

# Diamond Sector Outlook

Group Economics  
Macro & Financial Markets  
Research

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## Nothing is forever...

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Georgette Boele

Co-ordinator FX & Precious Metals  
Strategy

Tel: +31 20 629 7789

georgette.boele@nl.abnamro.com

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- **Nothing is forever**

The diamond industry is at a cross-road. There are strong forces that could lead to change in the industry. In this report we show that change is not new to the industry. In addition, we define two crucial forces that will have a lasting impact on the industry in the coming years.

- **From a win-win to a zero-sum game leading to price competition...**

The industry seems to have moved from a win-win situation to a zero-sum game. Given the oligopolistic structure on the mining side of the industry, rough prices have remained relatively high compared to polished prices and end demand has disappointed. This has squeezed the middle man, such as manufacturers, rough diamond traders and polish diamond traders. As a result, the middle segment is pushing back at the producers. What happens next depends on their response. They can limit production. This will work, but, eventually stronger price competition and more transparency appear inevitable.

- **...and a compression of the middle segment**

In any event, given the pressure on the middle segment, consolidation will likely be the result here and only the stronger companies will survive. Some strong retail houses could further increase the pressure on middle segment by continuing to move up the chain. This would also enable them to control their sustainability requirements. In a way, they are partly cutting out the middle segment of the diamond sector. So it is very likely that the diamond supply chain will shorten.

- **Diminishing power of suppliers...**

These forces will eventually result in an increase in buyer power, a decrease in supplier power and more suppliers facing competition. These changes will not happen overnight and various players will have time to adjust their business models.

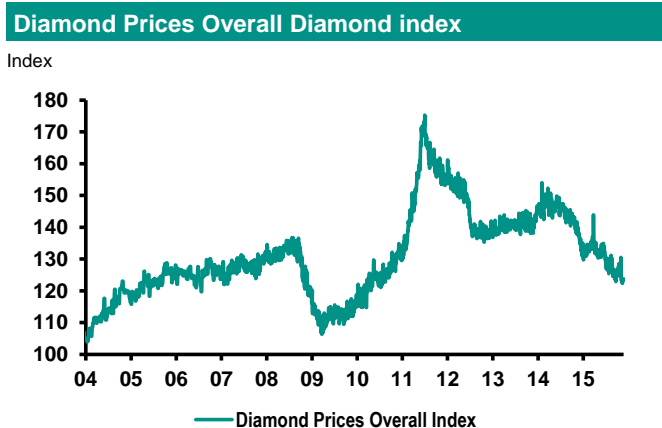
- **...and lab-grown diamonds can turn the industry up-side-down**

Another force that could lead to change (albeit in the even longer term) is a wider acceptance of lab-grown diamonds (also known as manufactured or synthetic diamonds). There is a more substantial role to play for lab-grown diamonds in the longer term because of peak supply in natural diamonds and more focus on sustainability.

# Nothing is forever...

## Introduction

The diamond industry is at a cross-road. In the recent years, rough diamond prices have either risen more sharply or fallen less severely than polished prices as end demand has disappointed. Even though rough diamond prices have come down in 2015, they remain expensive compared to polished prices. As a result, the middle part of the supply chain - such as rough diamond traders, cutters, jewellery manufacturers and polished diamond traders - has come under severe stress. This has not been helped by tighter credit conditions. Retail shops in Asia positioned themselves for stronger demand from China and the rest of Asia. In this period (2010-2014) many new jewellery shops were opened in China all requiring to be completely stocked. As a result, demand was boosted temporarily, creating the impression among some players that stronger demand was structural. This optimistic view of the world has come to an abrupt end driven by the realisation that the demand resulted from the opening of the new jewellery shops was a one-off, the slowdown in the Chinese economy and the anti-corruption campaign in China.



Source: PolishedPrices.com

In addition, the entire diamond industry – from mining to retail – is under pressure to become more sustainable (See our publication [Jewellery chain sustainability](#) released on 8 July 2014). Under these difficult market circumstances people might be tempted to mix synthetic diamonds with natural ones although detection equipment makes that more difficult these days. Trust and confidence have been major assets next to the fact that diamonds are unique, rare and valuable.

