COLUMBIA BUSINESS SCHOOL

The Global Diamond Industry

So-Young Chang MBA ’02

Amanda Heron MBA ’03

John Kwon MIA ’02
Columbia University School of International and Public Affairs

Geoff Maxwell MBA ’02

Lodovico Rocca MBA ’02

Orestes Tarajano MBA ’02

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1. Introduction

This paper focuses on the global jewelry and investment diamond industry. We will begin with a brief overview of the industry, followed by an analysis of the industry structure and key issues facing the industry, including the creation of diamonds as a luxury product, the controversial issue of ‘conflict diamonds’ and threats to the rough-diamond cartel. Finally, we conclude by looking at the future of De Beers, the global monopoly that is synonymous with the diamond trade, touching on its branding, business prospects and the challenges it faces going forward.

1.1. History

Until 1870, diamonds were a scarce resource, found only in river beds in India and Brazil, whose elevated price was justified by the fact that only a few pounds of gemstones were produced each year. The discovery of the first diamond mine near the Orange River in South Africa, however, resulted in a deluge of diamonds on the market, prompting the mine’s British investors to quickly realize that their investment was in danger.

The intrinsic value of diamonds results only from their physical properties, which make them suitable for industrial applications, though this value has been capped by the development of synthetic diamonds that can act as substitutes. In the absence of scarcity, natural diamonds would become no more than another semiprecious gem. Realizing the need to control supply, early investors in the industry, led by Sir Ernest Oppenheimer, formed De Beers Consolidated Mines to control supply. By the 1990s, the supply chain had evolved into four stages, two of which are dominated by De Beers as a monopsony controlling the buying of raw diamonds, while the final stages are also strongly influenced by De Beers as the dominant seller:

- Mine Production (46 percent controlled by De Beers)
- Rough Diamond Distribution (80 to 85 percent controlled by De Beers)
- Preparation/Cutting
- Retail Markets

Since the 1960s, De Beers has been subject to antitrust charges, led by the U.S. Justice Department that it has chosen not to answer in court. As a result, it is prohibited from conducting business in the United States, ironically the largest retail market for the end products it helps to create.

Figure 3 illustrates the structure of the jewelry diamond industry post the 2000 reorganization of the De Beers group of companies. Notably, De Beers—through the Diamond Trading Company—uses a range of different mechanisms to obtain control of diamond supply, including control of its own production but also the use of partnerships and contract purchases.

1.2. Market Segments

The diamond market is conventionally divided into three segments:

- Industrial Diamonds—natural and synthetic diamonds that are used in a wide range of manufacturing processes for their physical properties
- Jewelry Diamonds—rough diamonds cut for use as gemstones in jewelry
- Investment Diamonds—high-quality large gemstones, often with special characteristics, purchased for investment.

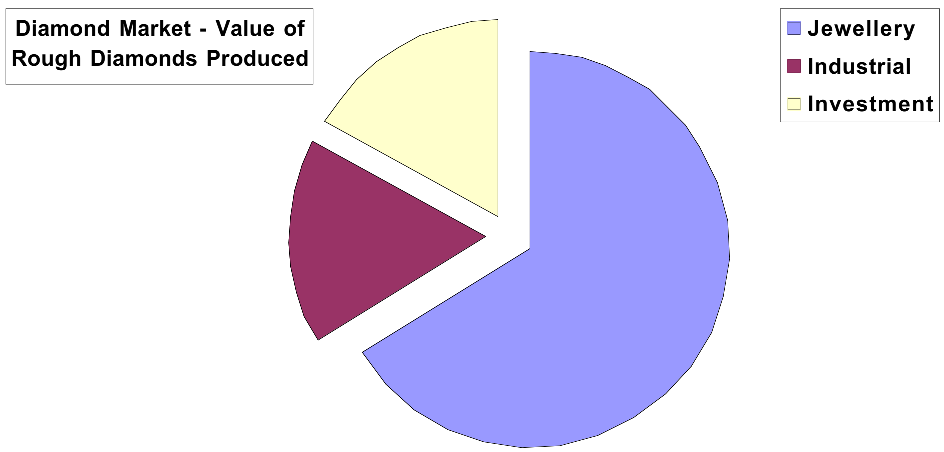

Figure 1. Value of Rough Diamond Market Segments

As the Jewelry and Investment segments together represent 83 percent of the value of rough diamonds produced, this report focuses on the value chain for Jewelry and Investment Diamonds, a chain that starts in diamond mines and results in a cut gemstone sold to a retail purchaser or an investor.

