

THE DIAMOND INSIGHT REPORT

2014

DE BEERS
GROUP OF COMPANIES

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FOREWORD



As the diamond industry evolves to respond to recent consumer trends and macro-economic realities, there are new – and sometimes surprising – answers to perennial questions. What is the outlook for diamonds? What are the trends to watch? What do those involved in the industry – from exploration to retail – need to do to ensure continued and sustainable success?

De Beers, as the world's leading diamond company, is uniquely placed to shed light on these questions. For decades, we have undertaken extensive primary research in the main diamond markets and across the whole value chain. Since the turn of the millennium, our consumer research programme has surveyed some 800,000 consumers worldwide. The global trade research commissioned by us reaches out to thousands of industry participants every year.

We aspire to play a leading role in helping all those with an interest in the industry understand how and why it is evolving. For the first time, we have brought together our wealth of proprietary data and insight into a single report that provides our perspective on the global diamond industry in 2013/14 and beyond.

This Insight Report is the first in an annual series, designed to add depth and detail to other industry information sources and to your understanding of this multi-faceted industry.

The world of diamonds remains fascinating, challenging and precious. We hope you enjoy finding out more.

PHILIPPE MELLIER
CEO, DE BEERS GROUP



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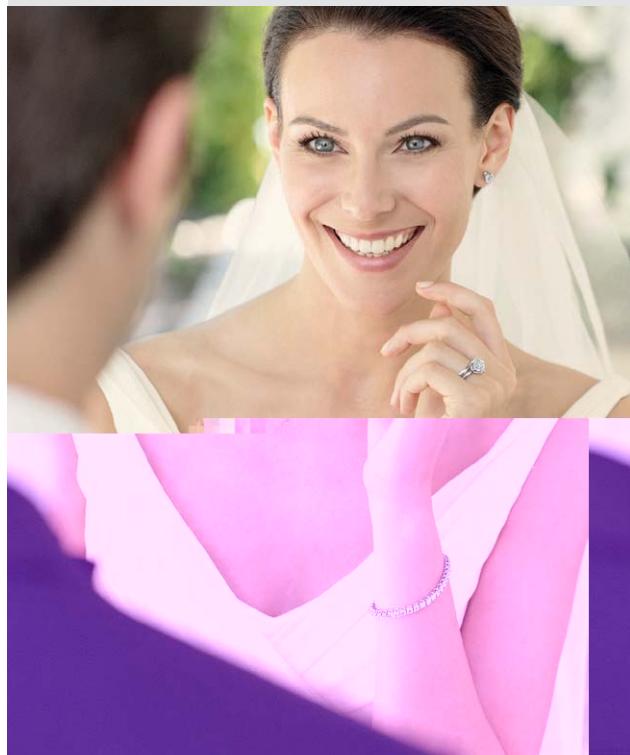
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THE JOURNEY OF A DIAMOND

DOWNSTREAM

GLOBAL
CONSUMER
DEMAND

DIAMOND
JEWELLERY
RETAIL





EXECUTIVE SUMMARY

This report aims to provide an annual perspective on the global diamond industry, drawing on The De Beers Group of Companies' extensive proprietary data and insight as well as other industry sources.

The report is divided into three sections: Section 1 provides an outlook for the global diamond industry; Section 2 describes the 2013 performance and key trends to watch in each part of the diamond industry value chain; and Section 3 highlights three 'In Focus' areas of particular importance to the industry. This year's report focuses on the changing consumer preferences in the world's largest and fastest-growing diamond jewellery markets, the US and China; on how technology is helping to safeguard the industry; and on the miracle of production, showcasing challenges and innovation in rough diamond mining.

SECTION 1: DIAMOND INDUSTRY OUTLOOK

In contrast with precious metals and other natural resources industries, which rely on multiple sources of demand, the diamond industry derives practically all its value from consumers' demand for diamond jewellery. The outlook for the industry is thus intrinsically linked to consumer demand. Even under scenarios of volatile or weaker global economic growth, demand for diamonds is expected to show positive real growth in the next decade.

Positive demand growth for diamonds will almost certainly outstrip growth in carat production, given the lack of major new discoveries in the last decade and the projected slowdown in several existing mines. Across the value chain, companies that are able to innovate and differentiate themselves will be best positioned to capture the opportunities created by this supply demand dynamic.

Relentless focus on two main areas will help the industry to achieve its full growth potential over the coming years:

- The first is **safeguarding and nurturing the diamond dream** – that is, the allure that diamonds have for consumers, based on their association with romance and a sense of the eternal, and the fact that they are seen as a lasting source of value. As always, changing consumer preferences, competition from other luxury categories, and – among other risks – the potential confusion caused by undisclosed synthetics all pose challenges for the entire industry.
- The second is for companies across the whole value chain to **innovate and differentiate**, to take full advantage of opportunities created by the expected growth in demand.



With these priorities in mind, three areas of investment are likely to be particularly important:

1. Investment in **branding, marketing and raised retail standards** will help ensure that consumers, particularly among new generations and new markets, do not drift away from the diamond jewellery category in favour of competing categories, such as travel, coloured stones, electronic accessories or designer fashion.
2. Investment in **production** to drive innovation and productivity in diamond supply. Diamonds have always been a rare and precious resource, and as mining moves deeper into the earth and towards more remote locations, the extraction process is now becoming increasingly complex, remote and more costly.
3. Investment in **technology** will continue to be a key differentiator across the value chain, while also safeguarding consumers against the risk of undisclosed treatments and synthetics, which could undermine the long-term credibility of the industry.

Lack of investment in these areas could hamper growth for the industry as a whole.

The industry's overall supply and demand dynamics should generate value-creating business opportunities that will enable such investments. However, scale and differentiation will be increasingly important factors for future success, across all parts of the value chain. The industry is likely to continue to consolidate and integrate (including through vertical integration). It is also expected to continue professionalising, modernising and becoming more transparent in the years to come – to the benefit of all those involved with this precious resource, from the geologist seeking the next big find to the bride wearing her diamond wedding ring.

SECTION 2: THE DIAMOND INDUSTRY VALUE CHAIN

Consumer demand for diamonds has shown positive nominal US dollar (USD) growth in the last five years, with compound annual growth in diamond value just under five per cent from 2008 to 2013. In this period, growth was driven mainly by the emerging economies of China and India, as well as the US, since 2010, while Japan and the main European markets have shown below average growth trends in this period.

The **diamond jewellery retail** sector is highly fragmented worldwide with a variety of business models serving a wide range of target consumers. The sector has experienced a range of financial returns. In developed markets, many jewellery retailers are failing to cover their cost of capital, resulting in negative returns and the closure of chains as well as smaller jewellers.

The recent acquisition of jewellery chain Zale Corporation by Signet Jewelers, another jewellery chain, illustrates the potential for consolidation in the jewellery retail sector.

Overall, retailers in emerging economies have outperformed their peers in developed economies, partly because of the recent fast growth of the middle classes and partly because of the rapid pace of store openings to supply growing demand in new geographies.

The online channel is becoming increasingly important around the globe, although consumers are going online for different reasons in different countries. In the US, the internet is becoming important as a sales channel in its own right: more than one-tenth of diamond jewellery sales in the US were made online in 2013. While online is not yet a significant sales channel in China, the internet is used by a quarter of acquirers for research purposes before purchase.

Many specialist fine jewellery retailers such as Tiffany, Cartier, De Beers Diamond Jewellers and Chopard continue to invest in product offers and store modernisation to support the diamond dream. Another major trend to watch is increasing activity by global luxury fashion houses such as Dior and Chanel in the sale of diamond jewellery. These global brands also support the diamond dream, and are raising consumer expectations of the store environment, in new design generation and customer service.

Branded diamonds and branded diamond jewellery present a growth opportunity for diamond jewellery retailers in both developed and emerging economies. Consumers worldwide increasingly prefer branded products and services. Brands can also be an attractive financial proposition for retailers because the brand identity frequently offers differentiation from generic propositions. The additional revenue that can be generated from brands should make it possible for retailers to invest in their store environment and in promoting their businesses and the category, leading to a virtuous circle of growth.

Cutting and polishing remains fragmented, with midstream companies under pressure from a combination of increasing costs in the upstream, the availability of credit and price-point requirements from their retail customers. The financing challenges are increasingly critical and could intensify over the coming years, as banks apply more stringent lending standards to the cutting and polishing industry. One possible consequence is that some companies may exit the industry, leading to greater consolidation. Over time, those firms able to add significant value to the diamond cutting and polishing process, and those with transparent corporate and financial structures, are more likely to be successful.



The shift of cutting and polishing operations towards low-cost centres in India and the Far East is likely to have reached its peak. Over recent years, producing countries such as Botswana, South Africa and Namibia have been striving for increased domestic beneficiation. However, the development of a long-term sustainable cutting and polishing industry will require not only government intervention but also internationally competitive productivity levels.

Rough diamond sales and distribution channels are continuing to evolve, as producers experiment with sales methods to maximise the value of their rough diamonds. Over the last five years, auctions have grown in importance and it is possible that, as technology continues to evolve, this trend will continue. However, the major rough diamond producers are expected to continue to rely predominantly on long-term contracts to sell their production.

Producing countries have been playing a more important role in the sale and distribution of rough diamonds. This is driven by national governments' desire to increase their share of value from the primary resource. The continuing trend towards in-country beneficiation of diamonds saw perhaps its largest milestone yet in 2013, with the move of De Beers' Global Sightholder Sales to Botswana, and the organisation of De Beers' first ever international 'Sight' in Gaborone in November 2013.

Rough diamond production was an estimated 146 million carats in 2013, well below the 2005 peak of over 176 million carats mined¹. Overall diamond supply is expected to increase moderately in the next few years, driven by new projects coming on-stream. By 2020, when many existing mines will begin to see declining outputs, overall supply will be likely to plateau and, unless major new discoveries are made in the coming years, supply can be expected to decline gradually from 2020.

Diamond production is becoming increasingly challenging as mining moves towards deeper, less profitable and more remote sources of diamonds. This trend is explored further in the 'In Focus' chapter, 'The miracle of production'.

Exploration spend is expected to remain high as the chase to find the next major source of diamonds intensifies. Today, most of the diamond exploration spend takes place in historically underexplored African countries such as Angola, the Democratic Republic of Congo (DRC) and Zimbabwe, as well as the vast swathes of Arctic Siberia and Canada. Large-scale profitable discoveries will most likely remain elusive, however. Viable diamond deposits of any scale are rare and difficult to find, and no amount of investment in exploration guarantees the discovery of deposits on which sustainable mining operations can be built.

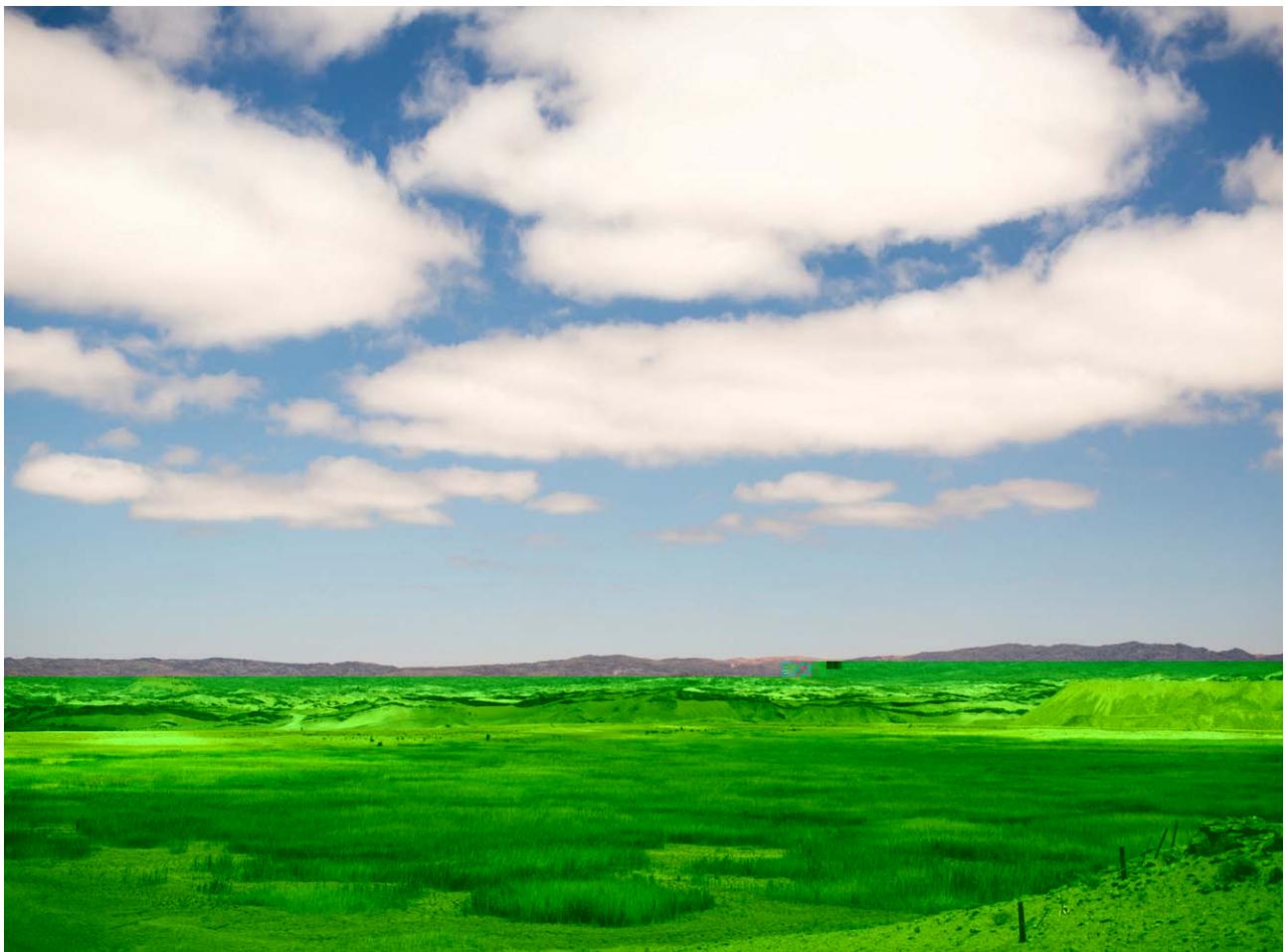
In reality, exploration spend for diamonds has not kept pace with that for other natural resources; it is now at practically half the record levels seen in 2007, when the industry was spending almost US\$1 billion per year on diamond exploration. This situation is not expected to change in the near future, as the global mining industry overall continues to face pressure on capital expenditure.

SECTION 3: IN FOCUS

‘Changing consumer preferences and the growth of brands’ looks in detail at how the consumer landscape is changing in the US and China. Notwithstanding the market’s vertiginous growth over the last five years, China still offers a tremendous growth opportunity for the industry. Penetration of diamond jewellery is still relatively low and consumers’ desire for diamonds is high. The situation in the US, a more mature market for diamonds, is different. Fine jewellery has grown more slowly than other luxury categories in recent years. However, there are promising growth areas in the US too, not least in bridal jewellery and branded diamonds and diamond jewellery, which have performed particularly well in recent years.

‘Safeguarding the industry through technology’ describes the vital role played by technology across the entire diamond value chain. Geologists rely on technological innovation to help them discover new, viable sources of diamonds in locations that are often hard to access and difficult to work in, such as the Arctic Circle. Mining companies also look to technological innovation to keep operating costs as low as possible. Rough diamond producers are dependent on automated high-speed technology to sort diamonds. Laboratories and cutting centres rely on detection equipment to identify undisclosed synthetics and treatments, which pose a challenge to consumers’ confidence in diamonds.

‘The miracle of production’ explores the increasing complexity and cost of mining diamonds. This section explains what it takes to bring a diamond to the market in the 21st century, and offers an insight into the day-to-day realities and costs of diamond mining at the extremes of the earth.



THE FUTURE AT A GLANCE

- 1.** Diamond demand will continue to grow in real value terms, driven by the effect of the US economic recovery and the continued growth of emerging markets, especially China.
- 2.** Positive demand growth for diamonds will almost certainly outstrip growth in production volume in the medium term. Across the value chain, organisations that are able to innovate and differentiate themselves will be best positioned to capture the opportunities created by this supply demand dynamic.
- 3.** There will be strong competition from other luxury categories, and investment will be required to safeguard and nurture the diamond dream.
- 4.** Brands will become increasingly important – consumers are seeking them out, and they give retailers an opportunity to differentiate themselves from generic propositions.
- 5.** Online is rapidly increasing in importance as a channel for both research and sales of diamond jewellery to consumers, and will continue to do so – though the pattern differs by geographic market.
- 6.** The midstream will continue to come under competitive pressure and, as a result, will professionalise and consolidate; businesses with scale and/or differentiated strategies will thrive.
- 7.** Beneficiation will continue to be important for countries and regions where diamonds are mined.
- 8.** Diamond production will decline slowly after 2020 with low likelihood of large, economically viable new finds.
- 9.** As supply from existing mines decreases, mining will become increasingly complex and remote, and increasingly costly as a result. Investment in operational innovation will be required to drive productivity.
- 10.** Technology will remain critically important to support the whole value chain, including in safeguarding the diamond dream from the risk of weakening consumer confidence as a result of undisclosed synthetics and treatments to natural diamonds.



01

DIAMOND INDUSTRY OUTLOOK

In contrast with precious metals and other natural resources industries, which rely on multiple sources of demand, the diamond industry derives practically all its value from consumers' demand for diamond jewellery. The outlook for the industry is thus intrinsically linked to the strength of consumer desire for diamonds.

Positive demand growth for diamonds will almost certainly outstrip growth in carat production in the next 10 years, given the lack of major new discoveries in the last decade and the projected production slowdown in several existing mines. Even under scenarios of volatile or weaker global economic growth, demand for diamonds is expected to show positive real growth in the next decade. Across the value chain, companies that are able to innovate and differentiate themselves will be best positioned to capture the opportunities created by this supply demand dynamic.