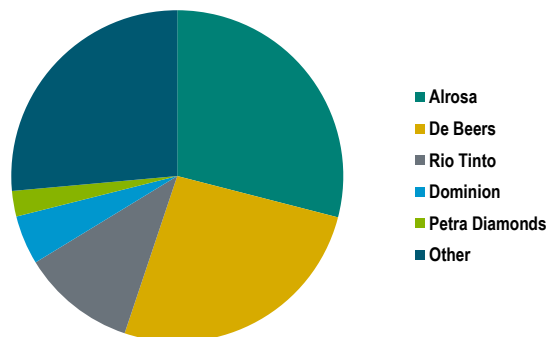
The arrival of lab-grown diamonds has also challenged the widely-held assumption that diamond prices could only increase because of supply in natural diamonds has peaked and strong Asian demand. After the global financial crisis, diamond prices increased sharply mainly based on these assumptions. Since 2006 annual diamond mining production in carats (1 carat is 0.2 gram) has declined by 28%, or on average by 3% annually. If we would correct for the sharp drop following the global financial crisis and recovery in production the year after,

production still declined by 1% annually on average. The production of lab-grown diamonds could more than compensate for the drop in supply in the coming years.

So substantial changes in the diamond sector are upon us because crucial forces are pointing towards change. The current powerful establishment is potentially hesitant to embrace these changes because of hope that they are not structural. The longer the industry is fighting these changes, the more substantial and painful they may be down the road. The best strategy is to embrace them and recognise that bold adjustments need to be made. Another strategy could be to search for the niche in the market or to negotiate better prices from the miners. In this report we show that change is not new to the industry. In addition, we define two crucial forces that will have a lasting impact on the industry.

### Market share miners in 2014

In percentage



Source: Company reports, Kimberley global production data

### Changes in the past...

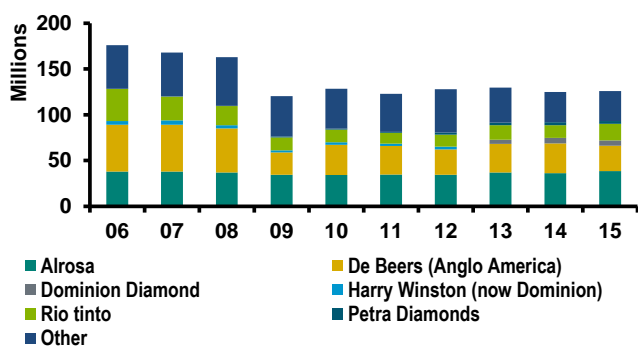
Since the 1980s, the industry has transformed itself from a monopoly, with De Beers being the sole supplier of diamonds, to an oligopoly. There were three important developments that triggered this change in industry structure. For a start, newcomers entered the market as Alrosa and Rio Tinto acquired diamond mines. Moreover, a large buyer started to exercise its power. This dominant buyer/manufacturer changed the industry dynamics by closing agreements with other miners to get supply directly without involvement from De Beers. This was in an environment when De Beers was under pressure from competition watchdogs to reduce its grip on the diamond sector. As a result of these developments, De Beers' market share dropped sharply from 90% in 80s to 26% in 2015 (in volume terms).

Currently, the diamond industry has two dominant suppliers: De Beers and Alrosa. Some other suppliers operate in niche markets such as very large stones and fancy coloured stones. For example:

- the Argyle mine of Rio Tinto accounts for 90% of pink diamonds
- Recent discoveries of large white diamonds in Karowe mine of Lucara (1,111 carat, 813 carat and 374 carat)
- the Letseng mine of Gem diamonds has been one of the largest supplier of large diamonds
- the Cullian mine of Petra diamonds supplies very rare blue diamonds

### Miners

Production in millions of carats



Source: Company reports, Kimberley global production data

De Beers and Alrosa are price setters in the industry. They compete on quality and perception (advertisement) to achieve and keep a substantial market share. However, they are not engaged in destructive price wars as this would ultimately lower both firms' revenues. The other suppliers are mainly followers.

### Sales channels

In %

	Sales channels	%
De Beers	Global sightholder sales	90%
	Auction	10%
Alrosa	Long-term contracts	70%
	Auctions, spot transactions	30%
	International auctions	Stones larger than 10.8 carats
Rio Tinto	Select diamentair programme	70%
	Special invitation, Tender	30%
	Tender	Stones larger than 10.8 carats
Dominion	Preferred customers	100%