1.3. Producing Countries

Rough diamond production in 2000 by country is shown in Figure. Like many natural resources, most of the major sources of rough diamonds are located in developing countries. To illustrate the challenge of sourcing diamonds from these countries, it is helpful to look at a profile of Botswana, which accounts for more than 31 percent of global diamond production (Economist Intelligence Unit 2002):

- Produced 24.6 million carats of diamonds in 2000, one-third of world production
- 36 percent of the country's GDP comes from the diamond industry
- 82 percent of the value of the country's exports are diamonds

- 35.8 percent of Botswana's population is infected with HIV, the highest level anywhere in the world
- Ranked 114 out of 162 countries (UNDP 2001)

Sadly, despite large-scale diamond production since 1971, Botswana remains a devastatingly poor country. Agriculture, which used to be the mainstay of the economy, represented less than 3 percent of GDP in 2000.

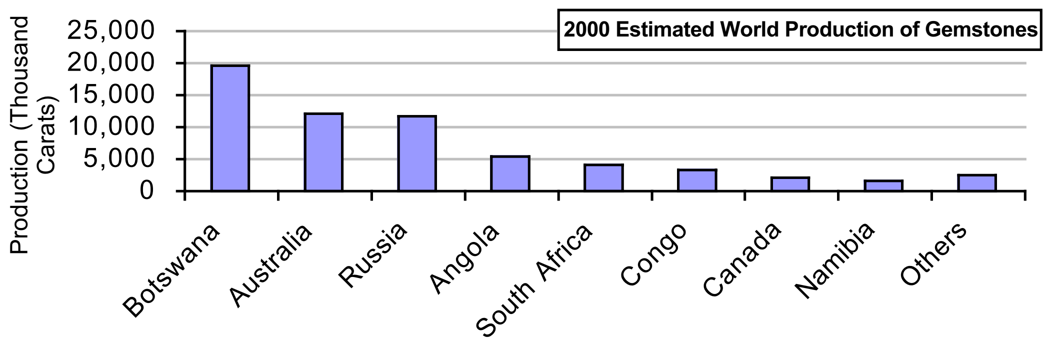

Figure 2. 2000 Estimated World Production of Gemstones by Country of Origin[1]

1.4. Global Demand for Diamonds

The strength in the rough diamond market continued through 2000, with De Beers's sales reaching a new record of $5.67 billion, an 8.2 percent increase compared to the previous record reached in 1999 (Barker 1999, 2). With some analysts predicting a potential supply shortfall in 2001, the outlook for diamond prices remained positive, particularly for larger and higher-quality gems. Overall, 2001 was a tough year for sales and profits, but it ended on a positive note with holiday sales better than last year's and much stronger than expected. As a result, De Beers sold $4.4bn (£3.1bn) worth of diamonds in 2001 (De Beers 2002). Also, buoyed by stronger than expected demand in the key U.S. market during the Christmas period, the outlook for rough diamonds was more optimistic for the beginning of 2002, with inventory at cutting centers dwindling.

The diamond industry began 2002 with, in effect, a great sense of relief. The fear generated by the 9/11 tragedy, combined with the U.S. recession and a large oversupply of goods throughout the diamond pipeline, threatened to diminish diamond demand and created very low expectations in the trade. The rebound seen in strong last-minute holiday sales during 2001 strengthened by discounting, however, had a beneficial impact on trade sentiment and outlook for 2002.

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[1] Source: STAT-USA.

The market seems to be returning to normal after a difficult period of uncertainty. De Beers's future prospects also depend on whether a $4bn supply deal with Russian monopoly diamond producer Alrosa is cleared by European competition watchdogs. The company said it has notified the European Commission of the Alrosa deal. A second alliance with French luxury goods group Moët Hennessy Louis Vuitton (LVMH), under which LVMH is to sell De Beers diamonds in select retail outlets, was cleared by the European Commission last year.