A positive supply demand outlook is shared by a number of external experts. For example, in its recent publication on the global diamond industry, McKinsey & Company sets out four potential future scenarios for the diamond industry² (see Fig. 1). In every scenario, demand growth outstrips production growth. De Beers has undertaken some modelling of potential rough diamond supply and demand based on McKinsey's 'Diamonds are Forever' scenario, and the relative supply and demand curves are shown in Fig. 2. Other industry analysts have expressed similarly positive views (see Fig. 3).



FIG. 1: FOUR FUTURE SCENARIOS FOR THE DIAMOND INDUSTRY

McKinsey recently published a report, '*Perspectives on the Diamond Industry*'. Building on four key uncertainties, the macro-economic outlook, future consolidation in the value chain, consumer attitudes to diamonds, and the supply of rough diamonds, the report identified four future scenarios for the global diamond industry.

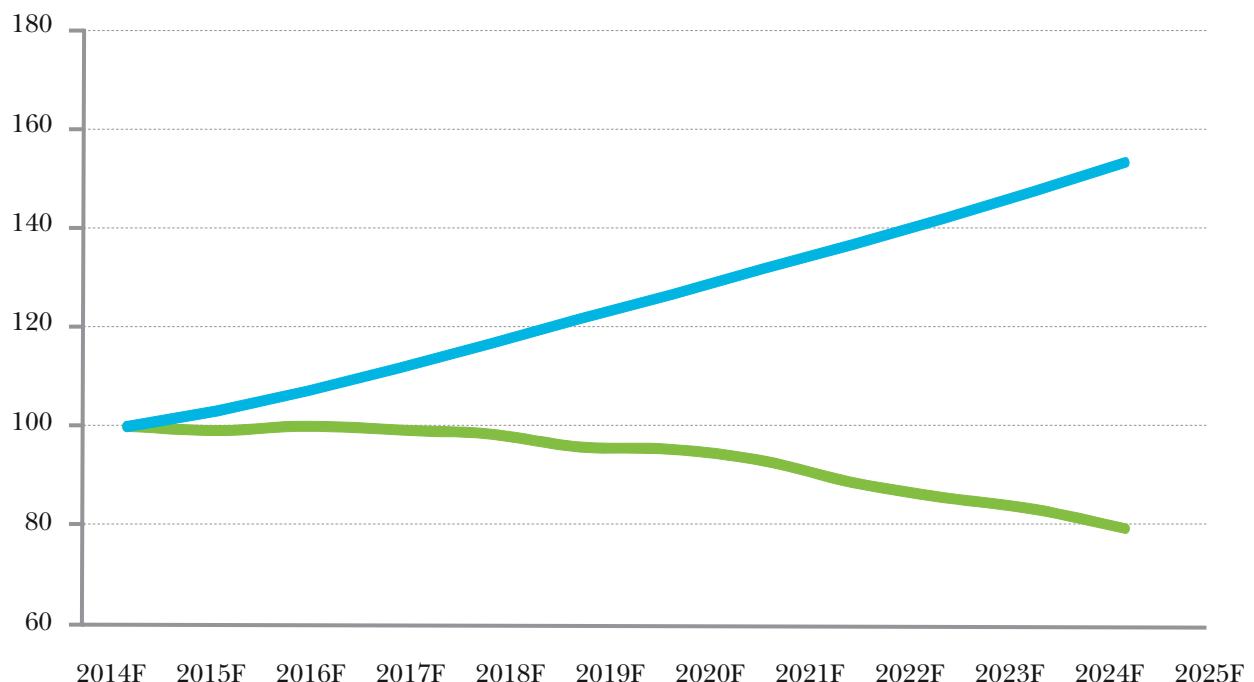
- 1 DIAMONDS ARE FOREVER** Consumer demand grows strongly, fuelled by recovery in the US economy and continued above-average growth in emerging markets, especially China and India. Brands become more important and increasingly invest in promoting the allure of diamonds. Even with demand in Europe and Japan softening, the dynamics of supply and demand in this scenario mean that previously uneconomical mining projects become economically viable, so production is maximised.
- 2 DEMAND SHOCK** Diamond demand grows more slowly as key consumer markets such as the US, China and India experience weak growth. Companies lose the incentive to invest heavily in brands, and diamonds lose some appeal through a lack of investment in promoting the diamond category and consumers moving away from conspicuous consumption. Production remains stagnant but recycling of diamond jewellery increases as consumers encounter financial distress.
- 3 FEAST AND FAMINE** The diamond industry develops in a volatile manner, driven by high levels of global macro-economic uncertainty. Strong rises in demand are followed by sharp decreases, leading to scattered supply expansion. Lead-time between the demand and supply cycles implies a wide variation in prices. Mining companies strive to diversify their mining assets to manage volatility and adapt to the growing resource nationalism trend. Consumers increasingly move away from diamonds, and brands slow down their investments.
- 4 EAST RENEWS GLOBAL GROWTH** The industry enjoys strong growth driven by emerging markets, especially China and India. However, US growth is only moderate. The consumer base for diamonds widens as the emerging middle class grows and consumers show a distinct preference for brands. Diamond producers will continue to invest in developing new supply projects.

Source: McKinsey & Company, '*Perspectives on the Diamond Industry*', September 2014

FIG. 2: SUPPLY AND DEMAND CURVE BASED ON 'DIAMONDS ARE FOREVER' SCENARIO

Index base 100 in 2014

— Production forecast in value at 2013 prices
— Demand forecast value in nominal terms (smoothed)



Source: De Beers analysis, McKinsey & Company, '*Perspectives on the Diamond Industry*', September 2014

FIG. 3: DIAMOND SUPPLY AND DEMAND: PERSPECTIVES FROM TWO INDUSTRY ANALYSTS

DIAMOND DEMAND



Diamond demand is expected to expand at a Compound Annual Growth Rate (CAGR) of 11 per cent in nominal value between 2013 and 2017, driven by:

- Cyclical recovery in US consumer spend on luxury goods as economic growth recovers.
- Structural demand growth from emerging markets on the back of higher penetration of diamond jewellery among a growing middle class.



Demand is set to strengthen rapidly, determined by the recovery of consumer confidence in two key markets:

- The US, which represents the largest share of global jewellery sales. All indicators point to the fact that the US will remain strong going forward.
- China, which will underpin diamond growth in the medium term, as penetration of diamond jewellery pieces increases. Jewellery growth in China is expected to remain robust, with leading retailers such as Chow Tai Fook reporting 32 per cent higher retail revenue over the 2014 Chinese New Year.

DIAMOND SUPPLY

Global natural supply is expected to increase at an average rate of 5.2 per cent between 2013 and 2017:

- Output in established mines falls as older mines come to the end of their life or move to underground mining. Going underground will make it difficult to maintain existing output levels due to additional haulage time and the technical challenges that come with underground mining.
- New mines coming online (including Grib, Gahcho Kué, Bunder, Karponskogo, Star-Orion South and Renard) represent only 17 million additional carats per year.

Production will be increased by a set number of projects coming online including:

- Petra's proposed expansion of Finsch and Cullinan, which will lift production from ~3 million carats per year in 2014 to over 5 million carats per year in 2019.
- Grib: 4 million carats per year.
- Gahcho Kué: 4 million carats per year by the end of 2017.
- Renard: 1.5-2 million carats by the end of 2017.

Source: Goldman Sachs, 'Get engaged with Russian diamonds: Initiating as Buy', 9 December 2013
RBC, 'Diamond Digest', 4 March 2014



However, the positive supply demand outlook can be expected to be impacted by the cyclical nature of the industry. It is especially prone to the ‘ripple effect’ caused by de-stocking and re-stocking by midstream operators to fulfil lower or higher demand. Despite this, over the past 50 years rough diamond values have consistently recovered as economic growth rebounds (see Fig. 4).

THERE ARE TWO KEY ASPECTS TO THE HEALTH OF THE DIAMOND INDUSTRY IN THE NEAR FUTURE

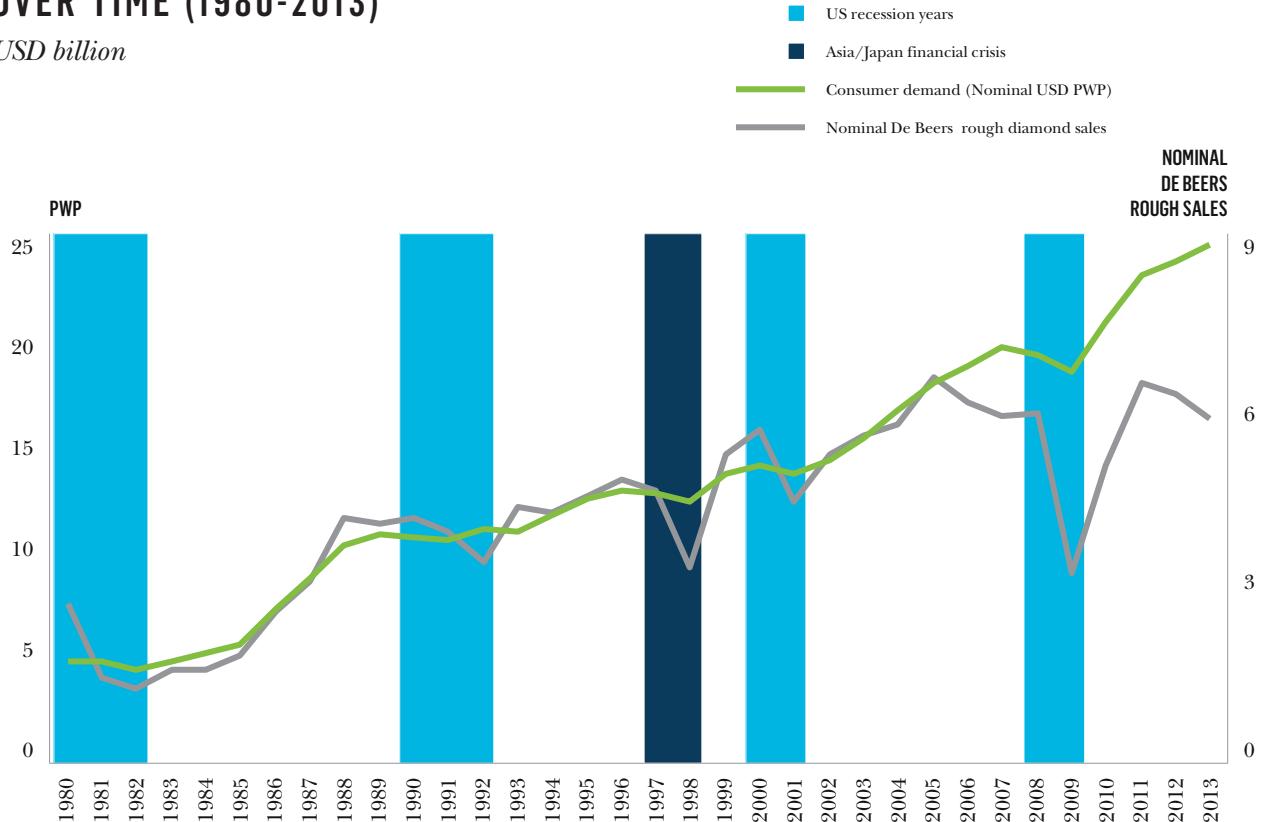
The first is **safeguarding and nurturing the diamond dream** – that is, the allure that diamonds have for consumers, based on their association with romance and a sense of the eternal, and the fact that they are seen as a lasting source of value. As always, changing consumer preferences, competition from other luxury categories, and – among other risks – the potential confusion caused by undisclosed synthetics and treatments all pose challenges for the entire diamond industry.

The second is **innovation and differentiation** to take full advantage of opportunities created by the expected growth in diamond demand.



FIG. 4: CONSUMER DEMAND AND DE BEERS ROUGH DIAMOND SALES OVER TIME (1980-2013)

USD billion



Source: De Beers

With these aspects in mind, three areas of investment are likely to be particularly important for future growth:

1. Investment in **branding, marketing and raised retail standards** will help ensure that consumers, particularly among new generations and new geographic markets, do not drift away from the diamond jewellery category in favour of competing items, be they experience categories such as travel, electronic accessories or designer fashion.
2. Investment in **production** to drive innovation and productivity in diamond supply. Diamonds have always been a rare and precious resource and, as mining moves deeper into the earth and towards more remote locations, the extraction process is now becoming increasingly complex, remote and more costly.
3. Investment in **technology** will continue to be a key differentiator across the value chain, and will also safeguard consumers against the risk of undisclosed synthetics and treatments, which could undermine the long-term credibility of the industry.

Lack of investment in these areas will be value destructive for the industry as a whole.

Overall, supply and demand prospects should generate value-creating business opportunities that will enable such investments. However, scale and differentiation will be increasingly important factors for future success, across all parts of the value chain. The industry will continue to consolidate and integrate (including through vertical integration), and to professionalise, modernise and enhance its transparency. This will be critical if it is to stay relevant and profitable. Companies with scale will be better positioned to make such changes proactively and therefore to benefit from the continued growth of the sector. Niche companies will have to differentiate further their value propositions.

It is the responsibility of the entire industry, especially those organisations of scale, to continue to make these investments and secure the future of the industry in the face of changes and challenges to the sector. The ‘In Focus’ section of this Insight Report discusses these three investment areas: the changing consumer; the challenges in rough diamond production; and the imperative of using technology to safeguard the consumer and the industry overall.



02

THE DIAMOND INDUSTRY VALUE CHAIN

This section of the report examines each stage of the diamond value chain in turn, providing a snapshot of how the industry has performed recently and one perspective on what the future may hold.

GLOBAL CONSUMER DEMAND

2013 SNAPSHOT

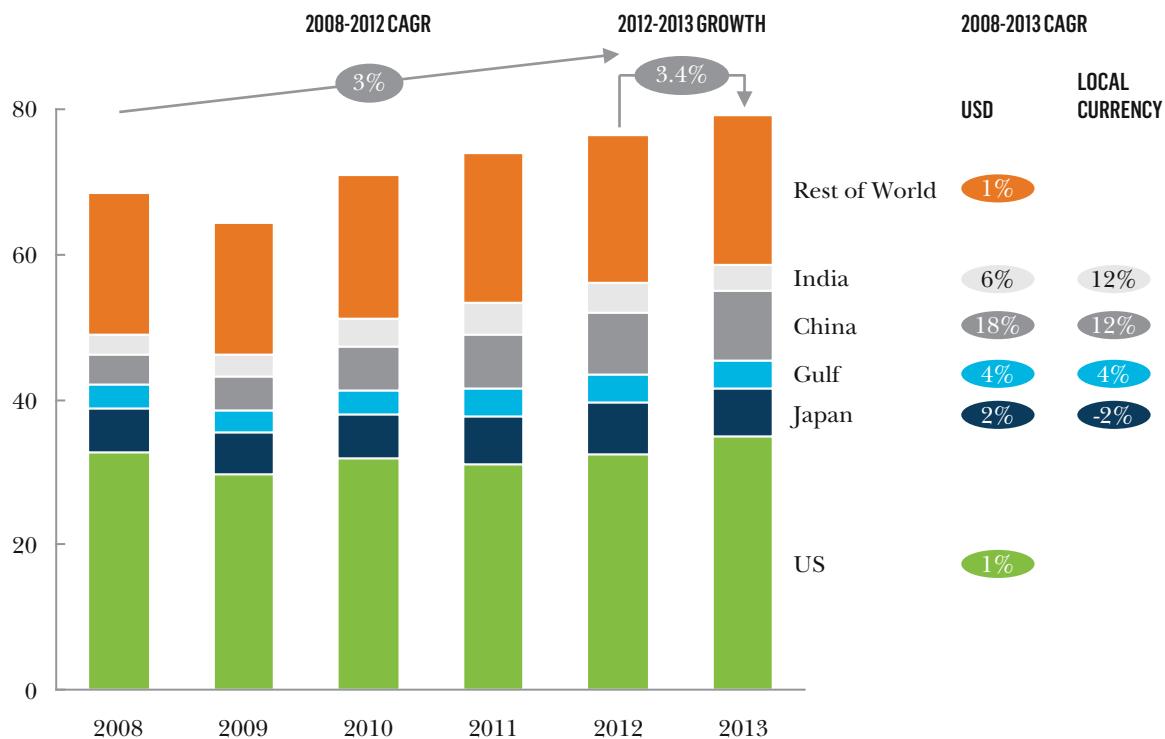
Global diamond jewellery sales were an estimated US\$79 billion in 2013, growing at over three per cent in nominal value in 2013 in USD terms vs 2012, ahead of the compounded annual rate of growth experienced between 2008 and 2012 (see Fig. 5). China continues to be the main growth engine of diamond jewellery demand, but the US also performed particularly well in 2013.

In terms of polished diamonds contained in diamond jewellery at cutting centre wholesale value (so called ‘PWP’ or ‘polished wholesale price’), demand increased by over three per cent from 2012 to 2013, to reach approximately US\$25 billion (see Fig. 6). The two biggest markets, the US and China, both grew by more than the global average, with sales of polished diamonds increasing seven per cent in the US and 14 per cent in China, measured in USD terms. In contrast, both India and Japan saw sales fall (by six per cent in Japan and 10 per cent in India, measured in USD terms).



