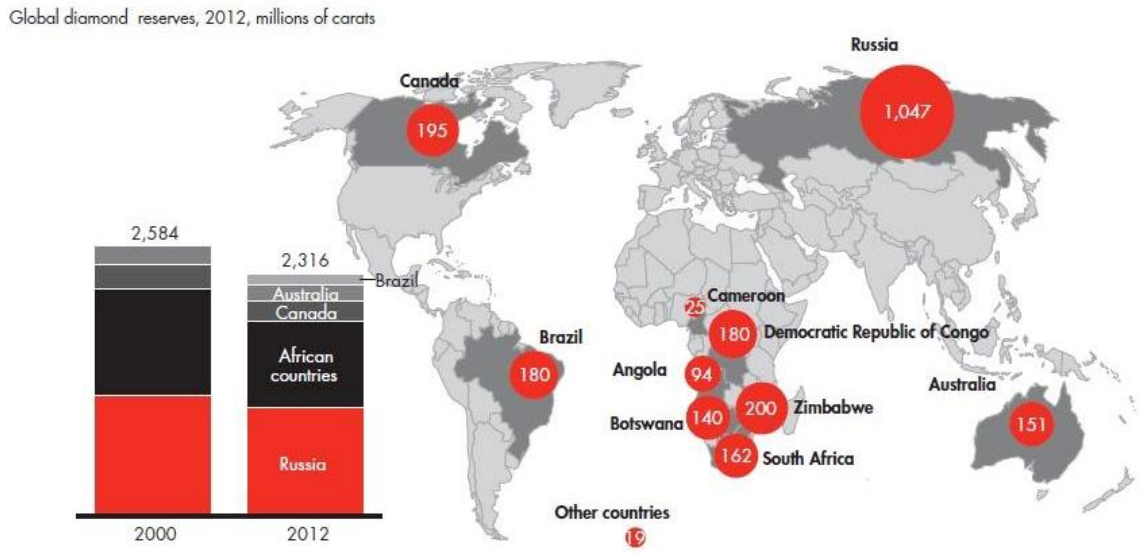
*Rio Tinto, BHP Billiton and Dominion Diamond revenues including diamond mining only, excluding other businesses
Note: BHP Billiton's data converted from year-ending in June to year-ending in December, based on company reports for full year ending in June and reports for half year ending in December
Source: Company reports; Bain analysis

[99] http://www.bain.com/Images/BAIN_REPORT_The_global_diamond_report_2013.pdf, p. 13

- External factor

An external factor that supported De Beers and ALROSA success may be that they both are the owners of the best mines in the world (cf. fig. 11). The production of Russia (ALROSA) and Africa (De Beers) surpass by a large amount the rest of the world mines quantity. The two companies have indeed more rough diamond supply with respect to Rio Tinto, which operates in Australia and BHP Billiton, which operates in Canada.

Figure 11[100]



Note: Data for Russian reserves is measured as Balance Reserves A+B+C1 in accordance with GKZ metrics (Russian standards); all other reserves are measured as Proven + Probable in accordance with international standardized system CRIRSCO; other countries include India, Venezuela, Sierra Leone, Liberia, Guinea and Lesotho
Source: Center "Mineral"; Bain analysis

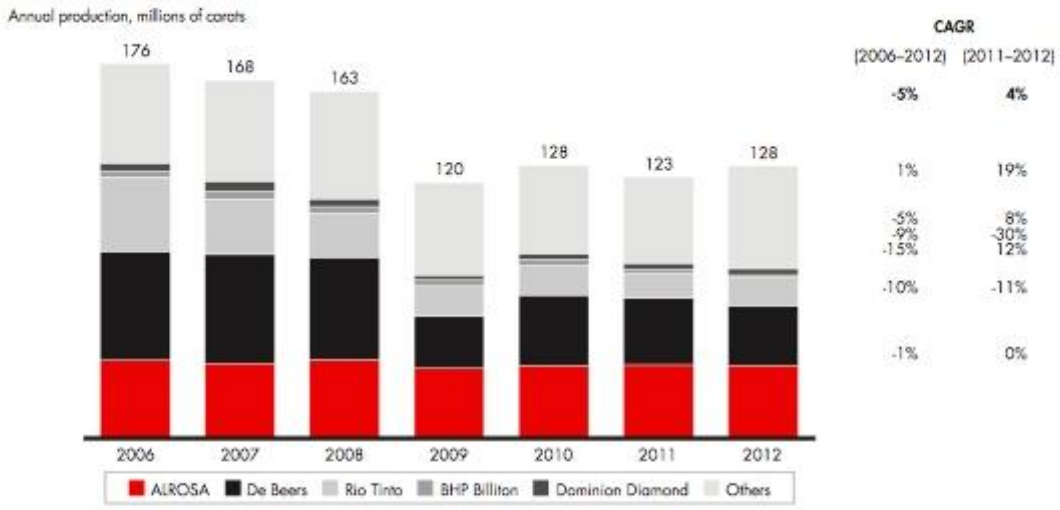
The De Beers has been the diamond industry leader since its birth. The new entrance of competitors weakened its market power but the company remained for many years the most profitable one.