In 2002, the diamond industry is being provided with an opportunity to rebuild confidence and adapt to the new realities created by a slow but steady market. The restructuring of the diamond industry trade—with larger firms taking on increased market share, cutting out middlemen and a strong emphasis on downstream marketing initiatives—continues unabated. While the overall outlook for the 2002 is highly dependent on U.S. and Japanese macroeconomic performance, significant changes taking place in the diamond distribution system may also have a strong impact.

2. Industry Structure

2.1. Value Chain

The markup on a diamond increases exponentially as it moves down the value chain. For instance, in 1981 the $18 billion retail value of diamond sales dwarfed the $2 billion generated in sales of rough diamonds (Ariovich 1985, 234–40). The value chain for a typical 0.5 carat gemstone is shown in Figure 3:

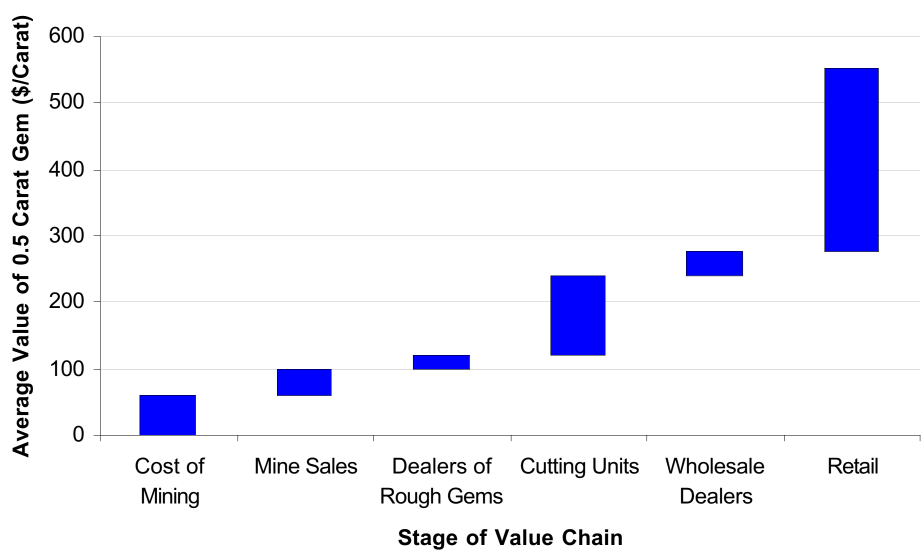


Figure 3. Price of a 0.5 Carat Gemstone along the Value Chain (Ariovich 1985)

The mechanics of the rough diamond distribution chain are unique to the diamond industry and are the key mechanism used by De Beers to maintain its control over the supply of rough diamonds:

- Members of the cartel commit to selling rough diamonds only to dealers of rough gems controlled by the De Beers group.
- Rough diamonds are sorted by De Beers into 5000 categories and divided into 'boxes.'
- De Beers sets the price and composition of each box in advance.
- Every five weeks, 125 carefully selected partners, known as sightholders, are each invited to view a box and may purchase the whole box at the set price (this ensures that diamonds with less attractive characteristics can be 'pushed' into the distribution chain).
- Sightholders may not resell the contents of their boxes to anyone except gem-cutting firms, at risk of losing their privileges to purchase.

Although De Beers controls between 67 percent and 80 percent of the diamonds sold in international markets, most of this control focuses on the upstream portions of the value chain, namely the rough gems. This monopolistic control will be discussed later. It is interesting to note, however, that the arrangement works out for everyone, including the consumer. De Beers limits the supply to dealers, whose disgruntlement is offset by the high profit margins they enjoy, and consumers pay more for an item that arguably is sought after *because* of its high price. One could argue that diamond consumers want the price of diamonds to stay high, not only to stabilize the value of their own diamond investments but also because of the appeal of being able to afford a luxury good.

2.2. Trade Overview[2]

Diamonds are mined in remote areas around the world and are virtually untraceable back to their original sources—two factors that make monitoring diamond trade flow difficult. Additionally, the movement of diamonds from mine to consumers has no set pattern because any single diamond can change hands numerous times, and industry participants often operate on the basis of trust with relatively limited documentation. Such practices are exacerbated by poor data reporting at the country level, where import, export and production statistics often contain inconsistencies. Recently, efforts have been initiated to create a global system of export certification and import verification to ensure that all diamonds that are legitimately imported and exported into diamond-cutting, -trading, and -consuming nations will be of known and verifiable origin.