FIG. 5: DIAMOND JEWELLERY VALUE, GROWTH BY GEOGRAPHY

USD billion (nominal)

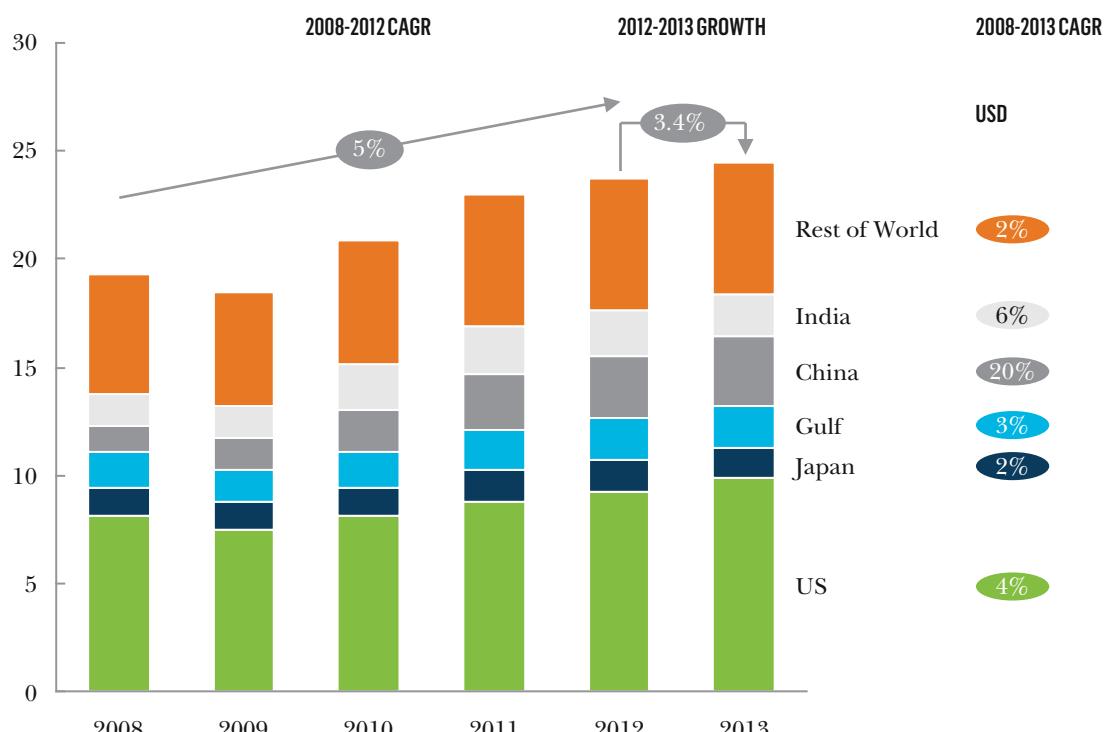


Note: Gulf includes Saudi Arabia, UAE, Qatar, Kuwait, Oman and Bahrain

Source: De Beers

FIG. 6: POLISHED DIAMOND VALUE, GROWTH BY GEOGRAPHY

USD billion (nominal)



Note: Gulf includes Saudi Arabia, UAE, Qatar, Kuwait, Oman and Bahrain

Source: De Beers

US consumers account for the largest share of global polished demand (ie polished diamond content) in USD terms at approximately 40 per cent, followed by China/Hong Kong/Macau (approximately 15 per cent), India (approximately eight per cent), the Gulf Region³ (approximately eight per cent) and Japan (approximately six per cent). Consumers in these top five markets accounted for approximately 77 per cent of total demand for polished diamonds in USD terms in 2013.

All main geographic markets consume all types of polished diamonds. However, with the exception of the US, which has a more evenly distributed consumption across all types of polished diamonds, other markets have particular focus areas of polished diamonds (see Fig. 7). For example, India consumes mainly stones under 0.08 carats of all clarities, while China consumes mainly stones between 0.18 carats and 0.99 carats of medium and high clarity. In recent years, there has been growing demand for larger and higher clarity diamonds in both the US and China. This will probably mean increased competition to secure supply of the best jewels and, potentially, an increasing shift in value towards those types of diamonds.

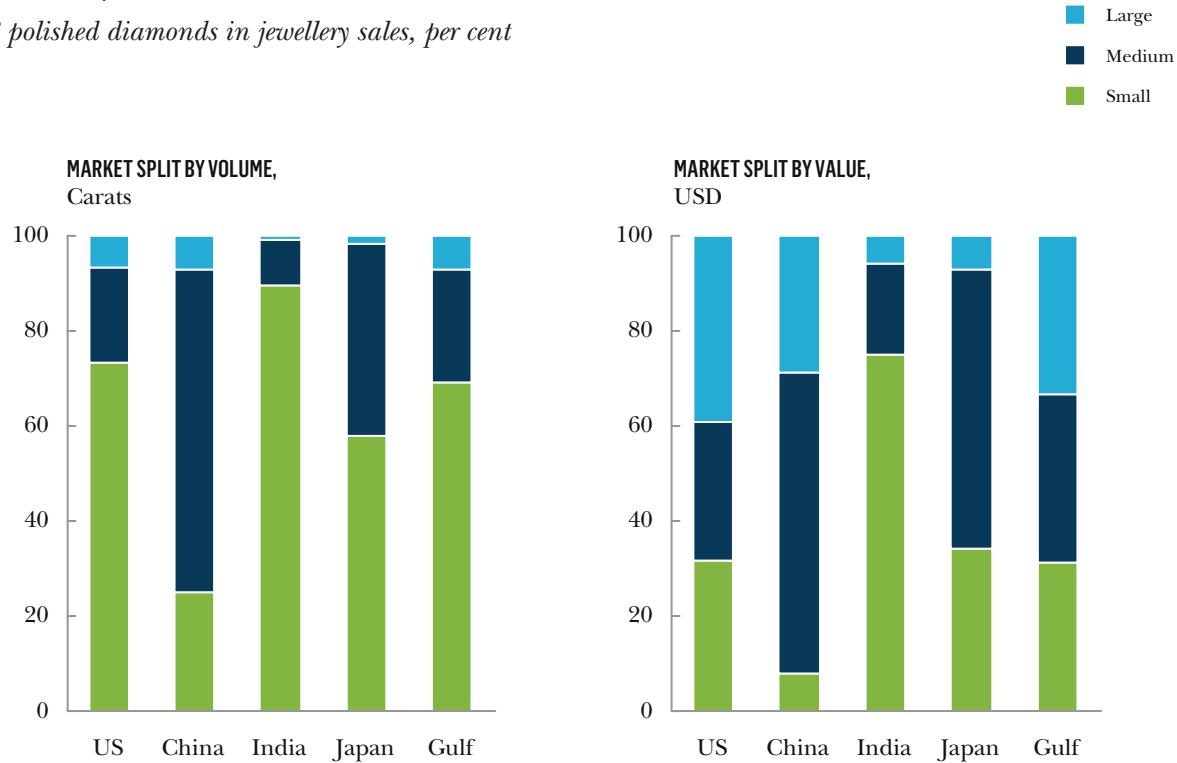
Another characteristic of the diamond jewellery segment is the seasonality of demand. Different geographic markets have different shopping seasons, but Q4 tends to be the main sales season globally, followed by Q1. Fig. 8 illustrates the main periods of diamond jewellery acquisition by consumers for the three largest diamond consumer markets. Of note is the pronounced seasonality of the US in which a high proportion of pieces are acquired by consumers between Thanksgiving and Christmas. Other markets have slightly less pronounced seasonal patterns.

LOOKING AHEAD

A detailed view of future consumer trends for the diamond industry's most important markets, the US and China, is provided in the 'In Focus' section of this report: see 'Changing consumer preferences and the growth of brands in the United States and China'.

FIG. 7: TYPE OF POLISHED DIAMOND SOLD IN MAIN DIAMOND JEWELLERY MARKETS, BY SIZE BAND

2013 polished diamonds in jewellery sales, per cent



Note: Large = 1+ carat, Medium = 0.18-0.99 carat, Small = <0.18 carat
Source: De Beers

FIG. 8: SEASONALITY OF CONSUMER DIAMOND JEWELLERY (DJ) ACQUISITIONS BY MAIN MARKET

Monthly distribution of DJ acquisitions, per cent

US India China



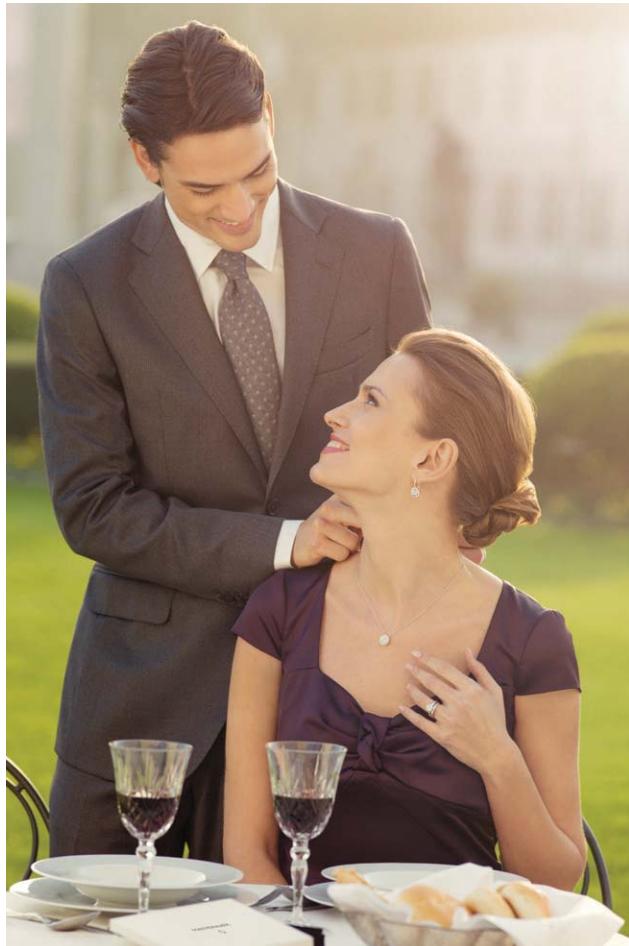
Source: De Beers

DIAMOND JEWELLERY RETAIL

2013 SNAPSHOT

Diamond jewellery retail is a highly fragmented sector with over 200,000 retail doors selling diamond jewellery worldwide.

The past few years saw a marked contrast between developed and emerging markets in the performance of diamond jewellery retailers. In developed markets, retailers have faced pressures from a weak economic environment and strong competition from branded luxury goods and experiential categories, as well as the low-price models of ecommerce companies. On the other hand, the growing middle classes and increasing consumer appetite for diamonds have allowed retailers in developing markets, together with the less prevalent ecommerce models, to enjoy higher margins and return on invested capital, although these too have started to come under pressure.



DEVELOPED MARKET RETAILERS ARE UNDER PRESSURE, BUT SOME BUSINESS MODELS PERFORM STRONGLY

In developed markets, multiple business models exist within diamond jewellery retail, ranging from luxury chains to small, independent, family-owned stores. Many of the large listed retailers across the US, Japan and Europe have failed to meet their cost of capital, resulting in negative returns⁴ (see Fig. 9). Leading US speciality jewellery chains closed over 2,000 doors in the last five years, with several traditional large chains such as Whitehall, Friedman's and Finlay no longer trading⁵ (see Fig. 10). No new jewellery retail chains of scale have emerged to replace the doors lost when these stores ceased to trade.

Not all developed market retailers make returns below their weighted average cost of capital (WACC). Among several retailers that have established successful business models is Tiffany, which maintains one of the highest margins of its peer group⁶. Blue Nile is another example: the company is unusual in achieving negative working capital by minimising inventory and maximising payables, as consumers pay for their items before they have been acquired by Blue Nile⁷.



JUAN G AUNION/SHUTTERSTOCK.COM

FIG. 9: FINANCIAL RATIOS FOR A SELECTION OF LISTED JEWELLERS IN DEVELOPED MARKETS

Per cent

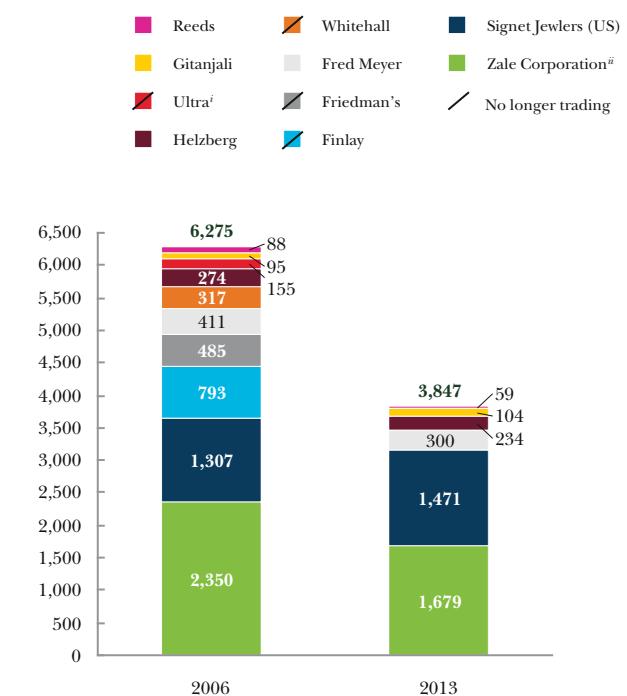
		ROIC		EBIT	
		2012	Most recent	2012	Most recent
US	Tiffany	19	15	18	21
	Signet Jewelers	15	15	14	14
	Zale Corporation	5	7	1	3
	JC Penney	-2	-13	-11	-10
	Blue Nile ⁱ	54	40	3	3
<hr/>					
JAPAN	Tasaki Shinju	-2	5	-3	1
	Jewelry Tsutsumi	3	3	13	13
<hr/>					
EUROPE	Damiani	-6	-5	-5	-4

ⁱ Blue Nile's 2013 annual report states that the company has negative working capital

Source: Bloomberg

FIG. 10: UNITED STATES JEWELLERY CHAINS' DOORS OVER TIME

Chains ranked top 10 in 2006



ⁱ Signet Jewelers acquired Ultra in 2012, with stores now incorporated in Signet Jewelers' (US) total

ⁱⁱ Signet Jewelers acquired Zale Corporation in 2014

Source: Company filings

FIG. 11: FINANCIAL RATIOS FOR A SELECTION OF LISTED JEWELLERS IN EMERGING MARKETS

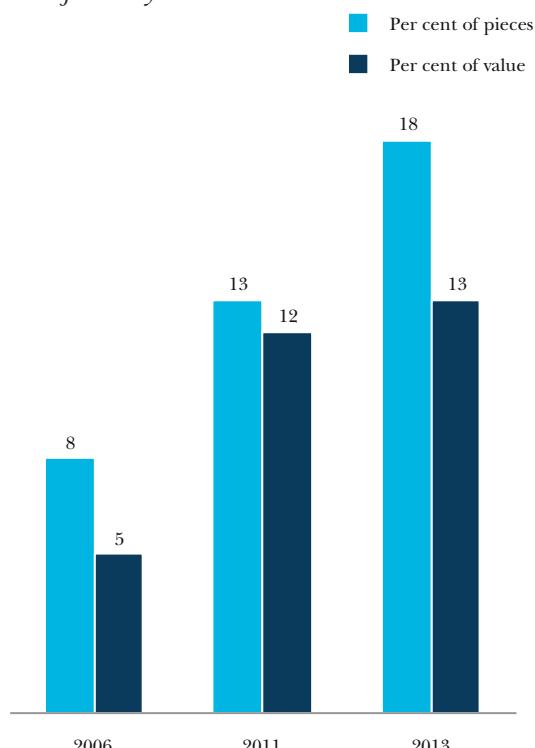
Per cent

		ROIC		EBIT	
		2012	Most recent	2012	Most recent
CHINA	Chow Tai Fook	15	14	13	12
	Chow Sang Sang	7	7	7	4
	Luk Fook Holdings	19	22	11	12
	Lao Feng Xiang	14	15	5	4
	Hengdeli Holdings	10	8	11	8
INDIA	Titan Company	35	22	10	10
	Thangamayil Jewellery	12	1	5	1
	Tribhovandas Bhimji Zaveri	12	8	9	7

Source: Bloomberg

FIG. 12: GROWTH OF ONLINE DIAMOND JEWELLERY SALES IN THE UNITED STATES

Share of online acquisitions in total women's diamond jewellery market



Source: De Beers

ON THE WHOLE, EMERGING MARKET RETAILERS HAVE OUTPERFORMED DEVELOPED MARKETS

For retailers in emerging markets such as China and India, sales of gold and gold jewellery, normally a low margin category, represent the majority of their revenues. However, retailers in these markets selling diamond jewellery have benefited from structural factors: growing economies, an increasing base of consumers with appetite for diamonds and expanding number of stores selling diamond jewellery. In China, there is also a benefit from relative sector consolidation, with multiple jewellery retailers operating 'at scale'.

Over the past few years, however, EBIT margins (which for the major listed developing market jewellers are similar to those of leading developed market peers) have come under pressure⁸ as jewellery input costs have increased and the pace of expansion has slowed (see Fig. 11). In addition, gold demand volatility has also played a role in weakening financial results. As economic growth decelerates in the next few years, and competition increases, it is likely that margin pressures will also build for diamond jewellery retailers in emerging markets.

THE IMPORTANCE OF ONLINE CHANNELS RISES ACROSS THE WORLD

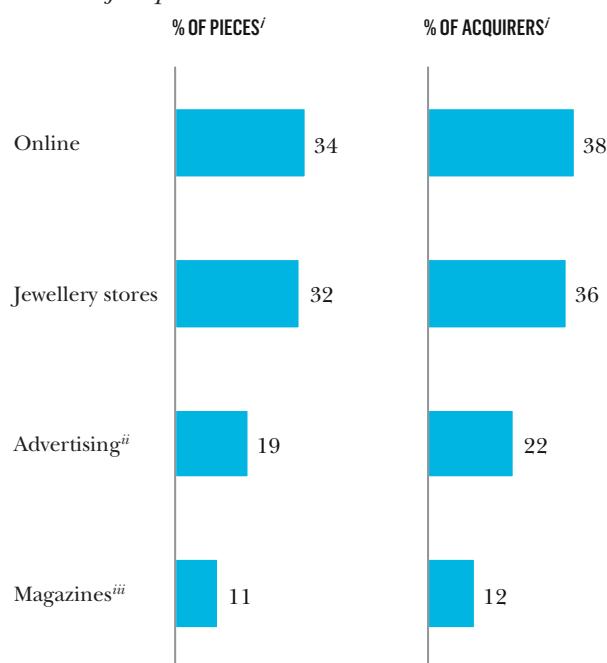
Both emerging and developed markets saw a rise in the importance of online channels in 2013. More than one in six diamond jewellery purchases in the US were made online in 2013, a growth of over 30 per cent since 2011 (see Fig. 12). Going online also remains the most popular way for consumers to research a purchase in the US: almost four in 10 consumers go online for research purposes before buying, ahead of other touch-points such as jewellery stores and advertisements (see Fig. 13).