It's decline started in 2009 when the ALROSA mine giant surpassed De Beers rough diamond sales (cf. fig. 12). In that year indeed, the ALROSA rough diamond production share increased from 23% to 27% surpassing the De Beers one, which recorded a loss of 10% in one-year time. The reason why this overcome happened is because ALROSA decided to drive its future growth through diamond mining, "with no plans to diversify into other natural

[100] Ibid.

resources or to expand its manufacturing business"[101]. De Beers instead had a strong focus on brand and so in polished diamond sales. ALROSA owns MIR mine, that is the "core of its portfolio and the world's largest diamond producer by volume"[102]. Because mining is the second profit pool, it is understandable why ALROSA reached so high margins.

Figure 12[103]



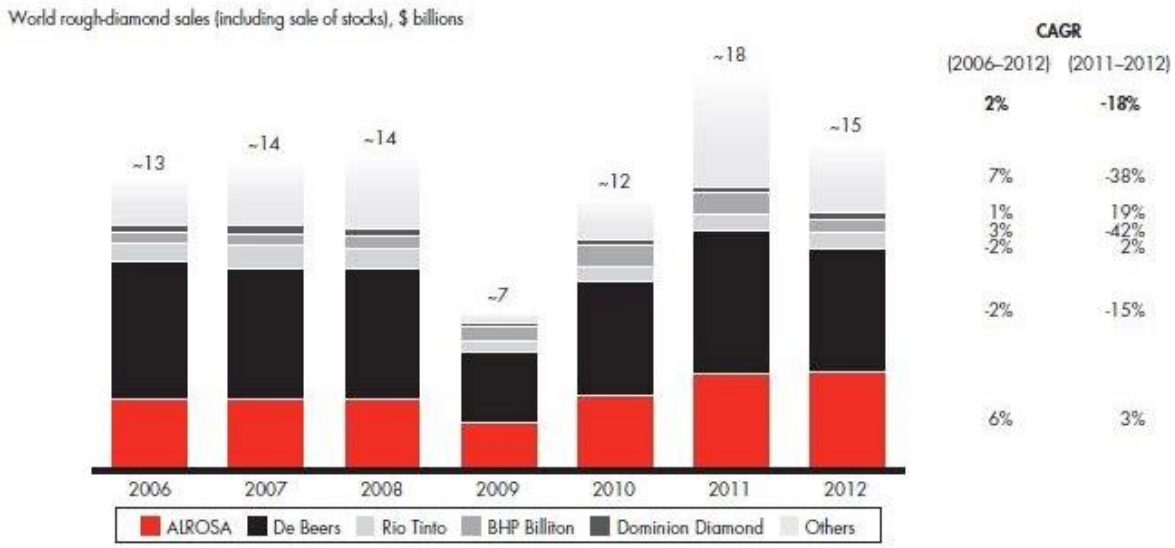
Annual rough-diamond production share, %							
	2006	2007	2008	2009	2010	2011	2012
ALROSA	21%	21%	23%	27%	27%	28%	27%
De Beers	29%	30%	30%	20%	26%	26%	22%
Rio Tinto	20%	15%	13%	12%	11%	10%	10%
BHP Billiton	1%	2%	2%	3%	2%	2%	1%
Dominion Diamond	2%	3%	2%	2%	2%	2%	2%
Others	27%	29%	32%	36%	32%	30%	38%

[101] http://www.bloomberg.com/news/articles/2013-10-02/biggest-diamond-miner-alrosa-set-for-over-1-billion-share-sale
[102] http://www.diamonds.net/Magazine/Article.aspx?ArticleID=43659&RDRIssueID=112

[103] http://www.bain.com/Images/BAIN_REPORT_The_global_diamond_report_2013.pdf, p.9.

De Beers' focus on the new millennium advertising campaign helped the company to maintain its leader position in polished diamond sales volume (cf. fig 13), even if other companies, in particular ALROSA, are rapidly catching up.

Figure 13[104]



Annual rough-diamond sales share, %							
	2006	2007	2008	2009	2010	2011	2012
ALROSA	24%	22%	22%	29%	27%	24%	30%
De Beers	47%	42%	42%	45%	41%	36%	37%
Rio Tinto	6%	7%	6%	6%	6%	4%	5%
BHP Billiton	4%	4%	4%	10%	8%	5%	4%
Dominion Diamond	3%	3%	2%	3%	2%	2%	2%

[104] http://www.bain.com/Images/BAIN_REPORT_The_global_diamond_report_2013.pdf, p.10.

Finally, it is quite hard to understand if the winning position of the two giants is totally correlated with their financial structure choices but, as the market suggests, the listed competitors, Rio Tinto and BHP Billiton, are actually far away from the profit index of the ALROSA and the De Beers. The reason of this considerable difference of profit between the diamond leaders and the other companies may be identified in the fact that the two listed companies are inevitably correlated to the markets ups and downs and because of this volatility not many investors are willing to buy stocks in them. In addition, thanks to the diversification of the ownership, a problem resolution may take too long due to the fragmentation of the decisional power. As a matter of fact in 2007 the financial crisis caused a significant drop in diamond stock demand, therefore Rio Tinto and BHP Billiton may have suffered a correlated decrease in their stocks right because of this reason.

3.2.2. DE BEERS vs. THE MARKET PROFITABILITY

The diamond industry is not composed only by the De Beers competitors but also by thousands of different retailers around the world. In order to better analyse the overall diamond market, I decided to choose a sample representing the other actors of the industry. The sample has European boundaries and is composed by 1037 companies from 24 different countries[105]. All these firms belong to the Very Large industry group, as far as the manufacture of jewellery and related articles are concerned.