[2] See GAO 2002.

The diamond trade structure includes both large and small well-organized components as well as many smaller, uncontrolled operations. While De Beers controls a large percentage of the diamond shipments to key trading centers, UN data suggest that more than 100 countries worldwide participate in rough diamond exporting. In the past few years, new sources of rough diamonds from Australia, Russia, Canada and parts of Africa have considerably changed the controlled single-market system in a number of ways. A significant quantity and variety of these "outside" rough diamonds have always been sold on the open market and go directly to a select number of diamond manufacturers in the cutting centers, but strains are showing as the volume of diamonds distributed outside the De Beers cartel grows.

2.3. Changes in Industry Structure

De Beers owns or has a substantial stake in most of the mines in Africa, and before diamonds were discovered in Russia and Canada, it directly owned and operated a majority of the supply. These countries had difficult trading relations with the principal markets (United States, Europe and the Far East) and were happy to have De Beers as their representative. De Beers effectively managed the members of the cartel by handing out tough punishment whenever members attempted to break the rules.

In the 1990s, however, several events occurred that have worked to endanger the company's monopoly. The first was the collapse of the Soviet Union, the world's second-largest producer. When the Soviets discovered rich deposits in Siberia in 1958, De Beers persuaded the regime to sell its entire production to the CSO, preserving the company's single marketing channel (Stein 2001). With the disintegration of communism, however, it has become increasingly difficult for De Beers to control Russia's supply. After a series of conflicts, an increasing percentage of Russian diamonds are now sold outside the CSO.

Second, the termination of Argyle diamond mine's contract with De Beers reduced the company's presence in the lower end of the market. Although most of the diamonds from Australia's Argyle are poor quality, it is the largest mine, by volume, in the world. The breakaway of Argyle from the cartel significantly damaged De Beers's control over the market.

The third event was the discovery of several rich diamond mines in the Northwest Territories of Canada (Ekati, Diavik and Winspear). Although De Beers was able to secure 35 percent of the production of Ekati and launched a successful takeover of Winspear, it does not hold a dominant position in Canada.

The excess supply from mines in Australia, Canada and Russia (O'Neill 2002) has led to rising competition in the mining of rough gems and erosion of the company's monopoly. De Beers's grip on market share has slipped from 80 percent in the early 1980s to about 65 percent in 2000. In an effort to keep prices high, the company was forced to hold back a large percentage of its diamonds and to purchase excess supply from its competitors at high prices. The traditional business model of controlling supply has proved to be costly, and it was inevitable that De Beers consider developing an improved strategy for competing with the new players.

In addition, most antitrust regulations are becoming much more strict. The De Beers strategy, by U.S. law, is illegal. In 1945, the Justice Department initiated antitrust proceedings in New York against diamond cartel members. In 1994, the company was charged with colluding with the General Electric Company to raise prices. As a result, De Beers cannot directly deal with its largest market. Also, in Europe there is widespread speculation that the company will be a future target of EU antitrust commissioner Mario Monti in his efforts to break up dominant companies.

3. Key Issues

3.1. A Diamond Is Forever

A major challenge for the diamond industry is that diamonds are, by their nature, not perishable. Steady production of a good that never perishes must eventually lead to oversupply, however low the enforced level of production. Constraining supply was therefore not sufficient to sustain a price for diamonds that maintained their status as a luxury good. Given that the jewelry market accounts for more than two-thirds of rough diamond sales, De Beers bypassed its distribution channels and tailored its marketing campaign to the end consumer. This effective “pull” through the distribution channel has been the result of a brilliant marketing strategy. Much of the success of De Beers has been created by this global campaign, one of the first—and most intensively pursued—ever implemented. Key objectives of the campaign have been to create an image of diamonds that

- positions diamonds at the peak of the Maslow hierarchy of needs—a luxury whose cost is nothing compared to its value
- diamonds are a gift of love—the larger and finer the diamond, the greater the love; and as a symbol of love, they should never be resold
- diamond rings are the only choice to mark an engagement; a regular stream of engagements is assured in modern society.