Although online is not yet a significant sales channel in China, the internet is already used by a quarter of acquirers for different purposes, such as to learn about fine jewellery quality and prices, to learn about brands, and to pre-select designs. The internet is used more frequently in the diamond purchase process by single women, half of whom use it, and also by affluent consumers, about six in 10 of whom research online.

Online, including mobile usage, can be expected to grow in importance for diamond jewellery retailers everywhere, be it for research purposes before a purchase or as a sales channel (pure or hybrid, via web sales with store pick-up).

FIG. 13: PRE-PURCHASE TOUCH-POINTS FOR DIAMOND JEWELLERY ACQUIRERS IN THE UNITED STATES

Per cent of acquisitions in 2013



i Multiple responses allowed

ii Includes all forms of advertising for a piece of diamond jewellery or brand

iii Refers to DJ acquirers who selected 'look in magazines to see the range of options'





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LOOKING AHEAD

BRANDS MAY HELP OVERALL PERFORMANCE, ESPECIALLY IN DEVELOPED MARKETS

One way for the retail industry to improve its financial performance could be a greater emphasis on branded diamonds and diamond jewellery. Increasing consumer preference for brands is evident in the US from the jump in claimed acquisition of branded engagement rings, from just seven per cent of consumers in 2002 stating that their diamond engagement ring (DER) was branded to one-third of consumers in 2013 claiming that this was the case.

By offering brands with a specific positioning, and a story that goes beyond the 4Cs, retailers are able to address consumer needs for emotional engagement, differentiate the product from generic offerings and reinforce the diamond dream. While scale companies are better placed to make the level of investment required to benefit from this growing preference, all retailers have the potential to benefit from this trend.

Branded diamond jewellery can also be an attractive financial proposition for retailers. Successful brands typically command a price premium above generic products. This is based upon factors such as polished diamonds' beauty and appearance, jewellery design,

higher levels of consumer confidence, and superior service, offering retailers opportunities to differentiate from generic propositions (see Fig. 14).

The additional revenues from brands help retailers to invest further in the in-store experience and in promoting their businesses and the category, helping to generate growth.

GLOBAL LUXURY BRANDS ARE SUPPORTING THE DIAMOND DREAM AND CHANGING CONSUMER EXPECTATIONS

Many global luxury players such as Chanel and Dior have entered the market for diamond jewellery, and their approach to retailing is raising the bar for all (see Fig. 15). As consumers become accustomed to the retail standards set by the luxury houses, their expectations of the store environment and customer service are rising – with important consequences for other fine jewellery retailers.

Global luxury companies are not only changing consumer expectations of how to buy, but also consumer beliefs about what to buy. When selecting diamonds, a consumer's focus is often on acquiring the best diamond possible: the carat content and quality are critical. Global luxury brands are often trying to shift the focus towards acquiring distinctive designer pieces, adorned with diamonds.

FIG. 14: HOW THE FOREVERMARK BRAND IS SUPPORTING RETAILERS

1

OFFERING A UNIQUE PROPOSITION

- Fewer than one per cent of the world's diamonds are eligible to become a Forevermark diamond.
- Branded diamonds with strong consumer benefits can command a price premium over unbranded products, translating into a margin uplift.
- Forevermark provides retailers and consumers alike with the total confidence that their Forevermark diamond is not only natural and untreated but responsibly sourced.
- Retailers can utilise the Forevermark brand in designs tailored to specific markets and consumer tastes. *"I also love the fact that, while Forevermark is a brand in and of itself, we are able to customise the offering and the marketing message to fit our merchandise and image strategies."* – Coleman Clark, B.C Clark Jewelers.

2

INVESTING IN AWARENESS AND DRIVING FOOTFALL AS CONSUMERS SEEK OUT FOREVERMARK STOCKISTS

- Launched in China in 2008 and North America in 2011, Forevermark now has over 476 and 402 retail partners in the countries respectively.
- The Forevermark brand continues to make gains in brand awareness in the top diamond jewellery markets: in 2013, prompted awareness in the US reached one third of consumers, and in China prompted awareness was 44 per cent.
- Forevermark recently celebrated its one millionth inscription globally, with 45,000 diamonds inscribed in the US in 2013, a year-on-year increase of 66 per cent.
- The Forevermark US Center of My Universe campaign in 2012 and 2013 was enthusiastically received by both consumers and retailers: *"...very pleased with overall traffic that was brought in due to the campaign. Three times better than last year's."* – Forevermark retailer.

3

ENHANCING THE PURCHASING EXPERIENCE FOR CONSUMERS

- Consumer initiatives such as branded in-store diamond viewers enhance the consumer's experience, creating a dialogue around the product. *"Getting a client involved in viewing the Forevermark icon and inscription number is a must."* – John Borges, Marci Jewelers.

Source: De Beers

FIG. 15: CASE STUDY: CHANEL

Chanel is an example that epitomises the level of sophistication that luxury retail has reached.

"If I have chosen diamonds it is because they represent the highest value in the smallest volume"
— Gabrielle Chanel



MARTINGOOD/SHUTTERSTOCK.COM



MARCHMARCH/SHUTTERSTOCK.COM



RADUBERCAN/SHUTTERSTOCK.COM



TKKURIKAWA/SHUTTERSTOCK.COM

The brand has invested heavily in stores, securing prime locations for its flagships, (eg New Bond Street in London and New York's Fifth Avenue). Additionally, the quality of materials and architecture of these stores is rising fast: leading architect Peter Marino was engaged to work on Chanel's flagship New Bond Street store in London, and this one store alone is estimated to have cost £30 million to design and refurbish⁹. Chanel has also created pop-up stores, such as its temporary boutiques in St Tropez¹⁰ and Courchevel¹¹, aimed at attracting wealthy holidaymakers.

Chanel has been careful to differentiate its store formats, opening specialist boutiques exclusively to serve customers who are shopping for fine jewellery and watches rather than fashion. This allows Chanel to offer an experience tailored specifically to selling jewellery, with the right store ambience, specially trained staff and accompanying security.

Chanel is using technology and data in innovative ways to enhance the customer experience. For instance, new stores feature a large screen on which to stream live coverage of Chanel's fashion shows. Chanel also communicates with its customers through a twice-daily newsletter, Chanel News¹².

At the same time as investment in store and customer experience has grown, Chanel's marketing investment has also risen (as has that of its peers in the luxury world). Chanel more than doubled its overall advertising spend over the last five years (up from US\$67 million in 2008 to US\$153 million in 2013), pulling ahead of branded jewellery specialists whose advertising spend decreased over the same period¹³. This level of investment, in both advertising and the retail experience, helps to reinforce the consumer's desire for diamonds as precious and beautiful gems that are particularly appropriate to mark significant life occasions and milestones.

FIG. 16: JEWELLERY MARKET M&A VOLUMES AND NUMBERS OVER TIME



Source: Dealogic

CONTINUED CONSOLIDATION CAN BE EXPECTED

A possible response to rising consumer expectations, and the increased investment required to support them, could be retailer consolidation. In fact, given the recent weakness in the world's economy and the number of underperforming retailers, consolidation might already have been expected to happen.

In reality, deal numbers and volumes in the industry have grown slowly, at only two per cent CAGR from 2003 to 2013¹⁴ (see Fig. 16).

The recent transaction announced between Zale Corporation and Signet Jewelers in the US may signal a change in the US jewellery retail space. The new combined Signet/Zale entity could have as much as 10 per cent of total diamond jewellery sales in the US. The US\$100 million of annual savings estimated to be achieved by fiscal year-end 2018¹⁵, which the new entity hopes to generate through store rationalisation and increasing buying power, are meant to support its profitability and allow it to invest in responding to the changing consumer landscape.

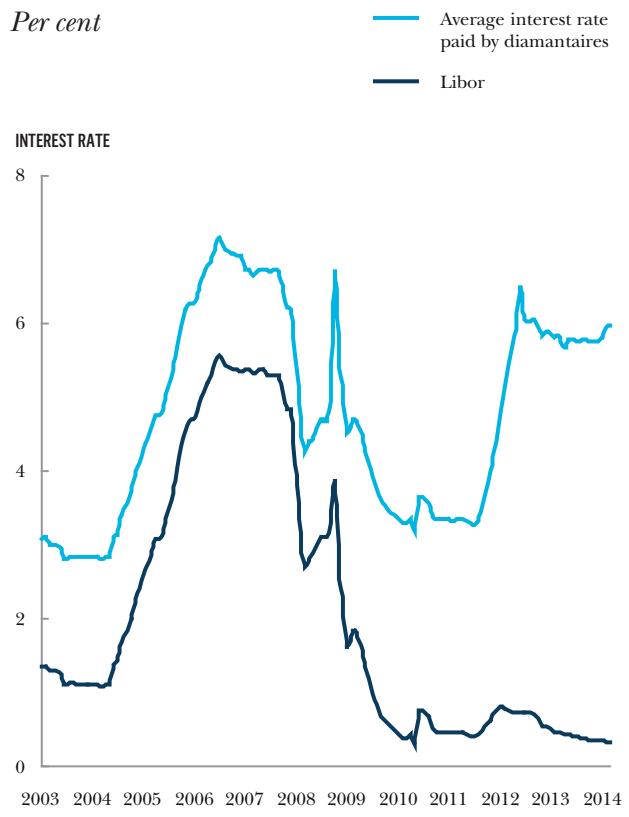
CUTTING AND POLISHING

2013 SNAPSHOT

The cutting and polishing industry is global in nature. It remains fragmented, with thousands of companies operating with multiple business models, including wholesalers, rough dealers, manufacturers and polished dealers, as well as combinations of these activities. The Israel Diamond Exchange, for example, has more than 3,000 members¹⁶, many of which are very small companies or sole proprietors. Even among the leading companies in the sector, there are many traditional family-owned businesses with a long history in the diamond industry.

However, recent years have seen the midstream sector coming under increasing pressure for a number of reasons. These include lower carat supply, increasing costs in the upstream, and growing pressure from the retail sector, where consumers make higher demands and brands take greater share (as described in the ‘Diamond Jewellery Retail’ chapter of this report). These trends are compounded by significant financing challenges: as polished demand increases, the midstream needs additional funding. Declining overall central bank interest rates¹⁷ have not resulted in lower borrowing costs for midstream companies, indicating that banks perceive increasing risks in the diamond sector overall (see Fig. 17).

FIG. 17: DIAMANTAIRES' BORROWING COSTS OVER TIME VS LIBOR RATES



Source: De Beers estimates; ICE Benchmark Administration Limited (IBA) for Libor rates



An interview with Erik A. Jens, CEO, ABN AMRO International Diamond & Jewellery Clients



A DIAMOND INDUSTRY BANKER'S VIEW ON MIDSTREAM ISSUES AND SOLUTIONS

LOOKING AHEAD

PRESSURE ON THE MIDSTREAM IS LIKELY TO LEAD TO PROFESSIONALISATION AND CONSOLIDATION

Financing challenges are increasingly critical and could intensify over the coming years. Rising inventory costs, and diamond banks' drive to constrain the growth of their lending to the midstream, will mean financing costs are unlikely to decrease, particularly if the trend of low interest rates begins to change.

Additional financial scrutiny of the midstream sector can therefore be expected. Leading banks in the diamond sector have come to realise that they have been taking equity-type risks in the diamond midstream without getting the corresponding returns. This is now changing and, as a result, borrowing costs are going up while banks are asking their borrowers to professionalise their capital management.

Overall, this trend is expected to affect the way the industry operates. New lending standards will increase the regulatory burden on the midstream, leading to higher costs and operational complexity. One possible consequence is that less well-established companies may even exit the industry, leading to some level of consolidation.

Q

CAN YOU BRIEFLY INTRODUCE YOURSELF AND YOUR EXPERIENCE WITH THE DIAMOND INDUSTRY?

I joined ABN AMRO International Diamond & Jewellery Clients, one of the major lenders to the midstream over the last century, as the CEO more than two years ago. My background is in private banking and finance, particularly hedge funds, so I entered the diamond industry with a fresh perspective.

Q

HOW HAVE YOU SEEN THE MIDSTREAM EVOLVE SINCE YOU FIRST STARTED WORKING HERE?

I have seen the industry's attitude to change evolve. A couple of years ago, the midstream had a large culture of blame: blaming miners for high prices, retailers for stealing margins and bankers for limited support. Recently, however, midstream players have looked at themselves in the mirror, and become self-critical in their practices. There appears to be a readiness to embrace change from within, in order to tackle the increasingly competitive landscape. I believe this is a positive thing because it means the industry is becoming more transparent and sustainable.

Over time, those firms that are able to add significant value in the diamond cutting and polishing process are more likely to be successful.

To succeed in today's highly competitive midstream, diamond businesses must develop strongly differentiated, value-added propositions that set them apart from their competition. Diamantaires at all stages of the value chain have approached this challenge in their own unique ways. Rough dealers and preparers, such as Dianco, Diarough, De Toledo and Fruchter Gad, have developed their own unique, proprietary and bespoke assortments which are carefully targeted and adapted to the needs of specialist manufacturers.

Rough polishing has been the source of tremendous innovation over the past decade, with Indian firms such as K Girdharlal, Venus, Karp and Kiran leading the way: their implementation of advanced IT and laser technology has revolutionised the precision and yield recovery of the cutting and polishing process.

For other firms, polished diamond distribution has become the key to their differentiation. Sophisticated internet-enabled stock management systems allow businesses such as EZ Diamonds, YDI and Star Rays to respond with speed and precision to their customers' changing needs, often integrating seamlessly with a customer's own order management systems.

Q WHAT ARE YOUR KEY CONCERN REGARDING THE FINANCIAL HEALTH OF THE MIDSTREAM?

There is general lack of transparency in business practices and quality of reported financials across the midstream, leading to a loss of trust. This is compounded by the fact that the midstream is highly levered. Banks are therefore being more critical and thorough with funding decisions, and looking for a greater level of security against their loans.

Q HOW DO YOU THINK THE MIDSTREAM CAN ADDRESS THESE CONCERN FOR THE FUTURE? WHO HAS BETTER ACCESS TO FUNDING AND WHY?

When approaching financing decisions, we assess the 'bankability' of the clients – whether their business is in good financial health with transparent business plans, if they apply IFRS or equivalent GAAP standards especially when reporting receivables and inventory, and streamlining processes such as the removal of inventory round-tripping. Financiers reward sound fiscal management and good compliance by providing better lending conditions and more favourable rates. I also believe in openness between banks and their clients in order to work through any issues – which in the end comes back to the importance of transparency.

Q WHICH DO YOU BELIEVE ARE THE MOST SUCCESSFUL PLAYERS IN THIS INDUSTRY AND WHAT ARE THEY DOING THAT IS MAKING THEM SUCCESSFUL?

In an increasingly competitive landscape, competitors have to adopt strategies to ensure survival and sustainability. Sustainability, in my opinion, is the right to exist. This is achieved by being prepared to compete in a saturated space with dynamic and flexible business plans, investment in infrastructure and technology and diversification. Some successful players have shown innovative manufacturing and cutting strategies to produce greater yields as well as developing a unique product.

Q DO YOU EXPECT CONSOLIDATION GOING FORWARD?

The rate of change is still very slow, so I do not envisage much consolidation in the next five years or so. However, I do see the competitive landscape getting tougher, which will lead to those less sustainable businesses disappearing.

Many midstream companies now also offer a consumer branded proposition that creates a unique identity around the precision cuts they manufacture. These include Leo Schachter with the Leo cut, Exelco with Tolkowsky and Crossworks with the Ideal Square and Ideal Cushion.

THERE WILL BE A CONTINUED PUSH FOR IN-COUNTRY BENEFICIATION

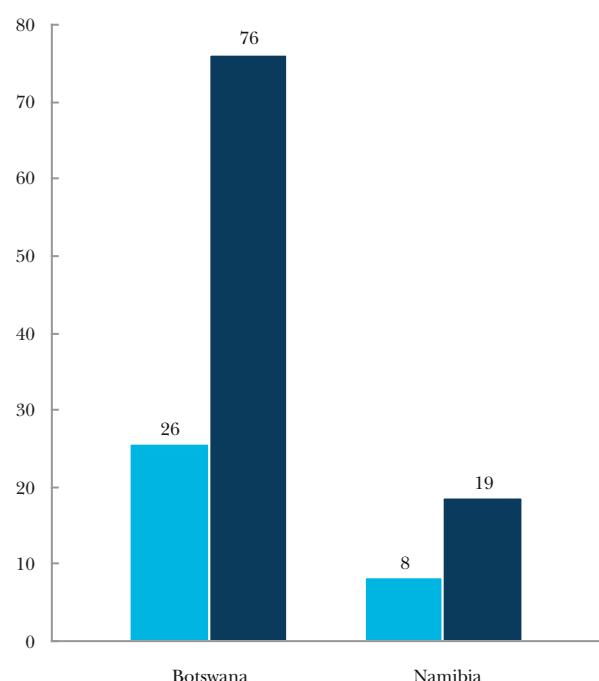
When it comes to the geographical location of cutting and polishing, the move towards low-cost centres in India and the Far East is likely to have reached its peak. Over recent years, producing countries such as Botswana, South Africa and Namibia have been striving for increased domestic beneficiation, leading to some cutting and polishing jobs migrating to those countries.

Diamonds are critical to the economies of some producing nations. In Botswana, for example, diamonds represent more than one quarter of GDP¹⁸ and over three-quarters of overall exports¹⁹, whereas in Namibia they represent eight per cent of GDP²⁰, and almost 20 per cent of exports²¹ (see Fig. 18). However, diamond mining in itself only creates a limited number of jobs (as is also the case with other types of mining) since it is capital-intensive rather than labour-intensive.