The manufacturers of jewellery are not equally distributed among the countries. The highest concentration of producers is registered in Italy, with more than 200 actors, followed by United Kingdom, Russia, Germany, Spain, Switzerland and Belgium. Italy has been the most important centre for jewellery artificers for many decades: for this reason the highest number of retailers is located here. The remaining countries of the sample have a very low number of manufacturers (less than 20).

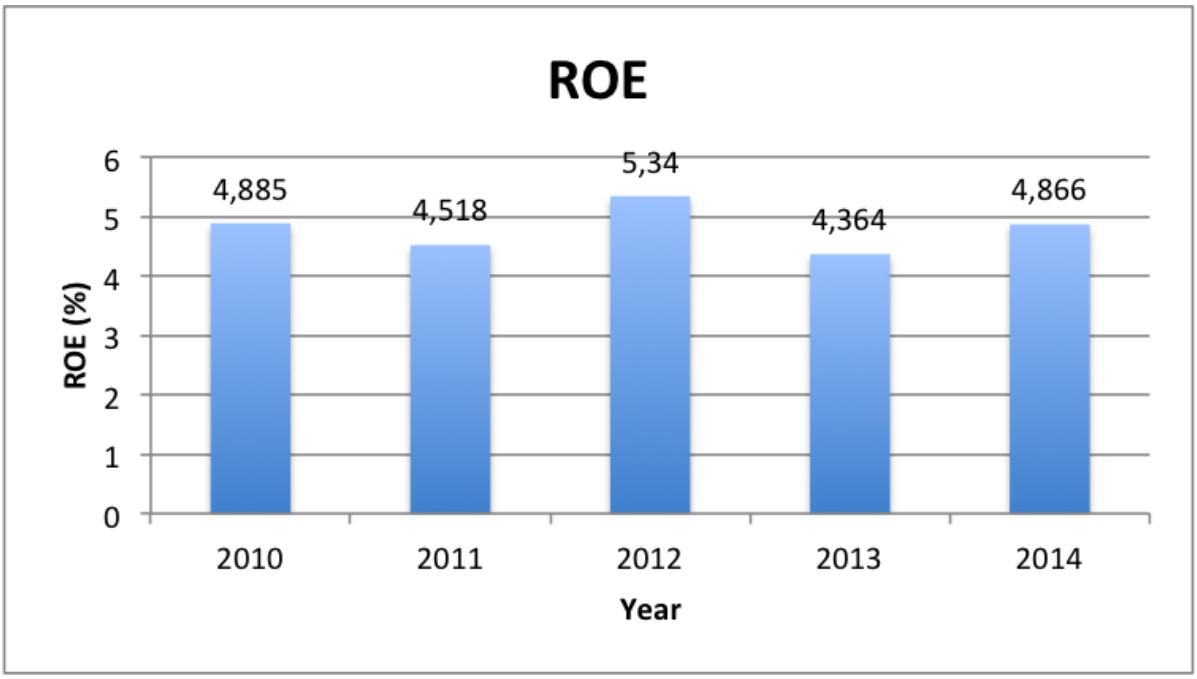
One of the most important factors emerging from this analysis is that on a sample of 1037 players, only less than 10 are listed, while the majority remains private. The reasons that lead companies to remain private can be various. Among them we can list: the requirements of disclosure that a company have to meet in order to be listed; the susceptibility to the floating of the market; the capital-intense nature of this sector, a feature that allows the players in the middle of the chain to easily obtain loans and mortgages because of the high value of their collateral. Indeed jewellery industry may use directly pieces of jewellery as collaterals, differently from the others markets. Issuing equity is thus a more complicated option to raise funds.

Furthermore, the fact that Very Large manufacture jewellery prefers to remain private contrasts with the De Beers decision of establishing a public-private company. With an analysis based on their performance indexes – Return on Equity (ROE), Return on Capital Employed (ROCE), Return on Assets (ROA) and Operating Cash Flow (OCF) – it is possible to understand the profitability of both the European diamond market and the De Beers one. In this way we cam suppose which one between the private and the public-public financial structure is more economically rewarding.

[105] Personal Excel sample taken from Amadeus, Search Strategy: Standard peer group 32121, Manufacture of Jewellery and related articles (Very Large).

- Return On Equity (ROE) is net income divided shareholders' equity, and shareholders' equity is assets less liabilities, namely what a firm owns, including its long and short-term debts. Therefore the highest debt a company has, the smallest equity it has, and so higher is its ROE. This data offers a useful signal of the financial success since it indicates if the company is increasing its profit without pouring new capital in the business. ROE of the diamond sector had a sharp decrease in 2011 but it reported a subsequent increase in 2012. In 2013 we recorded a drop but recovered in the following year. However, in the last five years the index remains almost the same: from 4,885% in 2010 to 4,866% in 2014[106] (cf. fig. 14). In the market analysed so far, the ratio is small, meaning that the Very Large sector of the diamond industry is not financed by debts. According to the performance index, the De Beers average of ROE in the last five years is around 9,623%[107], meaning that its performance is almost the double of the industry market as a whole.