Tactics included placing diamonds in early romantic Hollywood movies and eventually the “Diamonds Are Forever” campaign, which was targeted at growing the engagement ring market in the Far East but became a catchphrase for the entire industry. Not only did this theme play on the notion of eternal love, it also imbued diamonds with an eternal sentimental value, making it much less likely that diamond owners would resell their diamonds. The end result of this campaign is that women, who make up more than 90 percent of diamond owners, are trained to measure their partner's devotion in terms of carats and brilliance (Ariovich 1985, 234–40).

In the mid-1950s, when a large volume of smaller diamonds came onto the market, De Beers again resorted to advertising, this time introducing the public to the eternity ring, which couples were encouraged to purchase when they renewed their wedding vows.

3.2. Conflict Diamonds

3.2.1. Background

Even as late as the mid 1990s, 10 to 15 percent of the world's supply of diamonds came from African war zones such as Angola, Congo and Sierra Leone (Hayden 2000). In these areas, diamond mines are owned and operated by local warlords, who fund their revolutionary efforts through the sale of diamonds on the world market. These efforts are made possible largely because of the nature of the diamonds themselves: they are an easily concealed and compact form of currency that can be transported and resold without difficulty. For example, Angola's National Union for the Total Independence of Angola (UNITA) rebels have raised close to $4 billion in the last decade, and Sierra Leone's Revolutionary United Front has sold at least $630 million in diamonds to Liberia in exchange for support and weapons.

De Beers has suggested enacting tough regulations against the sale of conflict diamonds, recommending that smuggled gem dealers be ousted from industry organizations (Verburg 2000). This seemingly socially conscious stance only masks De Beers's efforts to maintain control of its well-developed cartel. In addition, when diamonds are associated with the support of violent warfare in Africa, the image of the diamond industry as a whole is tarnished. Recent negative publicity has highlighted the social ramifications of smuggling these so-called conflict diamonds and has brought media and civil society attention to this issue. De Beers recognizes that by eliminating conflict diamonds, it stands to not only gain market share but protect the reputation of its industry.

3.2.2. Restrictions and Barriers

Several attempts have been made to crack down on the illegal trade in diamonds. In 2000, the UN Security Council issued an 18-month embargo prohibiting the sale of rebel diamonds from both Angola and Sierra Leone. By restricting imports of rough diamonds from conflict areas, the embargo tightened controls on the illegal diamond trade funding civil wars.

The Kimberley Process (2001) is an international negotiation begun in 2000 by South Africa and more than 20 other countries. The negotiation, which will formally launch in November 2002, aims to solve the problems by controlling rough diamond trade. As a measure to bar smuggled conflict diamonds, the nations agreed to establish minimum acceptable international standards for certification of rough diamonds. According to the proposal, participant countries have to ensure the following:

- Rough diamonds are imported and exported in tamper-resistant containers, accompanied by a Kimberley Process Certificate certifying the country of origin, identification of exporter and importer, carat weight/mass and value, etc.
- No shipment of rough diamonds is imported from or exported to a nonparticipant.
- A system of internal controls is established that is designed to eliminate the presence of conflict diamonds from shipments of rough diamonds imported into and exported from its territory.
- Appropriate laws or regulations are amended or enacted to implement and enforce the certification scheme and to maintain dissuasive and proportional penalties for transgressions.
- Relevant official production, import and export data are collected and maintained.

The Clean Diamond Trade Act (Congress 2002), on the other hand, was introduced in March 2002 to broaden the definition of conflict diamonds and combat their import into the United States. As a response to the attack on the WTC, the bill broadens the definition of conflict diamonds to include diamonds traded by terrorists and those who use the diamond trade to fund human rights abuses against unarmed citizens. The bill specifies the following:

- The president has authority to impose sanctions on any country that does not assure that its rough diamonds come from a "cleanstream" and to prohibit imports of polished diamonds and diamond jewelry if there is credible evidence they were produced with conflict diamonds.
- The president must report annually to Congress on the system's effectiveness, on which countries are not implementing it and the effects of their actions on the illicit trade in diamonds.
- The president was encouraged to immediately negotiate, in concert with the Kimberley Process, an international agreement designed to eliminate the illicit trade in diamonds.