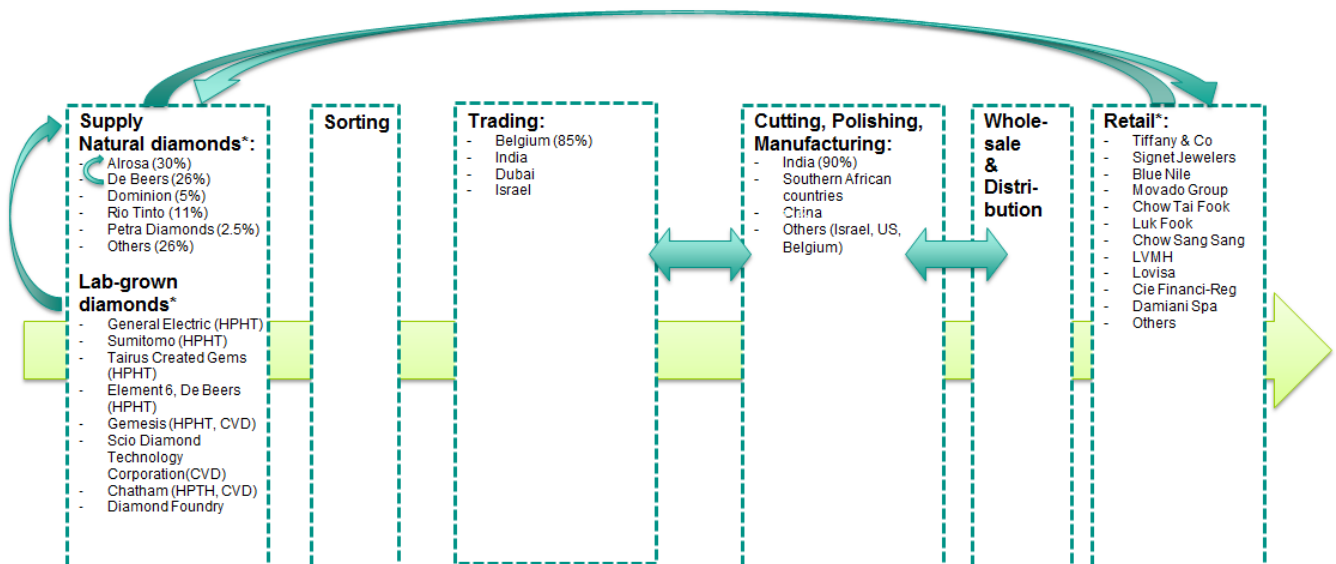
Source: Company reports, Rapaport

#### ...are a prelude to upcoming changes...

The strategy of De Beers and Alrosa to compete on quality and perception in order to achieve/maintain a substantial market share has come under severe pressure recently. This is because the industry as a whole is not in a win-win situation anymore. In the past, rough and polished diamond prices rose in tandem. As a result, the entire industry earned enough to stay in business. However since the peak in 2011, polished prices have dropped substantially. This was the result of disappointing demand mainly from Asia. At the same time, rough diamond prices have not dropped to the same extent. As a result, this has squeezed the margins in the middle segment. Inventory of manufacturers and traders have increased substantially and this has negatively impacted their liquidity. This has not been helped by tighter credit conditions. As a result, liquidity conditions among parties in the middle segment have weakened further. The industry seems to have moved from a win-win situation to a zero-sum game. A large part of the capital of these companies in the middle segment of the industry is stuck in the inventory overhang. In addition, there is limited appetite to buy because unprofitable trading and manufacturing conditions. Rough dealers, manufacturers and polished dealers first need to work through their inventory before they are able to buy rough diamonds again. As more players in the middle segment have been cornered by the high rough prices compared to the polished

prices, they have come to the conclusion that bundling forces may actually be supportive. In 2015, the sightholders of De Beers deferred a substantial amount of goods, which has not been experienced before on such a wide scale. In the past sightholders were more concerned that deferring goods would hurt their relationship with De Beers and that they would risk future supply.

**Developments in the diamond supply chain**



Source: ABN AMRO<sup>1</sup>, \* not exhaustive list of names

De Beers and Alrosa have acknowledged the challenges the manufacturers and dealers are facing and have given them the opportunity to defer allocations of the supply to the next supply offer. In addition, they have cut prices for their preferred customers by around 15% in 2015. While these actions may seem a great deal for De Beers and Alrosa, they have not alleviated the pressure with the manufacturers and dealers. At current price levels manufacturers and dealers still see insufficient returns to resume buying on a large scale. All hopes are that improving demand will solve the inventory challenge this year. However, these are hopes and reality may be different. History and market dynamics have shown that inventory levels/positions first need to be cleaned before a new uptrend in prices can materialise. Dealers and manufacturers have no choice but to sell their excess inventory potentially even at lower prices to strengthen their liquidity position. In short, rough and polished prices may need to go a good deal lower before they may be able to recover, because with such an inventory overhang rough buying will likely be muted. In addition, consolidation will likely be the result in the middle segment in the industry and only the stronger companies will survive. A strategy could be to focus on a niche in the market or to negotiate better prices from the miners. Some strong retail houses could further increase the pressure on middle segment by continuing to move down the chain (see large arrow from retail to supply in the chart below). This would also enable them to