Figure 14: Diamond industries sample ROE from 2010 to 2014[108]

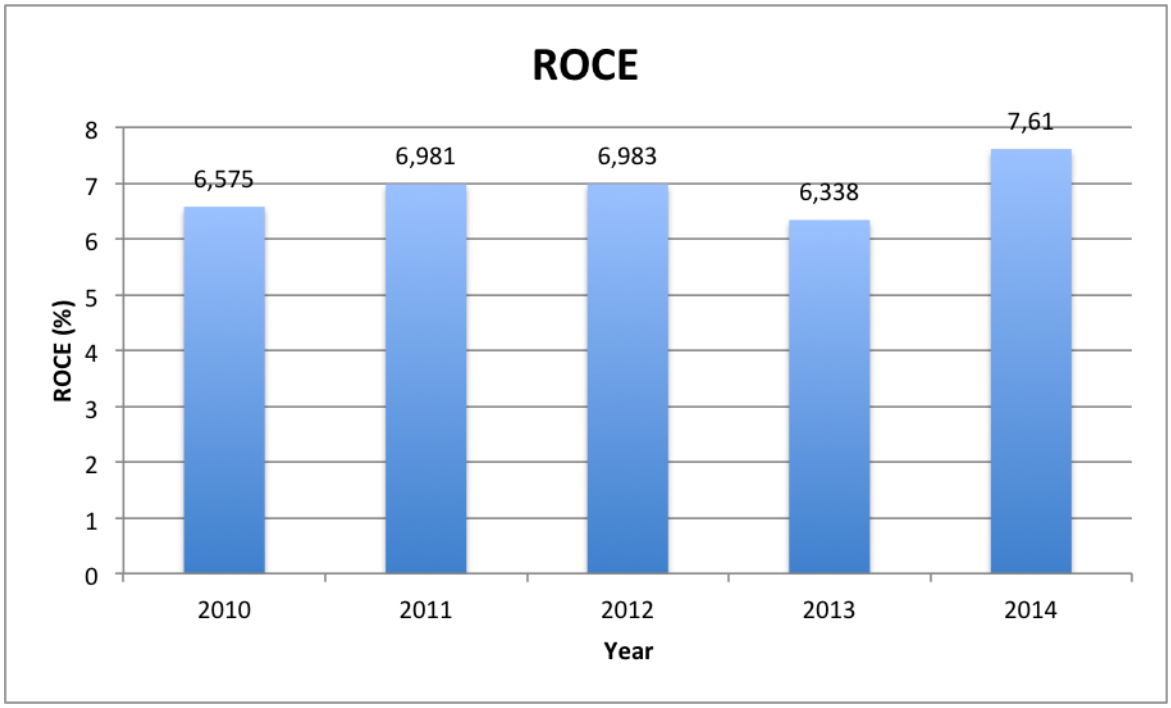


[106] Personal Excel sample analysis.
[107] http://www.debeersgroup.com/en/reports/library.html
[108] Personal Excel sample analysis.

- The Return On Capital Employed (ROCE) is the ratio between Earnings Before Interest and Taxes (EBIT) and capital employed. ROE indeed considers profits generated on shareholders' equity, while ROCE takes the average of opening and closing capital employed for the time period. For this reason, ROCE is one of the main tools used to measure how efficiently a company utilizes its available capital to generate additional profits. Higher ROCE means more efficient use of the capital. The diamond industry ROCE average is increasing over the last five years (cf. fig. 15). This may say that on average the capital employed is better used, probably because of the higher price of gold and diamonds.

  De Beers average ROCE in the last five years is on average 11,42%[109]. This value is higher than the rest of the market because the manufacturer jewellery sector is based on short-term contracts, while the company long-term contracts may decrease its costs and thus its capital employed. In this way the ratio rises, making the De Beers more efficient.

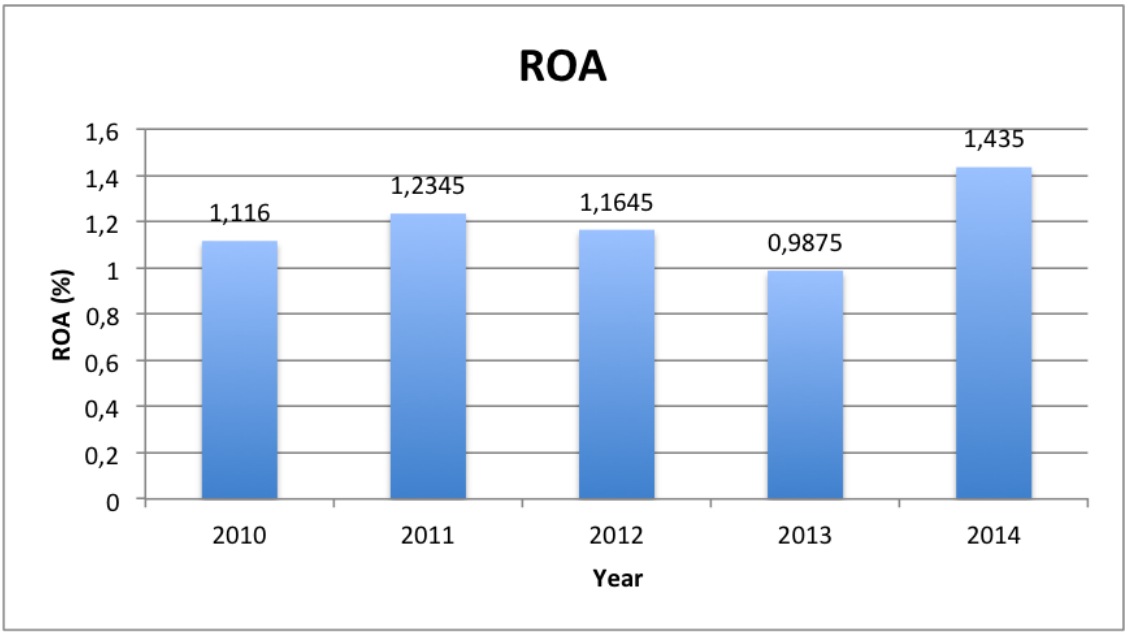
Figure 15: Diamond industries sample ROCE from 2010 to 2014[110]