3.3. Maintaining the Cartel

In 1888, after Cecil Rhodes had consolidated South Africa's diamond mines into a company that would become De Beers, he formed a cartel with the 10 largest merchants. Each merchant would be guaranteed a certain percentage of diamond output in return for data about the market. This system enabled De Beers to match supply with demand, assuring a steady control of prices. The 10 merchants have been replaced by 125 sightholders, but the basic principle underlying the relationship remains the same.

By definition, cartels are groups that bond together to avoid the effects of competition. They are, however, very difficult to maintain due to the incentive for one of the members to cheat in order to improve profit. De Beers has managed to sustain its version of a cartel almost since inception by using a variety of techniques that have changed over time, including government regulation, supply control, purchasing restrictions, revenue and cost optimization, and clever marketing.

It is widely known that De Beers maintains an inventory of stones and also purchases stones from other producers in order to limit the supply in the market, maintain price levels and perpetuate the luxury and scarcity perception associated with diamonds. In addition, De Beers, through its Diamond Trading Company (DTC), maintains a costly program of monitoring and apportioning sales of uncut stones and has shown that it is willing to be generous in its negotiations with other producers to ensure that they continue to sell through DTC—including awarding long-term contracts to purchase their production of rough stones.

In addition to the structure of the De Beers cartel, the main force behind this dominance for many years has been the role played by governments. It is possible for a cartel to continue if there is a governing body above that can enforce agreement. Through continuously changing its stance toward corporations, the South African government and other governments essentially protected the companies that were providing them with easily and centrally collected tax revenues. Governments have frequently imposed output quotas and have used legislation, such as the Illicit Diamond Buying laws (IDB), to protect these companies from black markets and their effects on pricing. (As a comparison, one of the weaknesses of OPEC is that it is a cartel of governments over which no other actor can impose control, whereas De Beers has formed a cartel of companies and has often successfully lobbied governments to enforce cooperation on its behalf).

This argument of government-forced cooperation held while Africa was the dominant supplier of diamonds, but it no longer has the complete stranglehold that it once did. As the cartel has not yet disintegrated, however, other reasons must also exist. Researchers believe that De Beers exists as a monopoly to maximize profits, not just to maintain them. Hence, it is in the members' interest to stay within the cartel rather than go it alone.

One of the ways the cartel accomplishes this is by minimizing transaction costs to its members. Ronald Coase first identified the idea of transaction costs as obstacles to value-maximizing transactions and was awarded the Nobel Prize in 1991 for this insight. He showed that the transaction costs are indeed less within the cartel, where they are absorbed as a group, than to a series of individuals. These savings are essentially economies of scale with respect to precontractual opportunism through its "grouped" method of selling, information search costs, measurement costs and bargaining costs.

Second, the demand for diamonds is not typical and must be analyzed using Veblen's theory of conspicuous consumption. This theory replaces the traditional downward-sloping demand curve with one that is upward-sloping, suggesting that the higher the price of an item, the higher the demand.

This phenomenon would imply that higher prices have a dual effect on the profits of a company, first, through higher margins and, second, through increased sales. Therefore, it is in a company's best interest to maintain high prices. For diamonds in particular, this means that the perception of desirability associated with diamonds is critical to the life of the industry as a whole and that if the price of diamonds falls, the overall demand for them will follow. Therefore, it is again in the interest of the individual players in this industry to "play nice" and cooperate, since cheating the cartel will actually lower their profits instead of raising them.

Finally, the value chain analysis indicates that De Beers leaves much of the upside of the value to the cutting, wholesale and retail divisions, therefore mitigating the possibility of having one of these organizations "complain." In other words, these groups have a very comfortable position as it stands, and the introduction of other competitive sources of diamonds may actually hurt the profit margins of the these companies if the entering parties see that there is room to increase prices. De Beers has managed to play the pricing game very well by allowing the other groups involved in the chain to also profit.