FIG. 18: DIAMONDS' SHARE OF GDP IN KEY PRODUCING COUNTRIES IN 2013

Per cent

- █ Diamond production, by value, as per cent of GDP
- █ Diamond exports, by value, as per cent of total exports



Source: The World Bank; Kimberley Process Statistics; De Beers analysis

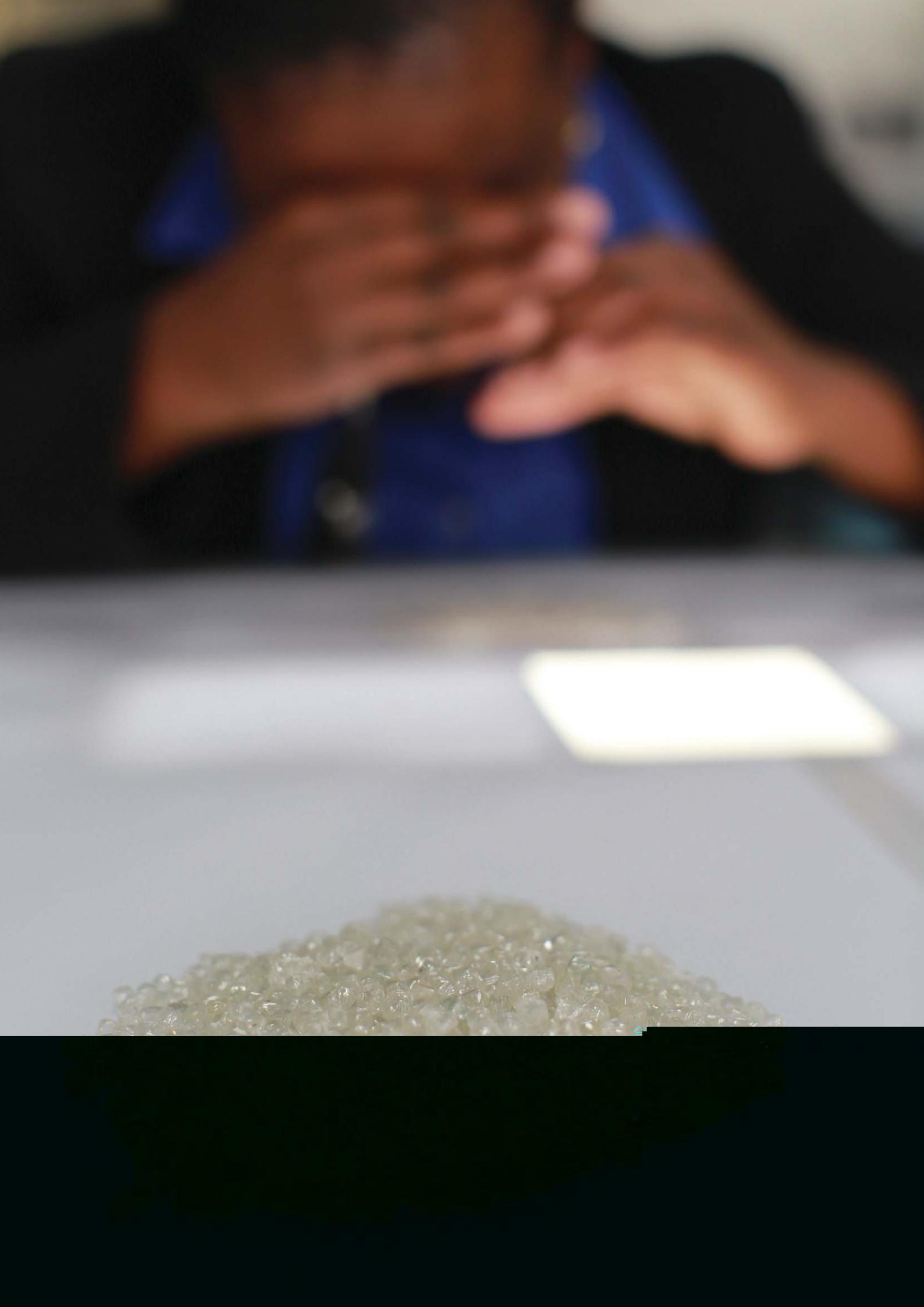


FIG. 19: CONSENSUS VIEW OF CUTTING AND POLISHING COSTS AND EMPLOYMENT IN CUTTING CENTRES

CUTTING CENTRE	APPROXIMATE CUTTING AND POLISHING COST USD/CARAT ⁱ		APPROXIMATE TOTAL CUTTING AND POLISHING JOBS	
	2008	2013	2008	2013
Canada	125	140 NWT 180 Ontario	300	50-80
Botswana	45->125	60-120	2,200	3,750
Namibia	45->125	60-140	1,500	970
Belgium	120	150+	1,000	150-200
US	110	300	100	80-100
South Africa	60-100	130-150	1,800	1,000
Israel	47->55	140->300	2,000	400
Far East	15-35	20-50	29,000	10,000
India	6-50	10-50	850,000	800,000

ⁱ These are estimates for the majority of production units and exclude outliers

Source: De Beers estimates

Producer countries are gaining share on the back of government policy, despite higher costs than traditional manufacturing locations

'Old' cutting locations have lost share of manufacturing following migration first to low-cost locations and subsequently to producer countries

The trend of growth in low-cost locations has recently started to reverse

This is one of the main reasons why the governments of southern African countries, for example, have been keen to ensure their countries expand along the value chain to sectors that create more jobs, such as cutting and polishing.

At the same time as creating local jobs, beneficiation policies create a challenge. Lower worker productivity means that cutting costs are higher in southern Africa than in countries such as India, and so the move towards local cutting increases costs and reduces the profit pool that can be shared between producers and governments (see Fig. 19).

In order for local beneficiation to be sustainable in the long term, producing countries will need to make an effort to develop competitive downstream industries that can create value as well as generate jobs.

This will require investment in skills development and infrastructure as well as thoughtful regulation. Only in this way can the downstream diamond industry ensure long-term job creation that will attract investors and developers to the sector.

ROUGH DIAMOND SALES AND DISTRIBUTION

2013 SNAPSHOT

Global rough diamond sales by producers increased approximately five per cent from 2012 to 2013, to reach a total of just under US\$18 billion.

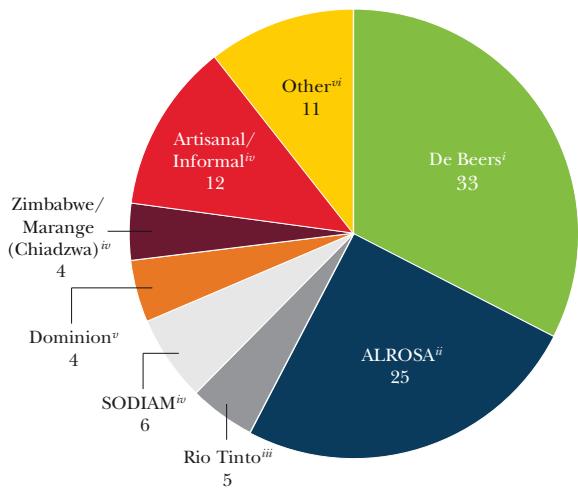
De Beers remained the largest supplier with roughly 33 per cent of overall sales measured by value (the same share as in 2012), followed by ALROSA with 25 per cent of sales (vs 23 per cent the year before). Other primary suppliers included SODIAM (Angola) with an estimated six per cent share, Rio Tinto with a five per cent share and Dominion Diamond Corporation and the Zimbabwe alluvial producers with about four per cent each, all in approximate USD value terms (see Fig. 20).

A variety of rough diamond sales channels are used by primary suppliers (see Fig. 21). De Beers uses multi-year contracts with more than 80 term contract clients – Sightholders – to sell most of its production. De Beers has also used sophisticated online auctions since 2008 to sell a proportion of the Group's production. In recent years, ALROSA has established three-year supply agreements with a selection of customers and supplements these sales with one-time sales as well as competitive bidding (auctions)²². However, some producers, such as Gem Diamonds and Petra Diamonds, use an auction-only platform.

FIG. 20: GLOBAL ROUGH SUPPLY

Per cent

2013 ROUGH DIAMOND SALES BY VALUE SHARE



ⁱ Okavango Diamond Company sales are accounted for in the De Beers number as sales from DTC Botswana

ⁱⁱ Excludes sales of polished diamonds and sales of rough diamonds to Gokhran

ⁱⁱⁱ Company Annual/Quarterly Reports

^{iv} De Beers estimates

^v Includes 40 per cent of Diavik production and 80 per cent of revenue from Ekati from April 2013

^{vi} Company reports including Gem, Petra, Firestone, Lucara, Kimberley Diamonds, among others

Source: De Beers



In fact, supply through term contracts with a number of selected customers seems to be the preferred mode among suppliers offering a relatively stable volume and mix of goods, often supplemented by auctions, especially of large stones.

Whereas BHP Billiton used auctions to sell production from its Ekati mine, Dominion Diamond Corporation, which acquired 80 per cent of the mine from BHP in 2013²³, has recently announced that the company plans to sell its production from Ekati and its share of the Diavik mine production through contract sales to approximately 30 companies from July 2014²⁴.

MORE ROUGH DIAMONDS ARE BEING SOLD LOCALLY

Producing countries have been playing a more active role in the sale and distribution of rough diamonds. This is driven by a strong desire on the part of national governments to increase their share of value-add of the primary resource, and has resulted in the establishment of domestic sales channels such as the State Diamond Trader in South Africa, and the Okavango Diamond Company in Botswana.

The trend towards in-country value addition to diamonds saw perhaps its largest milestone yet in 2013, with the move of De Beers' Global Sightholder Sales to Botswana, and the organisation of De Beers' first ever international 'Sight' in Gaborone in November 2013.

FIG. 21: ROUGH DIAMOND SALES METHODOLOGIES

SALES METHOD	DESCRIPTION
TERM CONTRACT	<ul style="list-style-type: none"> Agreement for the continued sale of a certain type and amount of rough diamonds over an extended period. Contract lengths vary. Generally, the price is set by the seller and the same prices are charged for the same products to all buyers.
WILLING BUYER, WILLING SELLER (OR 'PLACED' SALES)	<ul style="list-style-type: none"> Ad hoc sales agreement between seller and buyer for a particular type or range of rough diamonds with no guarantee of continued supply. Price, either set by seller or subject to negotiation between buyer and seller.
AUCTION	<ul style="list-style-type: none"> Discrete sales event at which bidders compete for the purchase of a parcel of rough diamonds through a series of 'rounds'. Various types can be employed such as multiple unit auctions and open ascending price auctions. In most auction types (except for tenders – see below), participants have the opportunity to amend their offers in response to other bids submitted. When one bidder has outcompeted the others in the process, the auction is complete. Price is an outcome of the competitive bidding process.
TENDER	<ul style="list-style-type: none"> Discrete sales event at which bidders submit a single bid for the purchase of rough diamonds through a 'closed envelope' approach. The highest bid submitted is the winner and as a rule participants have no opportunity to amend their offer once submitted.

Source: De Beers

This move followed the conclusion of a new diamond sales and marketing agreement between De Beers and the Government of the Republic of Botswana and involved the transfer of the majority of De Beers' sorting and rough diamond sales activities, including 84 employees, from De Beers' London offices to Gaborone. Employees who relocated from London continue to work to integrate and harmonise international skills, while also developing the skills of the Batswana, strengthening the domestic talent pool and the Botswana diamond sector overall.

As of 2014, the majority of De Beers' rough diamond availability is sold in Botswana. This will help position the country as a global centre for the diamond industry. The holding of Sights in Botswana's capital means that representatives of De Beers' Sightholders – more than 80 of the world's leading diamantaires – travel to Gaborone up to 10 times a year, creating additional demand for local goods and services. It will also facilitate the expansion into downstream beneficiation and the development of diamond-related services. All of this has the potential to contribute to substantial job creation in the Botswana economy well beyond the jobs created by De Beers' activities directly related to diamond selling (see Fig. 22).

For more than 45 years, the partnership between De Beers and Botswana has delivered significant benefits to the people of Botswana. At the heart of this partnership is Debswana, the diamond mining joint venture between the Government and De Beers. Similar arrangements exist in Namibia and South Africa, where partnership agreements are also in place – in Namibia with the Government through Namdeb Holdings, and in South Africa with its Black Economic Empowerment partner Ponahalo. Governments in all these countries, as well as the thousands of local workers in the diamond industry, have made substantial efforts to support the industry. However, to ensure the long-term sustainability of the domestic diamond sector, it remains critical that all stakeholders work together to maintain and strengthen the productivity and competitiveness of the sector.

FIG. 22: REACTIONS TO THE MOVE OF DE BEERS' GLOBAL SIGHTHOLDER SALES TO BOTSWANA

BOTSWANA GOVERNMENT STAKEHOLDERS BELIEVE THE MOVE HAS DELIVERED VALUE...

"De Beers handled the moving process very well."

"De Beers and Botswana have been strategic partners since before the term existed – this has delivered a lot to the country."

"People are now more aware of Botswana globally, because they have to come here more often."

"Botswana can show other countries how they can benefit from natural resources."

... LOCAL BUSINESSES FEEL THE BENEFITS

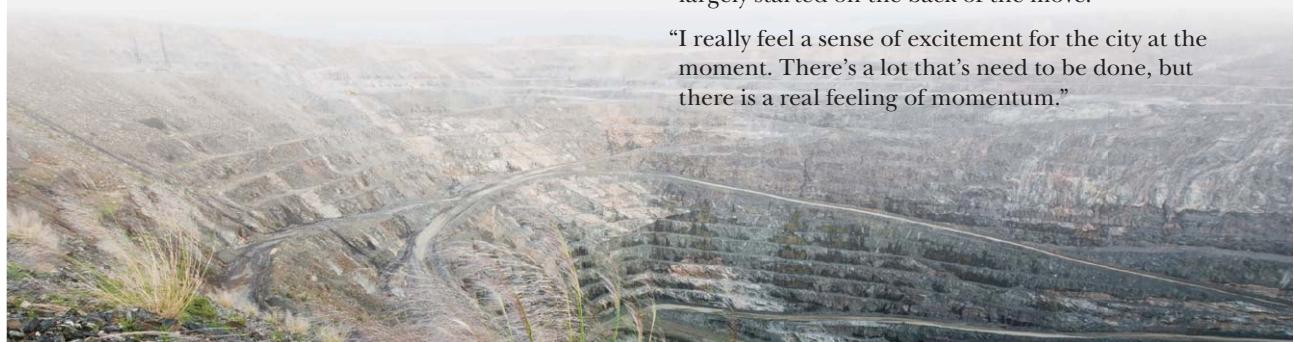
"I started off my business on my own a year ago. Just before the first Sight I had six people and now I have 13 people working for me. In five years I want to expand my business across Southern Africa."

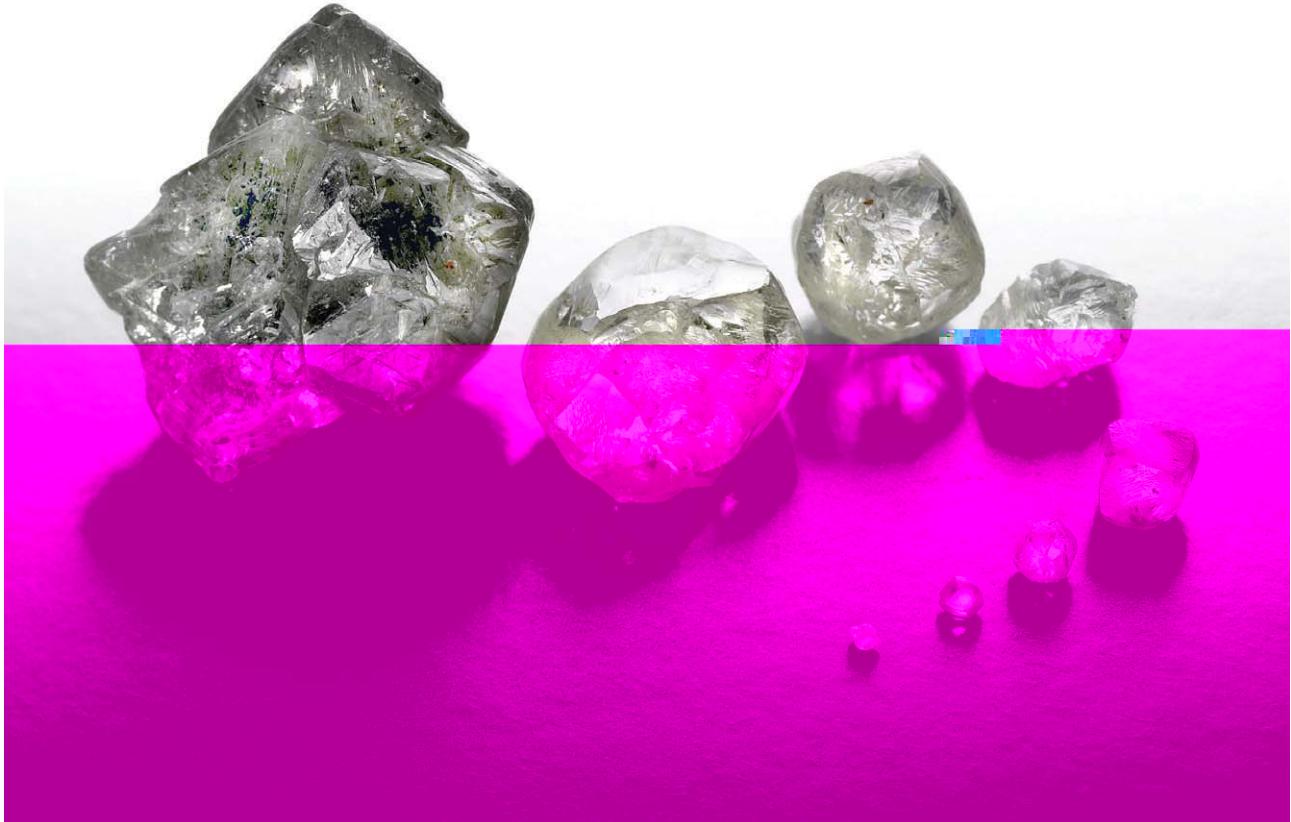
"A Sight guarantees me a certain income every month – you still have to work hard, but it gives you a base – I wish we could have Sights every day, though!"