[109] http://www.debeersgroup.com/en/reports/library.html
[110] Personal Excel sample analysis

- Return On Asset (ROA) is an indicator of how profitable a company is, relatively to its assets. The ratio is composed of net income divided by total assets. Net income is derived from the income statement of the company and it is the profit after taxes. The assets are read from the balance sheet and include cash and cash-equivalent items such as receivables, inventories, land, capital equipment as depreciated, and the value of intellectual property such as patents. This ratio shows the percentage of profit a company earns in relation to its overall resources. ROA gives an idea to investors of how efficiently managers are using their assets to generate earnings and how a company is converting the money that it has to invest in net income. The higher the ROA, the better the management. In our analysis ROA (cf. fig. 16) has on average a very low value, mainly because in capital-intense markets the ratio is usually smaller than the rest of the markets. The diamond market is totally composed by assets because even the product the manufacturer is willing to sell is an asset itself. This increases the total asset value, decreasing the ROA ratio.
  De Beers' average ROA in the last five years is much higher: 16,32%[111]. The reason of this big difference may be due to the public participation of the company. Many assets may be generated by the listed side of the company.

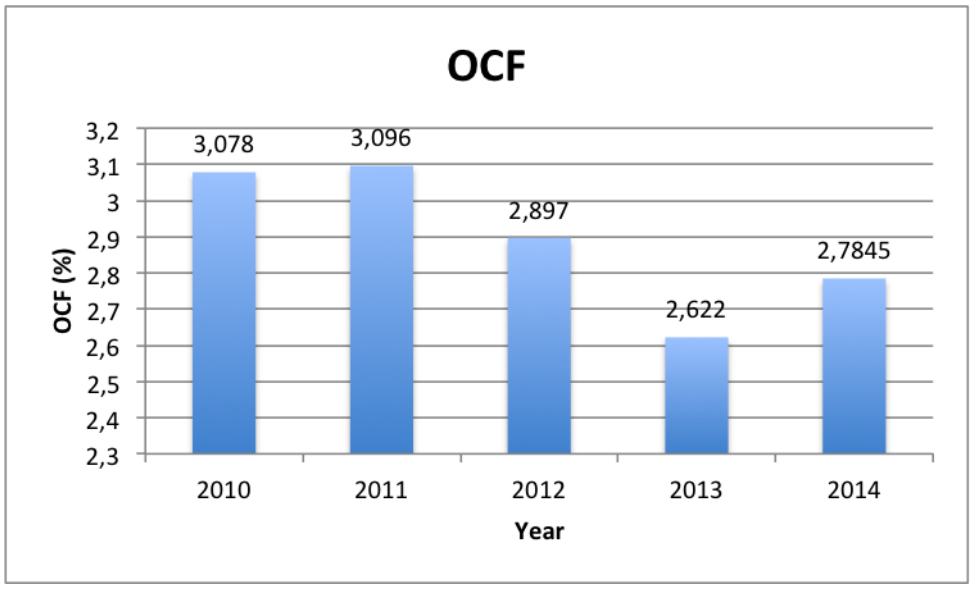
Figure 16: Diamond industries sample ROA from 2010 to 2014[112]



[111] http://www.debeersgroup.com/en/reports/library.html
[112] Personal Excel sample analysis

- Operating Cash Flow (OCF) ratio is another indicator of a company performance. The OCF is the ratio between Cash Flow and Operating Revenues. This index gives investors an impression of how the company is able to turn sales into cash. In addition it suggests how a firm is able to generate sufficient cash flow to invest in operations without the need of external funding. In the diamond industry the average of OCF is quite low. Probably market firms are always reinvesting what they earn because of the high capital-intense; therefore they have a low cash flow value. The OCF of the European diamond industry decreased from 3,078% to 2,7845%[113] in the last five years (cf. fig. 17). The De Beers OCF scored more than the double, 9,56%[114], meaning that the company could afford investments better than regular manufacturer actors.

Figure 17: Diamond industries sample OCF from 2010 to 2014[115]



Finally, the main difference between the overall figures in the diamond industry and the De Beers is intrinsic in the value chain. As a matter of fact, De Beers made all the steps internally, a strategy that allowed lowering prices and made the company achieve higher margins. In addition, the De Beers long-term relationship concerning both suppliers and consumers helps the profitability of the company. Indeed the key driver in the jewellery market is the trust of the costumers and the credibility of the company. Since the De Beers is

[113] Ibid.
[114] http://www.debeersgroup.com/en/reports/library.html
[115] Personal Excel sample analysis

not only the most well known corporation, but also the long lasting company in the diamond business, its suppliers and consumers decided to build long-relationships with it (cf. fig. 18-19).