Obviously, De Beers has managed to dominate the market thanks not only to the demand phenomenon, but also to the structure of the group, which should be a source of concern to antitrust regulators. While the United States has taken steps to address this issue, many others have not. One possible reason for this again relates to the dynamics of the demand. If governments were to intervene and competition were to develop, prices would most likely fall due to competitive theory. If prices fall, the perception of diamonds as more than just jewelry would surely be affected, ultimately destroying ownership satisfaction. This would in turn destroy demand and damage the entire industry beyond simple supply-and-demand analysis. The industry could potentially find itself in a death spiral. Whether or not the result would be so catastrophic is an enormous question and one that must be addressed before attempting to destroy the cartel.

4. The Future of De Beers

The old approach worked only at enormous cost. At the beginning of 1999, De Beers had a stockpile of diamonds worth $4.8 billion; even after a stellar year, it is $3.9 billion . . . under pressure to cut costs, the company wants to slash its diamond stockpile to $2.5 billion or less—only three to five months of sales—and keep it at that low level (*Economist* 2000).

De Beers faces three substantial challenges in the near future:

- Consumer awareness of the social costs of diamond production, particularly conflict diamonds, may result in a war on diamonds akin to the war on the fur trade.
- Increased production capacity outside De Beers's control, notably in Canada and Russia, is leading to high costs in sustaining prices through mopping up excess supply on the open market.
- Political antagonism toward De Beers's dominance and the increased power of antitrust regulators are leading to an increased chance of remedial action against De Beers.

As a result, De Beers has launched a new strategy that will target the significant brand it has built for the diamond industry more specifically to its own benefit. Elements of the strategy include

- creation of the "De Beers" brand diamond
- opening the sale of rough diamonds to suppliers of choice
- formation of joint venture with LVMH.

4.1. The De Beers Brand Diamond

De Beers plans to brand diamonds under the newly launched "Forevermark" by placing a serial number and identifier on the diamonds, visible only under a microscope, to certify each diamond. The brand will certify that the diamonds have not been sourced from a zone of conflict and assure that the diamond meets the quality criteria reported on an accompanying certificate.

The focus of De Beers's efforts is presented as a solution to the issue of conflict diamonds, yet

> . . . let's not applaud De Beers for growing a social conscience just yet. Cut through all the anguished talk about 'blood diamonds,' and what you're left with is a diamond cartel trying to protect its turf under the guise of corporate benevolence (Verburg 2000).

By creating the Forevermark, the company hopes to develop a new market within the diamond trade for authenticated diamonds that it will be able to control with the same iron grip that it has applied to the overall industry, thereby maintaining the advantages of a monopoly in the face of an increasingly uncontrollable market.

4.2. Suppliers of Choice

To counter allegations that the sightholder process is an abuse of its market power, De Beers began to evaluate any potential buyer against the "supplier of choice" criteria that it published in 2000. These criteria include

- financial strength and ability to finance future growth
- market position as it relates to geographic position, niche markets and products
- distribution strategy—distribution channels and their efficiency
- marketing strategy—adding value through marketing and branding
- manufacturing and technical excellence
- compliance with the "DTC Best Practice Principles"—which also covers two related criteria.