<sup>1</sup> High temperature-high pressure (HPHT) flux method and chemical vapor deposition method (CVD) are the two main methods to produce large single-crystal lab-grown diamonds (source International Gemological Institute or IGI)

ensure controlling their sustainability requirements. In a way, they partly cut out the middle segment of the diamond sector. So it is very likely that the diamond supply chain will shorten.

### Diamond Sector Industry Forces

#### Threat of New Entry

- High entry costs
- Extremely low probability of new mines to find
- Large economies of scale
- Lab-grown diamond supply easier than natural diamond supply

#### Threat of New Entry

#### Competitive Rivalry

- Fierce competition between De Beers and Alrosa for market share for the standard transparent white production diamonds (Argyle, Cullinan, Williamson mines)
- There are niche markets for large diamonds (Letseng mine)
- Large retail players are customers of the major suppliers

#### Supplier Power

#### Competitive Rivalry

#### Buyer Power

#### Natural diamonds\*:

- Alrosa (30%)
- De Beers (26%)
- Dominion (5%)
- Rio Tinto (11%)
- Petra Diamonds (2.5%)
- Others (26%)

#### Lab-grown diamonds\*

- General Electric (HPHT)
- Sumitomo (HPHT)
- Taurus Created Gems (HPHT)
- Element 6, De Beers (HPHT)
- Gemesis (HPHT, CVD)
- Scio Diamond Technology Corporation (CVD)
- Chatham (HPTH, CVD)
- Diamond Foundry

#### Threat of Substitution: Lab-grown diamonds

#### Retail\*:

- Tiffany & Co
- Signet Jewelers
- Blue Nile
- Movado Group
- Chow Tai Fook
- Luk Fook
- Chow Sang Sang
- LVMH
- Lovisa
- Cie Financi-Reg
- Damiani Spa
- Others

Source: ABN AMRO, Porter<sup>2</sup>, \* not exhaustive list of names

#### ...leading to competition on price

What does this mean for De Beers and Alrosa? They have entered uncharted territory as there may not be enough demand for their rough diamonds. This will be directly felt in their bottom line and a strategy review will likely be the result. It would appear that the miners have recently adopted a strategy of reducing output in order to support prices. Lower output could work for a while at least. More likely in our view is that the need to generate cash-flow leads to an increase in production again. As a result, prices will come under renewed pressure forcing producers to increase efficiency and lower costs. Pressure to move to more transparency will, ultimately, also present significant challenges.

#### ...and lab-grown diamonds can turn the industry up-side-down

Another force that will most likely lead to change, albeit in the longer term, is wider acceptance of lab-grown diamonds. These diamonds possess the same chemical composition as their

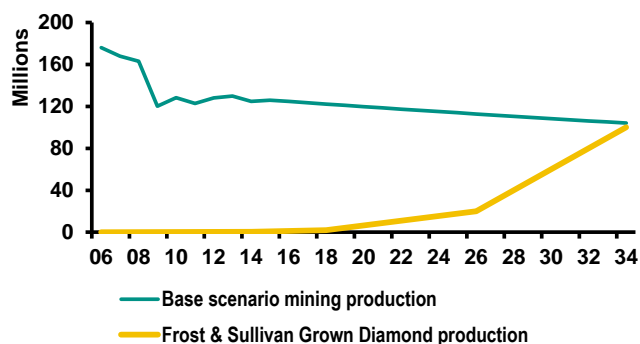
<sup>2</sup> According to Michael Porter there are five forces in an industry namely power of supplier, power of buyers, industry entrants, substitutes and degree of competitive rivalry. The developments of these forces and more importantly how they relate to each-other define the structure in the industry.

natural counterparts as they consist of pure (or almost pure) carbon. They have physical and chemical properties nearly identical to a natural one. However, they are man-made. They are thus more sustainable and conflict-free. Today, lab-grown diamonds of gem quality may be encountered. The production of larger crystals of good colour and clarity remains difficult and expensive (source: International Gemological Institute or IGI). The production of lab-grown diamonds currently accounts for less than 0.5% of annual diamond production. However, technology will likely advance further, reducing the cost of production of gem quality larger crystals. Lab-grown diamonds are around 20-30% cheaper than their natural counterparts and the gap could widen. To what extent lab-grown diamonds will eventually take market share will depend on the attitude of consumers.