Figure 18[116]

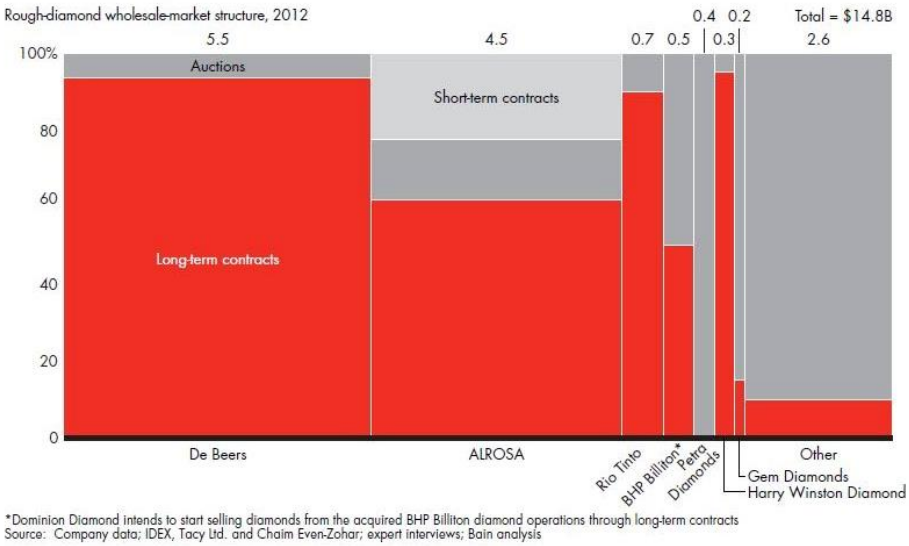
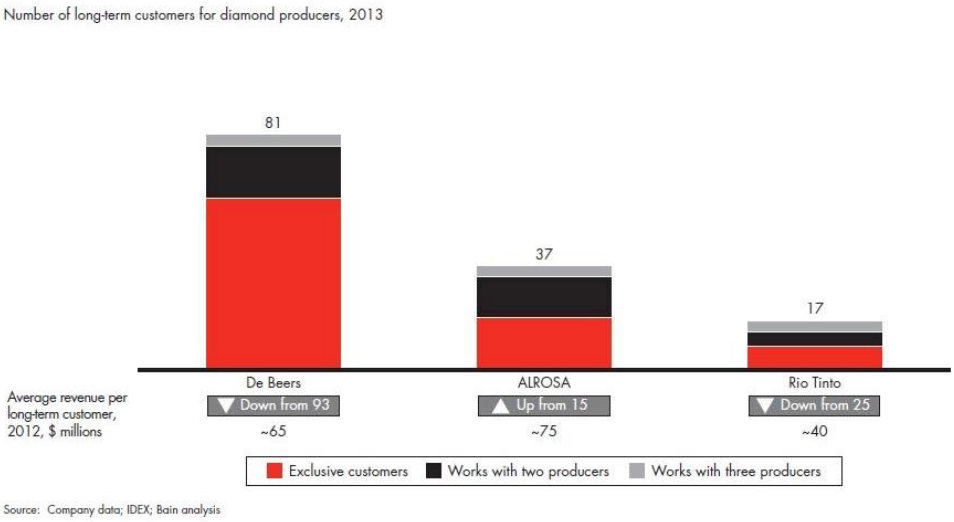


Figure 19[117]



116 http://www.bain.com/Images/BAIN_REPORT_The_global_diamond_report_2013.pdf, p.9.
117 Ibid.

CONCLUSION

The research has started with the aim of evaluating if the De Beers new financial structure could lead to profitable earnings and consequently to its recovery after the birth of the multi channel market.

By firstly examining the history of the De Beers, it was possible to study its strategic approach to the always-changing market along the last centuries. The company seemed to be reactive to the modern challenges and to have an innovative response to them. The De Beers scrupulous attention to the diamond industry and its main competitors brought it to be always informed and updated.

The new millennium asked for big changes in the company: costumer approach revolution (new marketing and advertising campaign), and internal financial structure rearrangement (half private and half public partnership). The most influencing one had been the internal reorganization, which represents the core argument of my analysis. Therefore two analysis based on profitability indexes were carried on, comparing the De Beers firstly to its competitors and secondly to the Very Large companies of the sample. The final outcome showed that De Beers occupies a privileged position in the diamond industry, keeping all the competitors at a certain distance. Indeed, even though the performance of the diamond industry in the last five years has been quite stable, the analysis of the companies' profitability clearly shows how the De Beers has been always reporting higher results than the other companies of the diamond industry. Therefore, it is possible to admit that its choice of becoming a half private and half public diamond company seems to be the best decision to be made.

The only relevant enemy remains ALROSA, namely the other diamond company with a private-public financial structure, which surpassed De Beers in 2009 in the rough diamond sales. Therefore, the financial rearrangement allowed the company to regain the lost ground and to reaffirm itself as one of the leader in the diamond industry.