"Everyone is grateful – everyone in my company."

"For us, the move has been terrific. Our business was largely started on the back of the move."

"I really feel a sense of excitement for the city at the moment. There's a lot that's need to be done, but there is a real feeling of momentum."





LOOKING AHEAD

SALES CHANNELS WILL CONTINUE TO EVOLVE

In rough diamond sales, there are significant benefits to being a scale producer and supplier. The various mines offer quite different production profiles, and production fluctuates in the quantity, size and quality of diamonds. This means that a company's ability to offer a consistent supply of gems is strengthened by operating several mines.

This kind of offering attracts the best diamantaires and also allows for a steadier cash flow for the company.

Rough diamond sales channels will continue to evolve as producers strive to maximise value creation for their production. De Beers is in the process of redesigning its distribution system.

The company remains committed to its model of term contract sales to Sightholders, to which the company will continue to allocate the majority of its supply. However, in May 2015, it will introduce a new category of rough diamond customer: the Accredited Buyer. An Accredited Buyer will not be supplied by way of a term contract, but will be eligible to purchase rough diamonds not already committed for sale by way of term contracts. Over time, Accredited Buyers that demonstrate sufficient demand for De Beers' goods will be eligible to apply for Sightholder status.

ROUGH DIAMOND PRODUCTION

2013 SNAPSHOT

CURRENT PRODUCTION IS WELL BELOW ITS 2005 PEAK

De Beers estimates that overall global rough diamond production increased by three per cent from 2012 to US\$18 billion in 2013. Measured in carats, the increase was seven per cent, to reach 146 million carats. This is still well below the production peak in 2005, when overall production was above 176 million carats²⁵ (see Fig. 23).

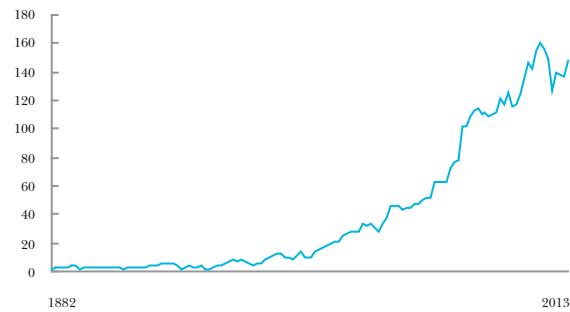
The largest diamond producing country, by volume, is Russia, which in 2013 produced 25 per cent of total carats, and 26 per cent of overall rough diamond value. Botswana produced 16 per cent of carats, corresponding to 21 per cent of overall value. Another large volume producing country is the DRC, which has historically produced on average 19 per cent of total volume, but equivalent to only roughly six per cent of value due to low value per carat²⁶ (see Fig. 24).

De Beers and ALROSA continue to be the two largest diamond producing groups by value. De Beers' 2013 share of volume was 21 per cent and its share of value 33 per cent, while ALROSA's share of volume and value were 25 per cent and 26 per cent respectively in 2013 (see Figs. 25 and 26).

The third largest company in the sector is Rio Tinto, which produced 11 per cent of total carats in 2013, corresponding to approximately five per cent of global production value. Another large producer is Angola's Catoca mine, generating approximately five per cent of both volume and value of production in 2013. The companies operating the alluvial fields of Chiadzwa in Zimbabwe contributed an estimated eight per cent of volume and four per cent in value in 2013.

FIG. 23: GLOBAL PRODUCTION VOLUME (1882-2013)

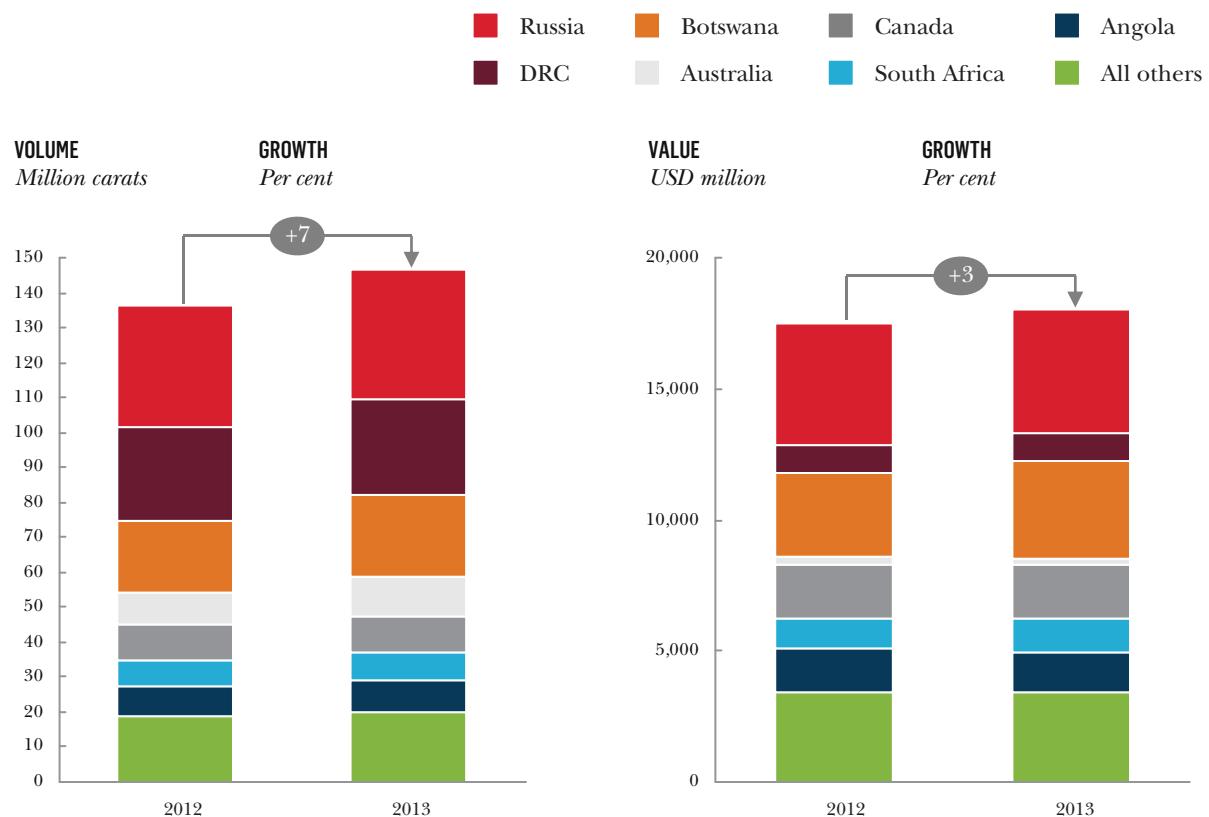
Million carats (gem only 1882-2008; all carats included 2008-2013)



Note: Prior to 2008, Russian industrial carats were excluded from the total. From 2008, they are included

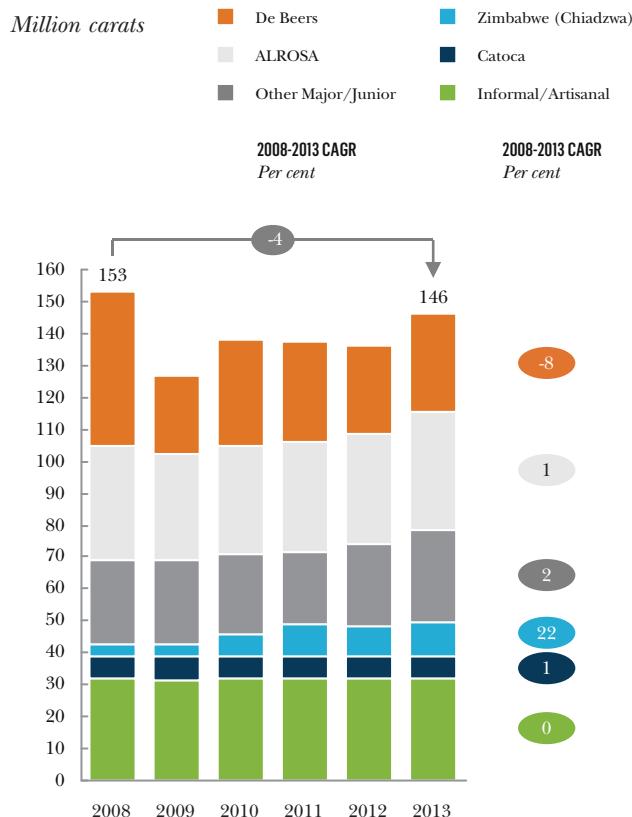
Source: De Beers

FIG. 24: ROUGH DIAMOND PRODUCTION BY MAIN PRODUCING COUNTRY



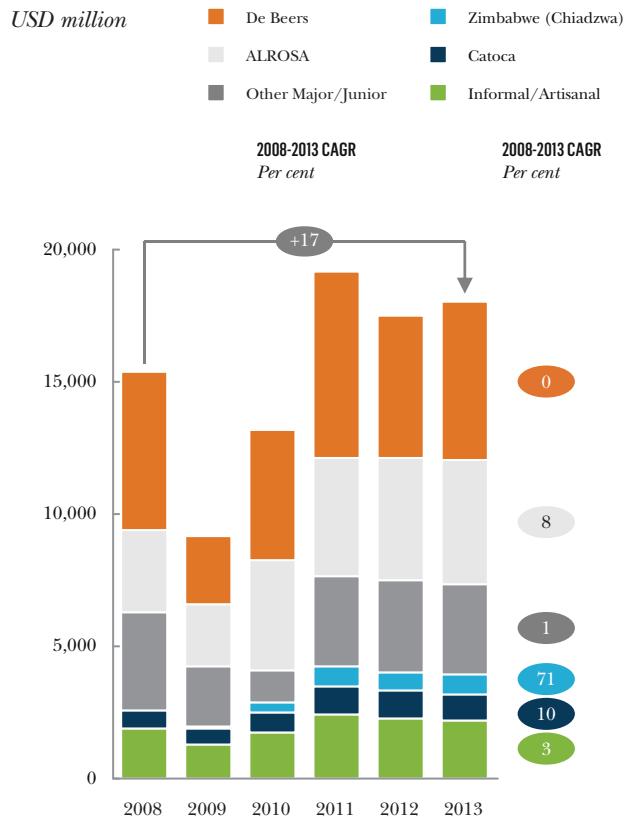
Source: De Beers estimates

FIG. 25: GLOBAL ROUGH DIAMOND PRODUCTION VOLUME



Source: De Beers estimates, Kimberley Process Statistics

FIG. 26: GLOBAL ROUGH DIAMOND PRODUCTION VALUE



Source: De Beers estimates

MAJOR EVENTS IN 2013 DIAMOND PRODUCTION

- 1** Rio Tinto's decision to continue to operate in the diamond industry. Rio Tinto conducted a strategic review of its diamond business, which included a potential divestment. In June, the company announced its decision to retain the diamond business²⁷.
- 2** In April, Rio Tinto commenced underground operations at its Argyle mine in Australia²⁸.
- 3** BHP Billiton's exit from the industry upon completing the sale of its stake in the Ekati diamond mine to Dominion Diamond Corporation in April²⁹.
- 4** In October, the Russian government privatised 16 per cent of its stake in ALROSA, by way of an Initial Public Offering, for US\$1.3 billion.

LOOKING AHEAD

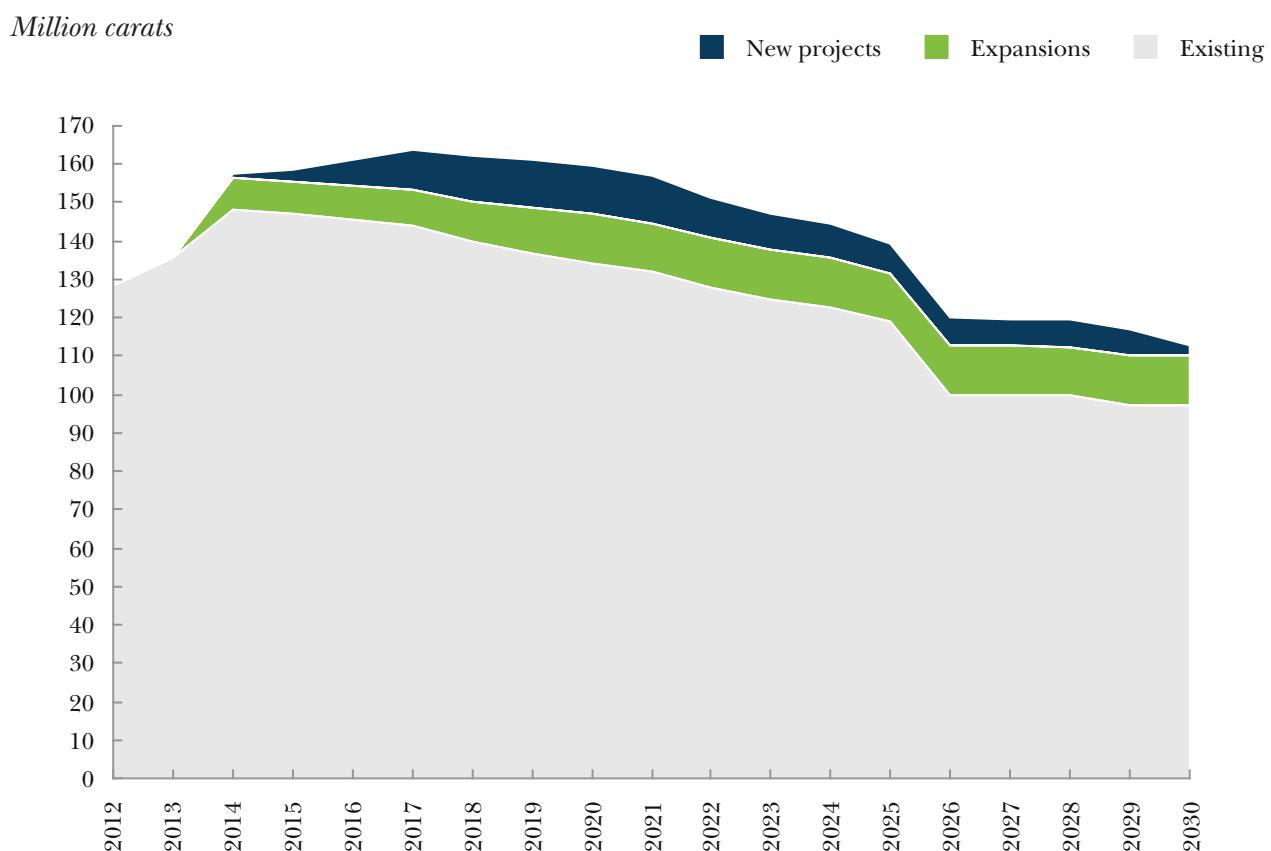
DIAMOND PRODUCTION IS EXPECTED TO FALL GRADUALLY WHILE OPERATING COSTS WILL CONTINUE TO INCREASE

Overall diamond supply is expected to increase in the next few years, driven by new projects coming on stream. By 2020, when many of the existing mines will begin to see declining outputs, overall supply is expected to plateau (see Fig. 27).

A number of projects are under way to expand diamond production. By 2020, about 25 per cent of carat production will come from projects currently under development, but much of this increase in output comes from projected expansion at current mines such as Rio Tinto's Argyle mine in Australia. Among new developments, the largest are ALROSA's Botuobinskaya, Lukoil's Grib and De Beers' / Mountain Province Diamonds' Gahcho Kué projects.

Beyond 2020, there is a risk that production levels will begin to decline unless major new discoveries are made in the coming years and rapidly developed. As illustrated elsewhere in this report (see 'Diamond Exploration' chapter), the likelihood of large economically viable discoveries is low, and so supply can be expected to decline gradually after 2020.

FIG. 27: PROJECTED GLOBAL ROUGH DIAMOND PRODUCTION



Source: McKinsey & Company, 'Perspectives on the Diamond Industry', September 2014

FIG. 28: DIAMOND PROJECT PIPELINE (2014-2017)

DEPOSIT NAME	OWNER(S)	DISCOVERER AND YEAR OF DISCOVERY	COUNTRY	STATUS	EST. FIRST PRODUCTION	AVERAGE ANNUAL PRODUCTION (MCTS)

Note: All data estimated based on best available public information as of May 2014

Source: De Beers

DIAMOND EXPLORATION

The chase is on: diamond miners continue to search the ends of the earth for the next big find.

2013 SNAPSHOT

AROUND US\$7 BILLION HAS BEEN SPENT ON EXPLORATION SINCE 2000

Diamond mineral systems occur in very specific cratonic target areas – these are well-known.

With growing demand for diamonds and dwindling supplies from existing mines, the search for the next diamond mines is expected to continue.

Since 2000, the diamond mining industry has spent almost US\$7 billion on exploration³⁰.