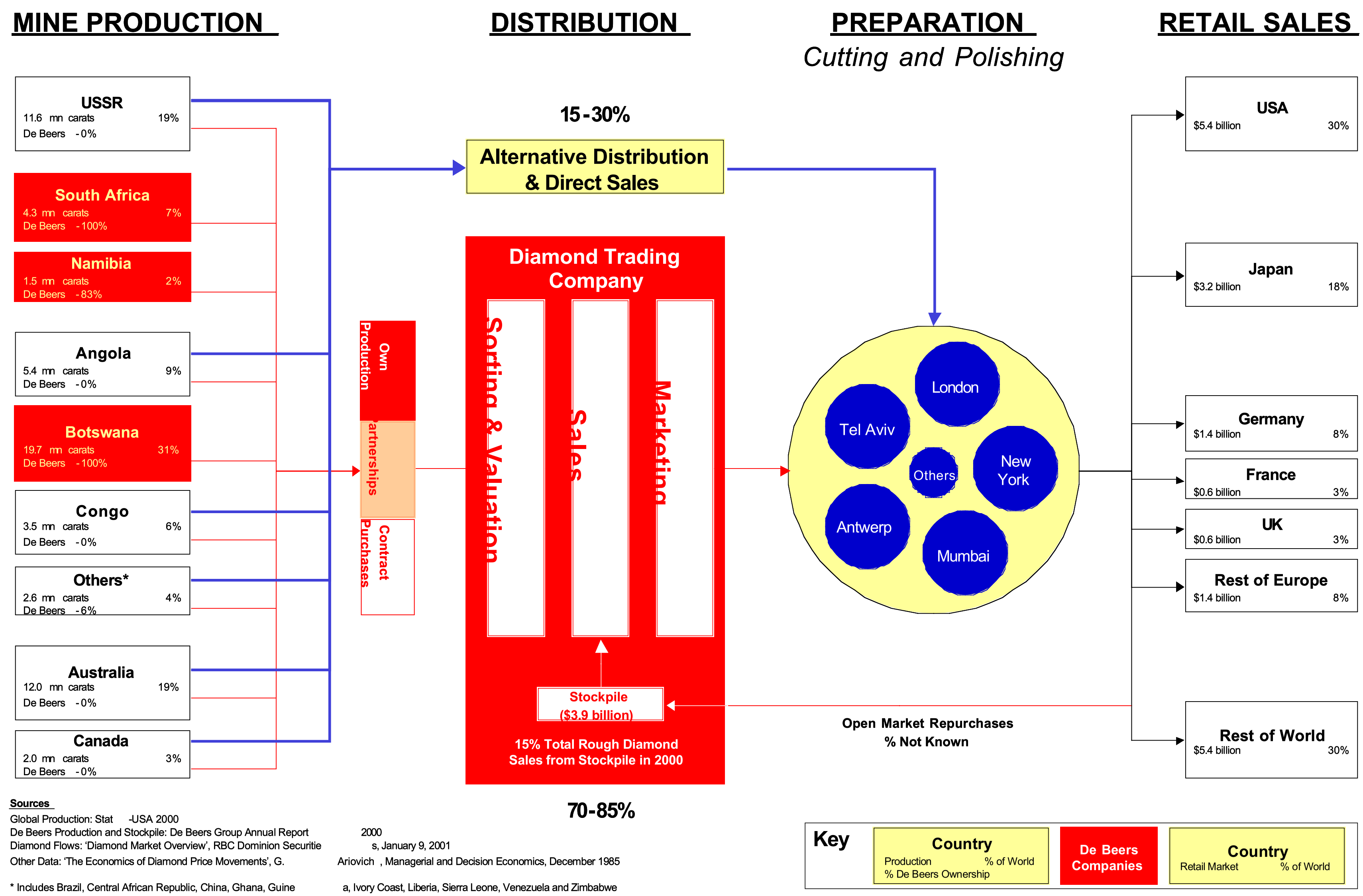
Effectively, De Beers introduced an apparently more transparent process for selecting distribution partners based on their ability to grow and defend the value of the diamond industry, maximizing the value of De Beers's upstream assets.

4.3. LVMH Joint Venture

On January 16, 2001, the company announced it had formed a new company, in partnership with the French conglomerate LVMH, to develop retail strategy for the De Beers brand.

By forming an arms-length joint venture with the luxury brand management firm LVMH, De Beers intends to enter the retail market and sell De Beers brand diamonds directly to U.S. jewelry consumers, who represent more than half of world demand for diamond jewelry.

This is the first step toward full exploitation of the De Beers brand in the luxury retail market, which could then be followed by product expansions. De Beers effectively is adopting a similar strategy to the much-lauded "Intel Inside" campaign—first establishing its brand with consumers and then leveraging its reputation not only to pull its product through the distribution channels but also to create a platform for diversification of product lines. If De Beers can successfully brand itself as a supplier of luxury and quality product, it could then look to diversify into such other luxury goods markets as watches and handbags. At the very least, De Beers's extension into the retail segment gives it access to the highest profit margins in the value chain and provides alternative sources of revenue as its dominance of supply diminishes.



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* Includes Brazil, Central African Republic, China, Ghana, Guine a, Ivory Coast, Liberia, Sierra Leone, Venezuela and Zimbabwe

Figure 1. Overview of the Jewelry Diamond Industry

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