Looking into its future, the De Beers has to focus on its weaker points in order to maintain its leading position with respect to ALROSA. The company has indeed to invest more in mines and natural resources. As a matter of fact, as stated by the head of the De Beers' media relations, Lynette Gould: "[it] is committing billions of dollars over the coming years to a number of investment projects. Leading the charge are its three flagship projects: in

Botswana and South Africa, where De Beers is extending two of its current mines, and in Canada, where it is developing a new mine.[118]"

It is possible to assume that thanks to this strategy the De Beers will be able to catch up with ALROSA, its main enemy, and maybe to reaffirm itself as the main leader also in the rough diamond sales.

[118] http://www.telegraph.co.uk/sponsored/business/business-reporter/11525574/investing-in-diamond-production.html

BIBLIOGRAPHY

Commission Decision elating to a proceeding pursuant to Article 82 of the EC Treaty and Article 54 of the EEA Agreement, Case COMP/B-2/38.381– De Beers, of 22 II 2006, p.2. http://ec.europa.eu/competition/antitrust/cases/dec_docs/38381/38381_1065_1.pdf

Il Diamante. Mito-magia-realtà, Arnoldo Mondadori ed., Milano 1981.
"Birth of the Modern Diamond Industry" in *Diamonds&Diamond Grading*, GIA ed., 2009.

London Stock Exchange, *A practical guide to listing*, in http://www.londonstockexchange.com/companies-and-advisors/listing/float/practical-guide-to-listing.pdf

"Sarbanes-Oxley Section 404" in *A Guide for Management by Internal Controls Practitioners,* The Institute of Internal Auditors, 2nd Edition, January 2008.

The Global Diamond Industry, Bain&Company ed., Antwerp from 2011 to 2014.

"The Modern Diamond Market" in *Diamonds&Diamond Grading*, GIA ed., 2009.

Alford Andrew W., *The Effect of the Set of Comparable Firms on the Accuracy of the Price-Earnings Valuation Method*, 1992.

Asness Clifford S., *Stocks versus bonds: Explaining the equity risk premium*, Financial Analysts Journal, Mar/Apr 2000.

Baker Wayne E., *The Social Structure of a National Securities Market*, The American Journal of Sociology, January 1984.

Barr Nicholas, *Economics of the Welfare State*, Oxford University Press, Oxford, United Kingdom, 2012.

Bates Rob, *De Beers launches Supplier of Choice II*, JCK magazine, March 2007, in http://www.jckonline.com/article/285374-De_Beers_Launches_Supplier_of_Choice_2.php

Benston George J., Hagerman Robert L.*, Determinants Of Bid-Asked Spreads in the over-the-counter*, Ziarret, Journal of Financial Economy.

Borelli Alessandro, Cipriani Curzio, , *Pietre preziose*, Arnoldo Mondadori ed., Milano 1984.

Campbell John Y., *Asset Pricing at the Millennium* , Harvard University Cambridge, Massachusetts , May 2000.

Campbell John Y., *Bond and stock returns in a simple exchange model*, Quarterly Journal of Economics 1986, 101(4).

Caves R. E.; Porter M. E. , *From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competition*, The Quarterly Journal of Economics, Vol. 91, No. 2. (May, 1977).

Cool Karel, Dierickx Ingemar, *Asset Stock Accumulation and Sustainability of Competitive Advantage***,** Fontainebleau, France, March 1987.

Cowell Alan, Rachel Swarns, L. *$17.6 Billion Deal to Make De Beers Private Company*, The New York Times, London February 16 2001, in http://www.nytimes.com/2001/02/16/business/17.6-billion-deal-to-make-de-beers-private-company.html

Easterbrook Frank H., Fischel Daniel R., The Economic Structure of Corporate Law, Harvard University Press, 1996 Boston (MA) USA.

Ellis Katrina, Michaely Roni and O'Hara Maureen, *When the Underwriter is the Market Maker: An Examination of Trading in the IPO Aftermarket*, June 1999.

Fama Eugene F., *Market Efficiency, Long-term Returns, and Behavioural Finance*, University of Chicago, Chicago, IL, USA, 17 March 1997.

Ferber Sharon, *Diamond Color Treatments and identification*, in http://www.gci-gem.com/pdf/diamond%20color%20treatments%20and%20identification.pdf

Gordon Christine, *Diamanti,* Tectum ed., Antwerp 2000.

Greve Carsten, Hodge Graeme A., The Challenge of Public-private Partnerships: Learning from International Experience.

Griliches Zvi ,*Market Value, R&D, and Patents*, 1984.

Grossman Sanford J. and Stiglitz Joseph E., *On the Impossibility of Informationally Efficient Markets*, June 1980.

Hagerman Robert L. and Benston George J., *Determinants Of Bid-Asked Spreads in the over-the-counter, Ziarret*.

Harris Lawrence and Hasbrouck Joel*, The SuperDOT Evidence on Order Submission Strategy*, February 1996.

Hodge Graeme, *The Risky Business of Public-Private Partnerships,* in The Australian Journal of Public Administration, December 2004.

Inderst Roman and Muller Holger M., *Internal versus External Financing: An Optimal Contracting Approach,* The Journal of Finance, June 2003, p. 1034, in http://people.stern.nyu.edu/hmueller/papers/bund.pdf

Kaplinsky Raphael, Morris Mike, *A Handbook for Value Chain Research*, September 2000, in http://www.bdsknowledge.org/dyn/bds/bds2search.details2?p_phase_id=395&p_lang=en&p_phase_type_id=1

Krugman Paul, *Scale Economies, Product Differentiation, and the Pattern of Trade*, The American Economic Review, Vol. 70, No. 5, (Dec., 1980).