We expect diamond mine production to decline by around 1% annually because of the depletion of existing mines and the failure to find new deposits. At the same time, the production of lab-grown diamonds will increase at a high pace. Forecasts about the market share of lab-grown diamonds are uncertain and difficult due to possible technological innovations. However, consulting firm Frost & Sullivan expects lab-grown diamonds to increase exponentially and to reach 100 million carat in production in 2034 (see graph below). Even if the actual growth would only be half of the projections, it would already have a material impact.

### Diamond mining and Grown diamond production

Production in millions of carats, 2015-2034 are forecasts



Source: ABN AMRO Group Economics (base scenario), Frost & Sullivan (Grown Diamond production)

Lab-grown diamonds will have many advantages. However, they currently have one important shortcoming. They miss the crucial feature of being rare and unique. There will be a fierce battle between the perception of being rare and unique on the one hand and being sustainable and more affordable. On the other hand, the marketing strategy plays a crucial role in this. In the coming years, it is unlikely that lab-grown diamond will push natural diamonds from the throne (see graph above). The challenge for the 'natural diamond' industry is to make big steps regarding the 'pipeline' integrity to somewhat mitigate the sustainability marketing angle' of the lab-grown diamonds. However, lab-grown diamonds will likely gain market share. In the pearls market, cultured pearls have overtaken natural pearls, though this was also the effect of pollution, which made natural pearls extremely rare. The same can occur for the diamond market. If natural diamond deposits are exhausted or there is a broader acceptance of lab-grown diamonds, lab-grown diamonds will gain market share. This will result in new suppliers entering the market at the expense of the current suppliers.

It should come as no surprise that the current suppliers of natural diamonds are positioned for a more dominant role for lab-grown diamonds. For example, Element 6 is a division of De Beers

that grows lab-grown diamonds. Elements 6 is currently not allowed to cannibalise De Beers' natural diamond supply and aimed only at the commercial segment of the market. In Russia, there is also a major producer of lab-grown diamonds (Tairus). The existence of lab-grown diamonds is lowering the entry costs to the industry.

In short, the development of lab-grown diamonds will lower the entry cost of the industry, increase the total (natural and synthetic) supply of diamonds, and will exert additional downward pressure on natural diamonds. This will raise the stakes for the diamond industry.

**Box 1: Monopoly diamond market (until 1980s)**

In the 80's the rough diamond market was a monopoly. De Beers was the sole supplier of rough diamonds. At that time, its market share was 90%. It set the price mainly based on profit maximisation. Buyers were price takers because there was no room for negotiations. The costs for entry were high because of existing contracts between buyers and De Beers, high costs of exploration, developing a mine and mining diamonds. There were no substitutes for natural diamonds. Although there were artificial and synthetic stones that were able to mimic look of a diamond, these did not have the same physical characteristics. Indeed, with the good equipment a natural diamond could be separated from artificial and synthetic counterparts. This is harder to do with a lab-grown diamond.

**Box 2: Oligopoly/duopoly diamond market (1980s to now)**

Alrosa and De Beers have been the most dominant suppliers of rough diamonds and their competition is intense. There is a high interdependence between Alrosa and De Beers. This is because a change in strategy of the De Beers will have a direct impact on the profits/reputation of Alrosa. There are two strategies they could take: competition on output or competition on price. The former often results in a split of the market. It seems that De Beers and Alrosa have decided to compete on output. This is mainly done by advertisement campaign that aims to underpin the perception of the quality of the stones. However, over recent years, both De Beers and Alrosa have also aimed to control the total rough diamond output in order to avoid oversupplying the market. For instance, Alrosa has sold diamonds to Gokhran (Russian State Precious Metals and Gems Repository) in order to avoid oversupplying the market. However, Alrosa has profited more from this strategy because it has increased its market share beyond that of De Beers. It is in the interest of both De Beers and Alrosa to avoid destabilising the market or to enter into costly price warfare. As a result of lowering supply, prices of rough diamonds have remained at relatively high levels.



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ABN AMRO Bank  
Gustav Mahlerlaan 10 (visiting address)  
P.O. Box 283  
1000 EA Amsterdam  
The Netherlands

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