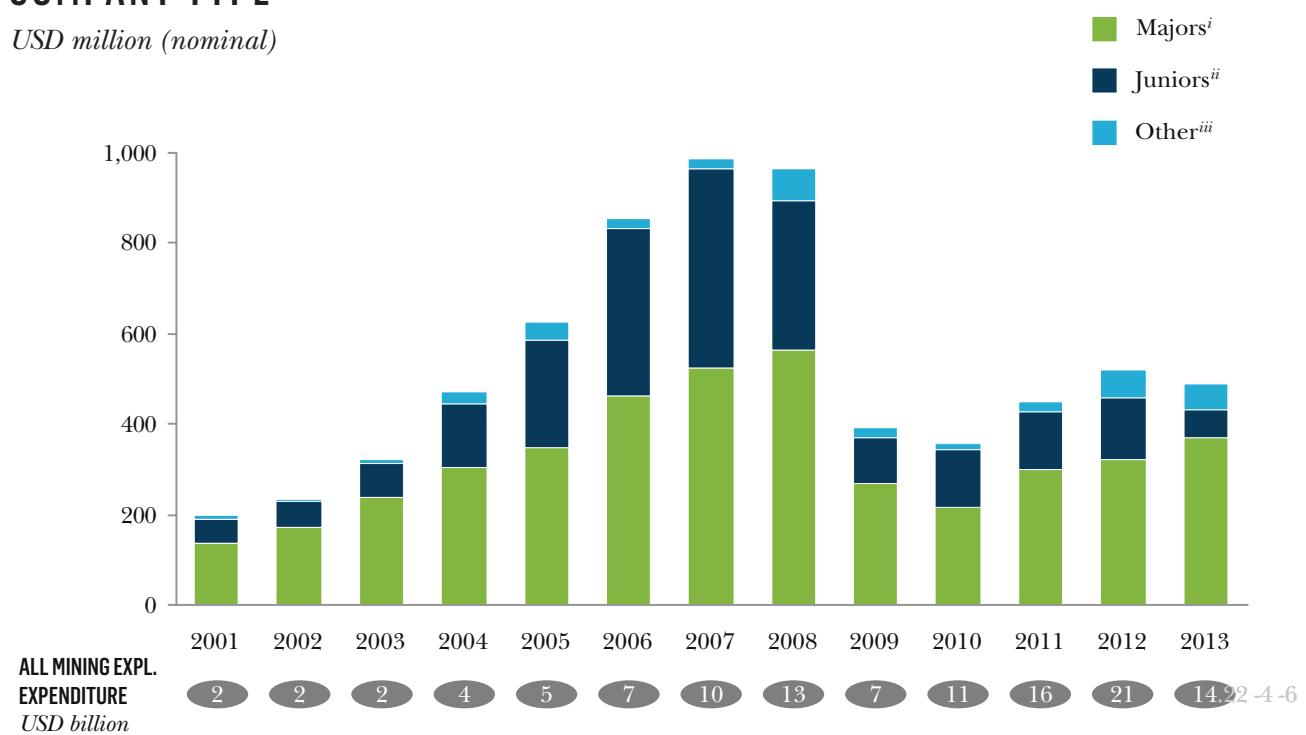
To date, these efforts have yielded relatively meagre results: only one diamond deposit of significant size (Bunder, in India) has been discovered during this period³¹, in addition to other smaller deposits such as Orapa AK6 in Botswana (now the Karowe mine), owned by Lucara Diamond Corporation.

Today, the majority of diamond exploration spend takes place in relatively underexplored African countries such as Angola, the DRC and Zimbabwe, as well as the vast swathes of Arctic Siberia and Canada. Recently, there has been some change in the allocation of this spending: from 2011 to 2013 the share of global exploration spending that went to Russia increased from 27 per cent to 54 per cent, at the expense of countries such as Canada, South Africa and India³² (see Fig. 29).



FIG. 30: GLOBAL DIAMOND EXPLORATION BUDGETS, 2001-2013 BY COMPANY TYPE

USD million (nominal)



ⁱ A company with adjusted annual nonferrous mining-related revenue of US\$500m or more

ⁱⁱ A company whose principal means of financing exploration is through equity financing

ⁱⁱⁱ Entities not included in the above categories

Source: SNL Metals & Mining's Corporate Exploration Strategies 2013; includes grassroots, late stage, and mine site exploration expenditures



While the appetite for exploration remains high (2013 spending was 2.5 times that of 2001), overall spending has still not reached the record levels of 2007, when companies spent almost US\$1 billion on diamond exploration (see Fig. 30). The trend here differs from the mining sector in general, where 2013 expenditure, although lower than in 2012, remains well above 2007/2008 levels. De Beers and ALROSA represented almost 75 per cent of exploration spending in 2013³³.

LOOKING AHEAD

LARGE-SCALE PROFITABLE DISCOVERIES WILL MOST LIKELY REMAIN ELUSIVE

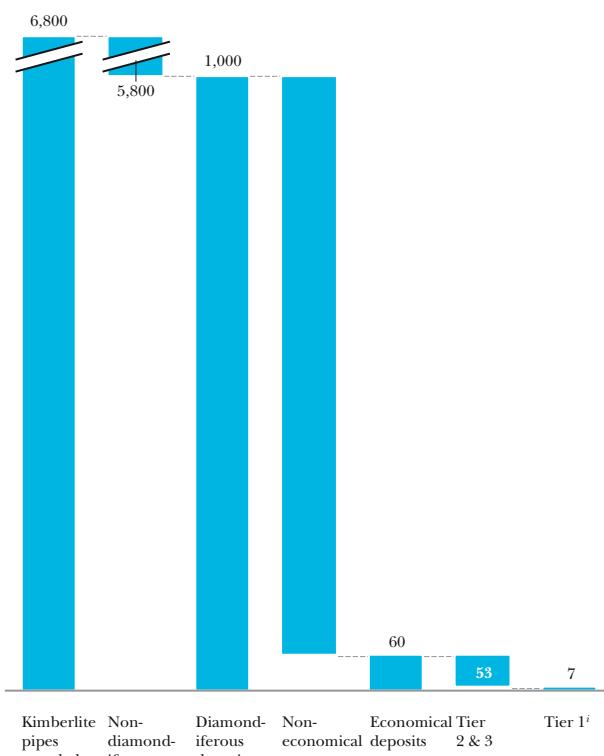
The large diamond mining companies are expected to continue to invest in exploration, but the probability of a major profitable new diamond discovery will remain relatively low. This is simply because finding economic diamond deposits is difficult: even spending billions of US dollars in exploration carries no guarantee of actually discovering economically viable deposits.

Over the last 140 years, almost 7,000 kimberlite pipes have been sampled by geologists, about 1,000 of which have been diamondiferous. However, only about 60 of these are sufficiently rich in diamond to be economically viable. Just seven mines (Jwaneng and Orapa in Botswana, Udachny and Mir in Russia, Premier (now Cullinan) and Venetia in South Africa and Catoca in Angola) are what miners refer to as ‘Tier 1 deposits’ with more than US\$20 billion worth of reserves (see Fig. 31).

Overall, the global mining industry is facing increasing pressure on capital expenditure, and in recent years many large-scale development projects have been placed on hold.

This also puts pressure on exploration spending. Across the mining sector, exploration expenditure fell by almost a third to about US\$14 billion in 2013³⁴.

FIG. 31: NUMBER OF DIAMOND DEPOSITS SUFFICIENTLY RICH TO WARRANT DEVELOPMENT



ⁱ Over US\$20 billion reserves. 7 ‘Tier 1’ finds are: Jwaneng, Orapa, Udachny, Venetia, Catoca, Premier (now Cullinan), Mir
Source: De Beers

The geographical focus of diamond exploration will be likely to continue to be in those areas where the prospectivity potential is highest and where the least exploration has been conducted to date, such as Central Africa, Russia and Canada. In addition, South Africa and Zimbabwe are countries with potential: although they have a long tradition of diamond mining, high-resolution exploration technology has not yet been applied systematically here.



03

IN FOCUS

IN FOCUS: CHANGING CONSUMER PREFERENCES AND THE GROWTH OF BRANDS IN THE UNITED STATES AND CHINA

The diamond dream is very much alive. The physical attributes that diamond jewellery consumers are drawn to – the sparkle and beauty of diamonds – are accompanied by emotional associations of love and promise, prestige, mystique, tradition and a sense of the eternal. Diamonds continue to be seen as an emotional symbol and a store of value.

However, the diamond industry cannot afford to take this situation for granted, especially when the consumer landscape is changing so rapidly.

This ‘In Focus’ section provides an insight into the changes in two of the world’s most important diamond consumer markets: the US, the world’s largest, and China, the world’s fastest growing.

The results shown here are drawn from extensive consumer research commissioned by De Beers. In its most recent survey, the research covered over 20,000 women in the US (nationally representative) and over 10,000 women in China (representative of 123 Tier 1, 2 and 3 cities).



THE UNITED STATES OPPORTUNITIES EMERGING DESPITE CHALLENGING ECONOMIC CONDITIONS

The US remains the largest market for diamonds in the world. Total US retail sales of diamond jewellery reached pre-2009 downturn levels in 2013 while polished diamond content in jewellery increased by 20 per cent from 2008. Overall, the US accounted for approximately 40 per cent of global polished diamond consumption by value in 2013.

The US consumer market is made up of women's jewellery, men's jewellery and jewellery for adolescent girls, called 'teens' jewellery'. Of those three segments, women's jewellery represents by far the largest portion of total diamond jewellery sales, with well over 90 per cent of sales value.

Traditionally, two major segments of diamond jewellery have been analysed in the US women's category: bridal jewellery (including diamond engagement rings (DER) and diamond wedding bands (DWB)) and non-bridal jewellery (which can be further subdivided into married women's diamond jewellery (MWDJ) and single women's diamond jewellery (SWDJ)) – see Fig. 32.

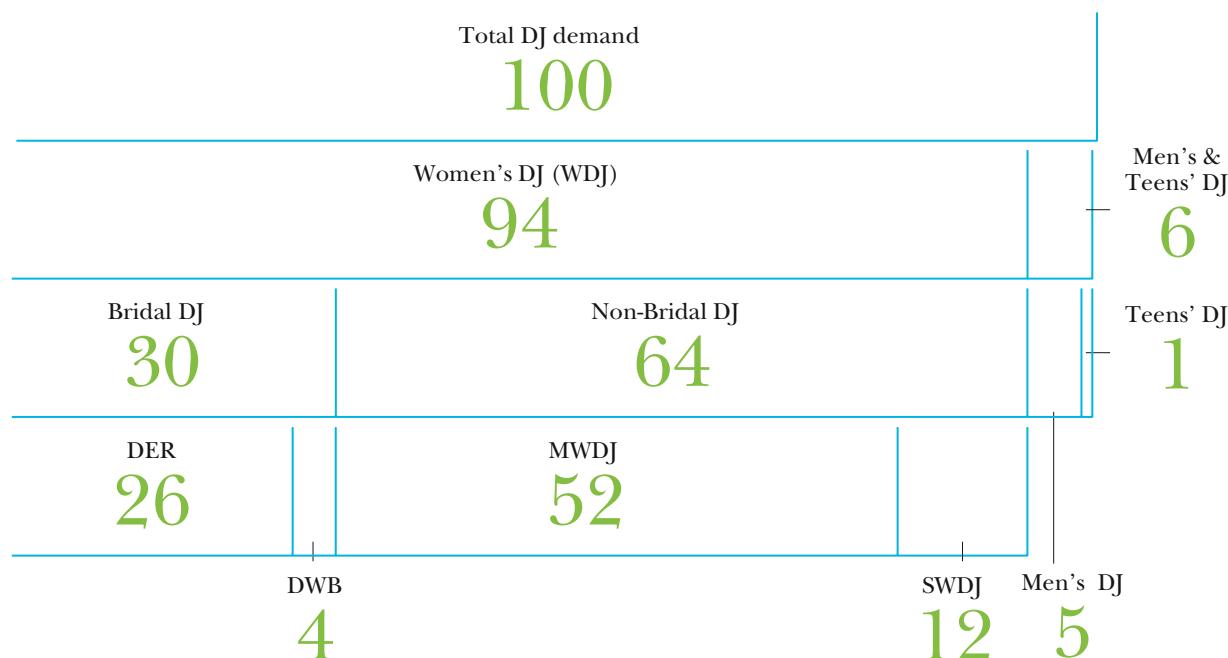
Non-bridal diamond jewellery is the largest segment by value in the US. In 2013, it accounted for over four in five pieces and about two-thirds of sales value of women's DJ. However, compared with the pre-recession state of the US market, this segment has lost share both in volume and in value to the bridal segment (see Fig. 33).

This shift has been driven by two changes. Firstly, the number of DER pieces sold has increased and the average price per DER piece has grown even more rapidly than unit sales. The average DER price is more than three times higher than the average price for other women's jewellery. As a result, in 2013 DER accounted for a little over one in 10 pieces sold, but represented close to 28 per cent of retail market value of women's DJ.

Secondly, within the non-bridal segment, the two sub-sets – MWDJ and SWDJ – have behaved quite differently since the economic downturn. Over this period, the share of MWDJ has declined in volume of pieces, while its share of value has gone up slightly. At the same time, the SWDJ segment has retained its share of volume, but its share of value has declined.

FIG. 32: DIAMOND JEWELLERY (DJ) MAIN CONSUMER SEGMENTS IN THE UNITED STATES (2013)

Per cent of DJ value

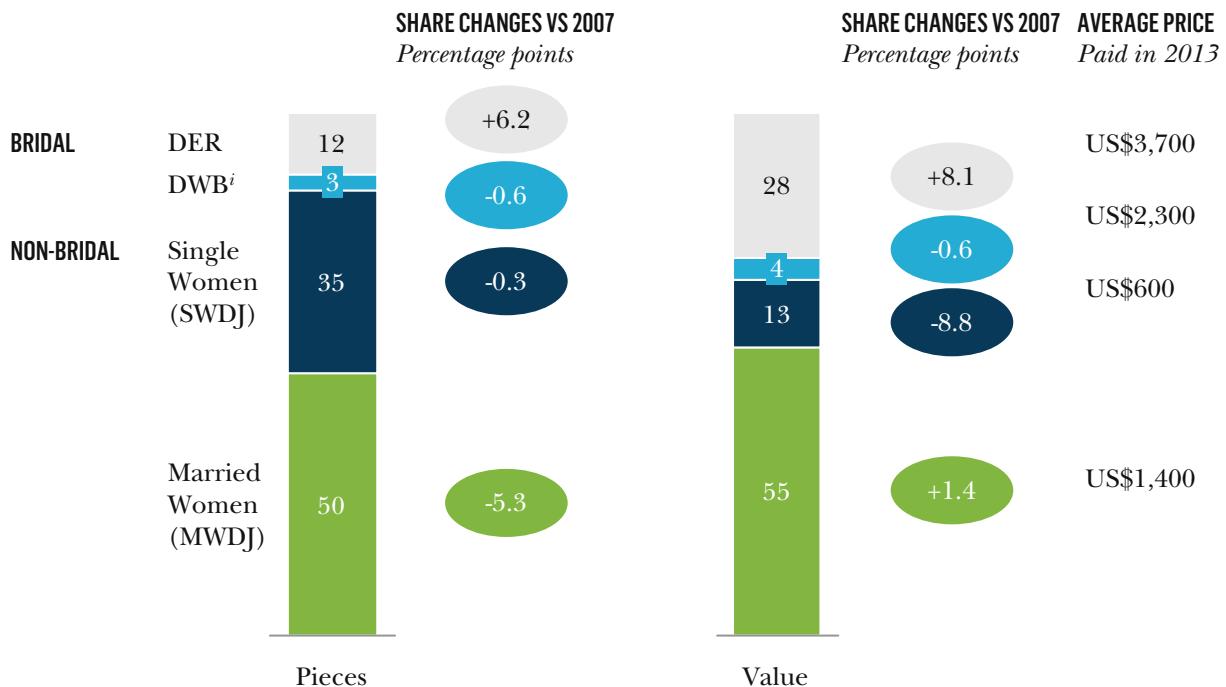


Note: Area of rectangles reflects approximate proportion of total market by value

Source: De Beers

FIG. 33: BREAKDOWN OF WOMEN'S DIAMOND JEWELLERY SHARE BY SEGMENT IN THE UNITED STATES

Per cent (by pieces and value)



Source: De Beers

These trends reflect, in part, the impact of the economic downturn experienced by married and single women in the US:

- Married women in households most affected by economic pressures exited the category while those who acquired received more expensive pieces on average.
- Single women continued to acquire pieces but at lower prices on average.

FINE JEWELLERY IS FACING STRONG COMPETITION FROM OTHER CATEGORIES

It is clear that, as the US economy recovers from the financial crisis, the new consumer landscape holds both challenges and promise for diamond jewellery.

First of all, fine jewellery is facing strong competition from other luxury and experiential categories. In 2013, fine jewellery was not among the top five on the list of gifts that US women would most like to receive, ranking behind holidays (foreign and domestic), electronics, home furnishings and spa days. Among young people (aged 18-34), the desirability of fine jewellery ranked below branded luxury products such as designer handbags and clothing. However, diamonds were still the most popular choice for fine jewellery for all age segments; in fact, diamonds were almost three times more popular than any other type of jewellery.

FIG. 34: SHARE OF ADVERTISING VOICE IN THE UNITED STATES



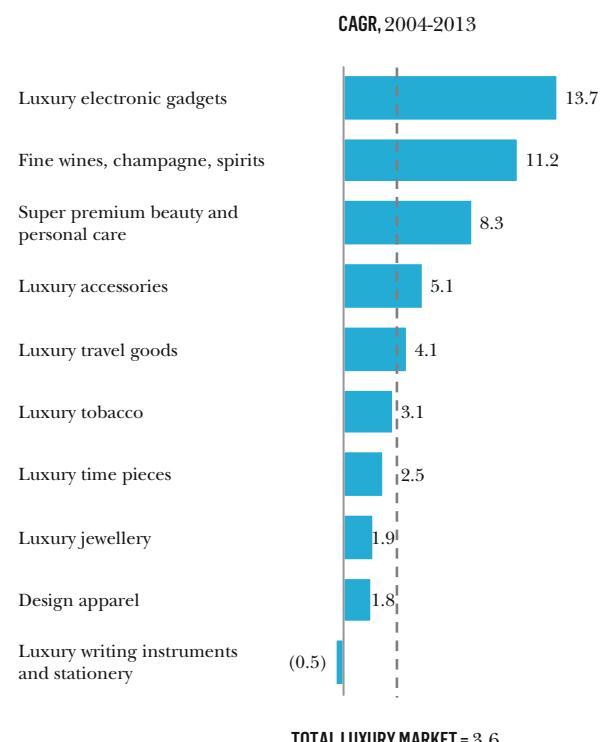
Source: Mindshare

Part of the explanation for this relative weakness of fine jewellery in consumers' preference may be that other luxury and discretionary categories have continued to compete far more strongly for consumers' attention. Share of advertising voice for fine jewellery within the US luxury segment has declined over the last seven years (from 21 per cent in 2007 to 13 per cent in 2013 – see Fig. 34)³⁵.