Loring John, *Tiffany diamonds*, Harry N. Abrams ed., New York (NY) 2005.

Mansi Sattar A. Maxwell William F., Miller Darius P., *Does Auditor Quality and Tenur Matter do Investors? Evidence from the Bond Market*, The journal of accounting research, September 2004.

Miller Merton H., Grundy Bruce D., A Celebration of Markets, vol.1., University of Chicago Press, 2002, Chicago (IL).

Modigliani Franco and Miller Merton H., *Cost of Capital, Corporation Finance and the Theory of Investment*, The American Econimic Review, Vol.48, June 1958.

Morgenstern Marc, *Going private: a reasoned response to Sarbanes-Oxley?*, in https://www.sec.gov/info/smallbus/pnealis.pdf

Myers Stewart C., Determinants of Corporate Borrowing, Sloan School, M.I.T., Cambridge, MA, October 1976, revised version received July 1977.

Ohlson James A., *Earnings, book values, and dividends in equity valuation*, Contemporary Accounting Research; Spring 1995.

Okuguchi Kogi, *The Theory of Oligopoly with Multi-Product Firms*, Spinger-Verlag Berlin Heidelberg, 1990.

Olweny Tobias, *The Reliability of Dividend Discount Model in Valuation of Common Stock at the Nairobi Stock Exchange*, International Journal of Business and Social Science, April 2011.

Park Chul W., *Internal Versus External Equity Funding Sources and Earnings Response Coefficients*, March 2000, in https://tippie.uiowa.edu/accounting/mcgladrey/workingpapers/00-02.pdf

Pettway Richard H. and Bhabra Harjeet S., *IPO Prospectus Information and Subsequent Performance*, Concordia University and University of Missouri-Columbia, October 2000.

Porter Michael, *De Beers: addressing the new competitiveness challenge*, in https://services.hbsp.harvard.edu/services/proxy/content/36441602/36477715/50f495cb90be8030c881c17c26176ba1

Rigby Guy, *The pros and cons of listing your business in the stock market*, Real Business, October 2011, in http://realbusiness.co.uk/article/8131-the-pros-and-cons-of-listing-your-business-on-the-stock-market.

Robyn Ellison, *Diamonds are for everyone*, Mines to Market, Issue 1, http://m2m.riotinto.com/article/diamonds-are-everyone

Seyhun H. Nejat, *Overreaction or Fundamentals: Some Lessons from Insiders' Response to the Crash of 1987*, Vol. 45, No. 5 (Dec., 1990).

Shiller Robert J., *Speculative Prices and Popular Models*, The Journal Of Economic Perspectives, Vol. 4, 1990.

Shor Russel, *A Review of the political and forces shaping today's diamond industry*, Gems&Gemmolgy, Fall 2005.

Song Shin Hyun, *Optimal Bedding Odds Against Inside Traders*, The Economic Journal, September 1991.

Spar Debora L., The Cooperative Edge: The Internal Politics of International Cartels, Cornell University Press, Ithaca (NY) 1994.

Stigler G.J., *Public Regulation of the Securities Market*, Journal of Business, 1964, issue n.37.
Von Mises Ludwig, *Human Action* , Yale University Press, 1963.

Weldon Robert, *Lev Leviev Angolan Connection*, Professional Jeweller Magazine, February 2002, in http://www.professionaljeweler.com/archives/articles/2002/feb02/0202dn1.html

Xu Hong, Jin Jin, *A Secondary Market for Spectrum*, University of Toronto, March 2010.

Zancanella Raffaele, *Il diamante. Manuale pratico*, Istituto Gemmologico Italiano ed., Varese 1980.

SITOGRAPHY

http://www.bain.com/Images/PR_BAIN_REPORT_The_global_diamond_industry.pdf

http://www.bloomberg.com/news/articles/2011-11-04/anglo-american-agrees-to-buy-de-beers-oppenheimer-stake-for-5-1-billion

http://eng.alrosa.ru/meeting-of-alrosa-supervisory-board-15/

http://www.riotinto.com/investors/shareholder-structure-4942.aspx

http://www.bloomberg.com/news/articles/2013-10-02/biggest-diamond-miner-alrosa-set-for-over-1-billion-share-sale

http://www.diamonds.net/Magazine/Article.aspx?ArticleID=43659&RDRIssueID=112

http://www.debeersgroup.com/en/reports/library.html

http://www.bain.com/publications/articles/global-diamond-report-2013.aspx

http://www.jennifermcveigh.com/for-readers-book-clubs/history

http://www.riotinto.com/documents/MediaSpeeches/RTDM_consolidated_presentations_final.pdf

http://www.wsj.com/articles/SB984931118144036379

http://www.infomine.com/news/xmlnews/welcome.asp?newsXML=MJ093.xml

http://www.diamonds.net/News/NewsItem.aspx?ArticleID=47233&ArticleTitle=De+Beers+to+Unveil+Sightholder+Requirements+in+July

http://ec.europa.eu/competition/mergers/cases/decisions/m2333_en.pdf

https://www.debeersgroup.com/content/dam/de-beers/corporate/documents/Archive%20Reports/RTS10_Ethics_June_2011.PDF