Overall, the fine jewellery category has been growing at a slower rate than other discretionary and luxury goods for some time (see Fig. 35). Luxury jewellery sales grew at a compound annual growth rate of just below two per cent between 2004 and 2013, well behind luxury electronic gadgets (14 per cent), fine wines (11 per cent) and premium beauty/personal care (eight per cent)³⁶.

In addition, a growing number of Americans facing financial strain in the aftermath of the financial crisis have resorted to recycling jewellery. The experience customers sometimes encountered when trying to sell back their jewellery pieces, especially to non-specialised businesses, could also have played a role in impacting upon the product's relative desirability (see the 'Trends to Watch' box).

FIG. 35: GROWTH OF LUXURY CATEGORIES IN THE UNITED STATES
Per cent



Source: Euromonitor

TRENDS TO WATCH

DIAMOND JEWELLERY RECYCLING

Trading of previously owned diamonds (sellback, trade-up) is a normal part of the lifecycle of jewellery and forms a growing segment of the diamond jewellery industry. However, this activity has attracted greater attention in the diamond industry in recent years, as its scale was boosted not only by the global economic downturn but also by the accompanying appreciation of gold prices during that period. In many cases, consumers wanted to sell back their gold jewellery, and diamonds were simply a by-product; on other occasions, the diamond was the main item being sold back.

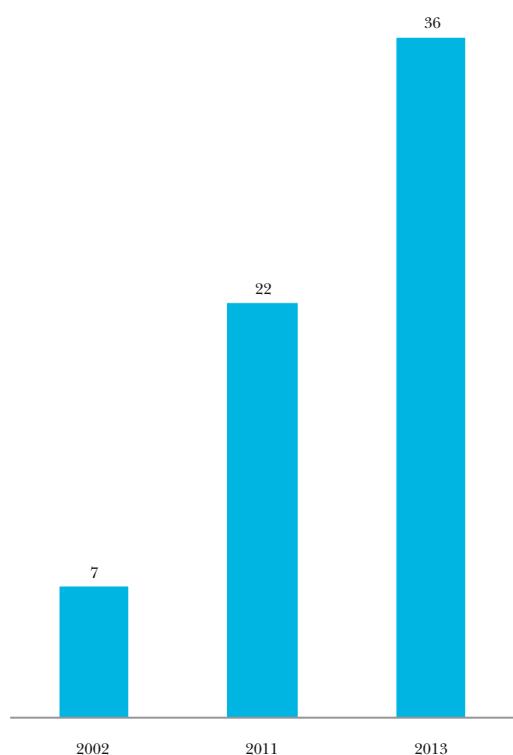
Due to the lack of a reliable buy-back offer from traditional retailers, US consumers have increasingly turned to pawnbrokers and to high-visibility, non-specialised new entrants to sell back their diamond jewellery. Consumers who have sold diamond jewellery through these channels have often left dissatisfied, especially due to a perceived lack of transparency and objectivity in the pricing of their jewellery. Consumers who trade up their diamond jewellery through specialised channels are generally less dissatisfied with their experience.

The recycling trend could undermine trust in the diamond industry and consumers' belief in the diamond dream. The industry will need to continue to work towards offering consumers expert advice and clear choices when it comes to recycling of diamond jewellery.



FIG. 36: CONSUMERS WHO REPORTED BUYING A BRANDED DIAMOND ENGAGEMENT RING

Per cent



Source: De Beers

FIG. 37: RETAILER QUOTES ON IMPACT OF FOREVERMARK ON THEIR BUSINESS

“When I was initially introduced to Forevermark, I was very intrigued by Forevermark's brand promise and, more importantly, how partnering with De Beers and Forevermark could elevate my brand and increase my margins. In the year and a half that I have been involved with Forevermark, I have seen an increase in margins anywhere from 15 to 30 per cent. I am sometimes seeing a 35 per cent increase on loose goods, compared with the equivalent unbranded polished since I'm not competing with other jewellers and online companies who are selling inferior Gemological Institute of America (GIA) graded stones for little to no margin. **”**

“Since partnering with Forevermark, the sheer beauty of the diamonds, exclusivity of the brand, and the other value added features have enabled us to ask for margins at 15 to 30 per cent higher than we had for GIA certified diamonds. We have been able to achieve it with great success. **”**

Source: De Beers

Raising fine jewellery's place to the top of the desirability list is not a simple matter. As discussed in the retail section of this report, US jewellers have been under financial pressure and find it challenging to invest in innovation and advertising to boost the category.

Despite the challenges facing fine jewellery in the US, there are promising opportunities for growth in diamond jewellery. The premium and bridal segments continue to expand. The rise of brands and premium products means that retailers have the opportunity to realise higher margins necessary for investing in desire-creating activities.

BRANDS HOLD THE KEY TO GROWTH

Brands are becoming more important to the US consumer. The acceleration in consumer preference for brands of diamonds and diamond jewellery is evident from the claimed acquisition of branded engagement rings – from just seven per cent in 2002 to three and five times that level in 2011 and 2013 respectively (see Fig. 36). The growth in importance of branded jewellery will have a particular impact in attracting the brand-conscious younger US consumer.

A variety of brands has been gaining space in the US market for diamond jewellery in recent years. There has been an uplift in awareness of specialist diamond brands such as Hearts on Fire, Leo and Tacori. Traditional branded jewellers such as Tiffany and Cartier have seen a jump in claimed brand acquisitions in the last couple of years, and fashion brands such as Dior and Chanel are also growing. Forevermark has been part of this trend and has experienced growing retailer and consumer interest since its US launch in Q4 2011.

The attraction of branded diamond jewellery to retailers is that it supports both the diamond dream and higher margins. The offer of brands with a specific positioning and story, which goes beyond the 4Cs, helps retailers address consumer needs for emotional engagement with the product and protects the offer against commoditisation (see Fig. 37).

BRITNEY'S JOURNEY

BRITNEY'S PROFILE

26 years old

Event co-ordinator for a cruise ship company

Lives in Chicago

Has a Forevermark diamond engagement ring

CONTEXT

The DER tradition is well established in the US, with acquisition rates remaining around 80% since the 1980s (compared with 10% in 1940).

Online is the most popular channel for research. In 2013, 34% of consumers and half of brides researched online before acquisition.

For as long as she could remember, Britney had known she wanted a diamond engagement ring.

As soon as her fiancé proposed, she went online to search for rings.

"When I Googled engagement rings, Tiffany was the first website to pop up. I used its ring finder to get an idea of styles and cuts – and decided I wanted a cushion cut."

Shortly afterwards Britney and her fiancé Kevin went to try on rings. They made a special trip to the mall where they could browse a number of high-end department stores and jewellers in one go.

At one of the stores, Britney was shown a Forevermark diamond. She loved the beauty of the diamond and the sales assistant showed her and her fiancé the inscription. They told her about registering the ring online, and how it was responsibly sourced.

In 2013, 36% of consumers and 53% of brides browsed jewellery stores before purchase, visiting an average of three stores each.

Few women decide what they want before going in-store. In 2013:

- 48% purchase decisions made on the spot
- Only 14% completely selected before purchase.

When choosing between a generic and branded diamond, beauty and rarity are the key attributes that influence selection in 2013, both attributes had over 80% relevance.

Responsible sourcing becomes a differentiator when choosing between brands – in 2013, more than half of consumers thought it provided distinctiveness to the brand.

CHIEF GROWTH

Affluency, there are exciting growth opportunities in the US for high-end diamond jewellery. Average incomes for the top one per cent of Americans have grown much faster than national average wages³⁷. In 2013, female consumers with household income of over US\$150,000 accounted for eight per cent of the consumer base for diamond jewellery, but in terms

of actual acquisition this group accounted for 14 per cent of diamond jewellery pieces and 33 per cent of sales by value (see Fig. 38).

The presence of an affluent customer base for higher-end products has resulted in a shift of the profile of polished diamonds consumed in the US in the past five years. Large higher-clarity stones have grown notably, while all other types of polished have either declined or remained flat (see Fig. 39).

33

Per cent

14

Of diamond jewellery pieces sold

Of consumer base for diamond jewellery

Of diamond jewellery sales by value

CHANGE IN TYPE OF POLISHED CONSUMED IN US



i Low: Pique; high: VS+
ii

Source: De Beers 2008–2013 5 CAGR

Source: De Beers

CHINA

A STORY OF GROWTH AND EVEN GREATER GROWTH POTENTIAL

Sales of diamond jewellery to Chinese consumers were the fastest growing in the world over the last decade, with a compound annual growth rate of 21 per cent from 2003 to 2013 (see Fig. 40). As a result, the share of polished diamonds sold in jewellery to Chinese consumers grew from barely three per cent in 2003 to just over 13 per cent of global demand in 2013. Including Hong Kong and Macau, the share of this region's consumers in the global demand of polished diamonds in jewellery was almost 16 per cent in 2013 in USD.

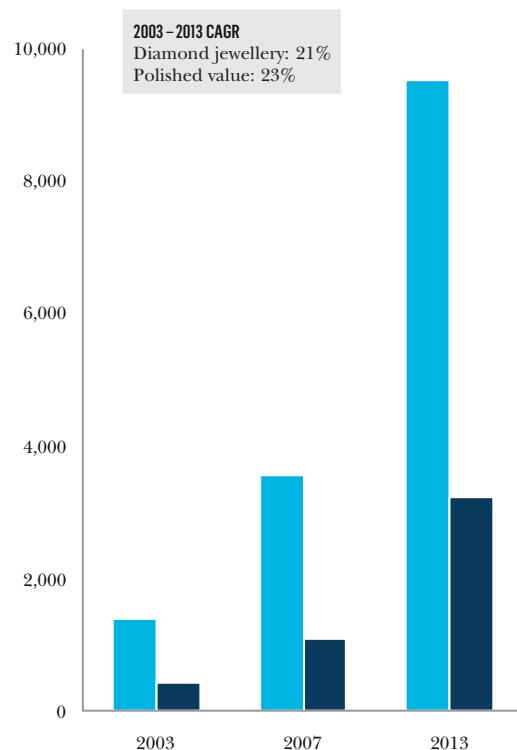
This vertiginous growth in demand for diamond jewellery has been driven by growing numbers of consumers able to buy into the category, and by the increase in the average price and the sizes of diamonds they can afford to buy. Average prices paid jumped by 32 per cent in real terms between 2003 and 2013, to over RMB 8,000 (US\$1,300) (see Fig. 41). Average carats per piece over the same period rose from 0.18 to 0.25.

FIG. 40: DIAMOND SALES TO CHINESE CONSUMERS

USD million (nominal)

Diamond jewellery value

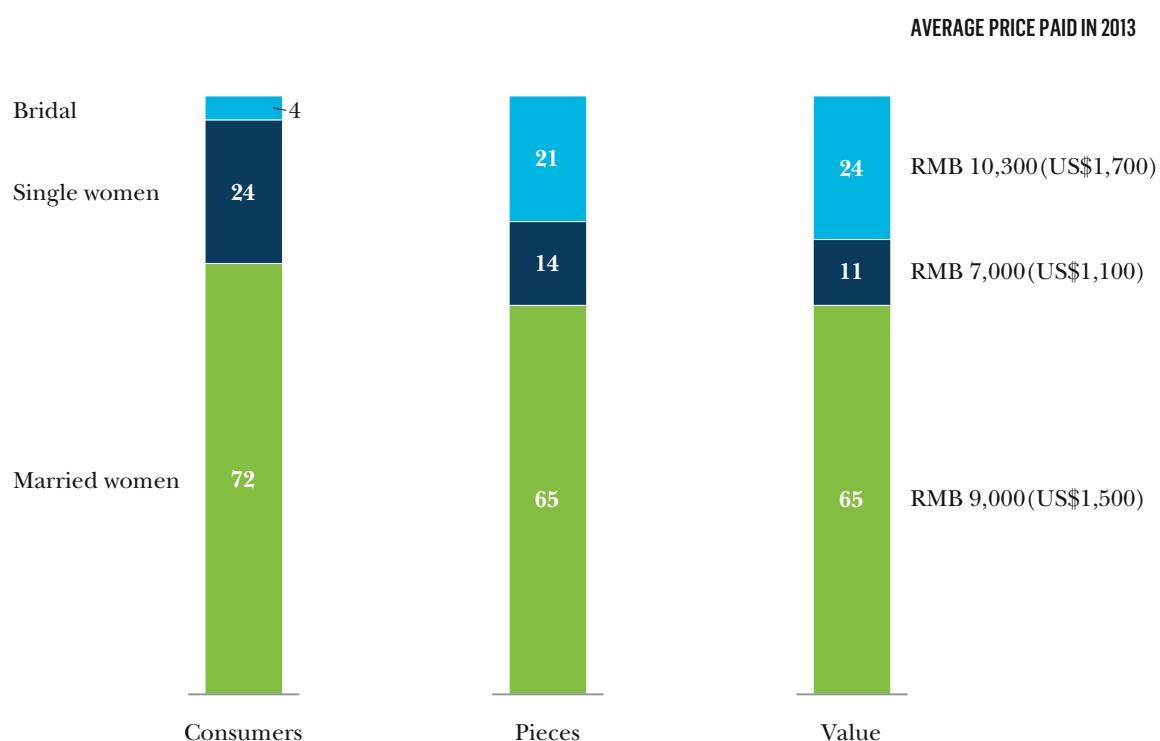
Polished diamond value



Source: De Beers

FIG. 41: 2013 CHINESE DIAMOND JEWELLERY BY SEGMENT

Per cent (by acquirers, pieces and value)



Note: The 2013 FX assumed is US\$1 = RMB 6.1905. All prices rounded

Source: De Beers

THERE IS STRONG POTENTIAL FOR FURTHER GROWTH

Fine jewellery is the object or experience most desired by urban women in China. Asked to select from a list of competitive items or experiences they most coveted, almost half (48 per cent) of Chinese women selected fine jewellery, a much higher percentage than the next most desirable gift item – designer handbags, chosen by just under a third of Chinese women. Among types of jewellery, diamond jewellery was by far the most popular choice, with about two-thirds of female consumers selecting it as their first or second preference (see Fig. 42).

Even so, China remains underpenetrated: while diamond jewellery ownership has risen to 20 per cent in the top urban cities surveyed (up from just 10 per cent in 2003), it is still far below the US ownership rate of approximately 70 per cent.

The consumer base is likely to continue to widen as the portion of the Chinese population able to buy into the category expands further. McKinsey & Company predicts that, by 2020, ‘mainstream’ consumers – relatively well-to-do households with annual disposable income of between US\$16,000 and US\$34,000 – will make up 51 per cent of urban households (from six per cent in 2010), and affluent households with annual incomes of more than US\$34,000 will make up six per cent (from two per cent in 2010 – see Fig. 43)³⁹.

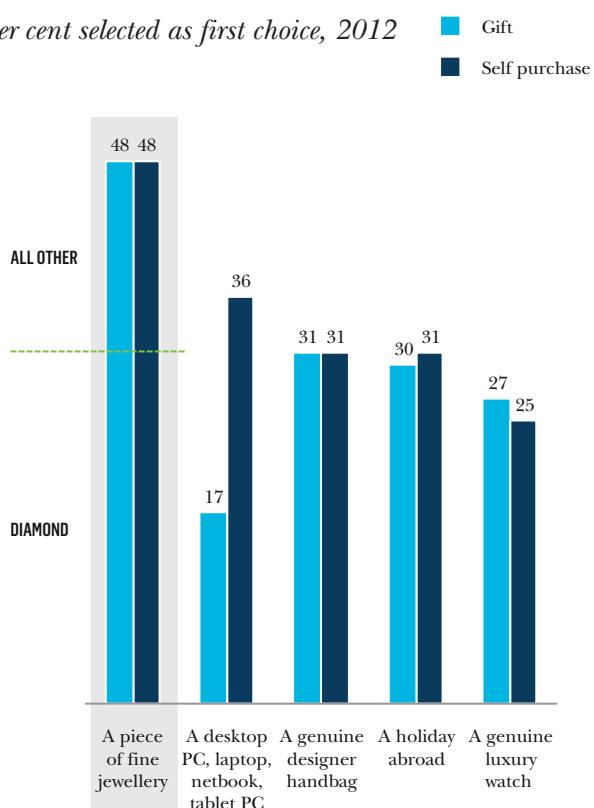
In addition, consumers who have already bought diamond jewellery are expected to find additional occasions to buy diamonds.

The number of wealthy individuals has also grown strongly in China. In its 2013 Wealth Report, Credit Suisse estimates the number of Chinese millionaires (ie individuals with assets above US\$1 million) to be 1.1 million in 2013, up 90,000 in one year alone⁴⁰. According to global consultancy Capgemini, China has the fourth-largest number of high net-worth individuals (HNWI, those with investable assets of over US\$1 million), reaching 643,000 in 2012, up just under 16 per cent on 2011⁴¹. A 2014 study by consultancy WealthInsight shows that together, Beijing (sixth in the list of the top 10 cities with most millionaires) and Shanghai (ninth on the list) have more USD millionaires (excluding the value of their primary residences) than London⁴².

This potential for growth is recognised by the big Chinese jewellery chains. Their store network expansion has continued apace over the past three years, leading to an estimated total of, approximately, 15,500 stores offering diamond jewellery in 2013 – 29 per cent more than in 2010. Chow Tai Fook, a leading specialised jewellery chain, has disclosed its aims to open a net of 200 jewellery points of sale each year in the medium to long term (see Fig. 44)⁴³. This is a further indication of local retailers’ confidence in the prospects for diamond jewellery in China.

FIG. 42: CHINESE WOMEN'S DESIRE FOR DIAMONDS AND COMPETING ITEMS

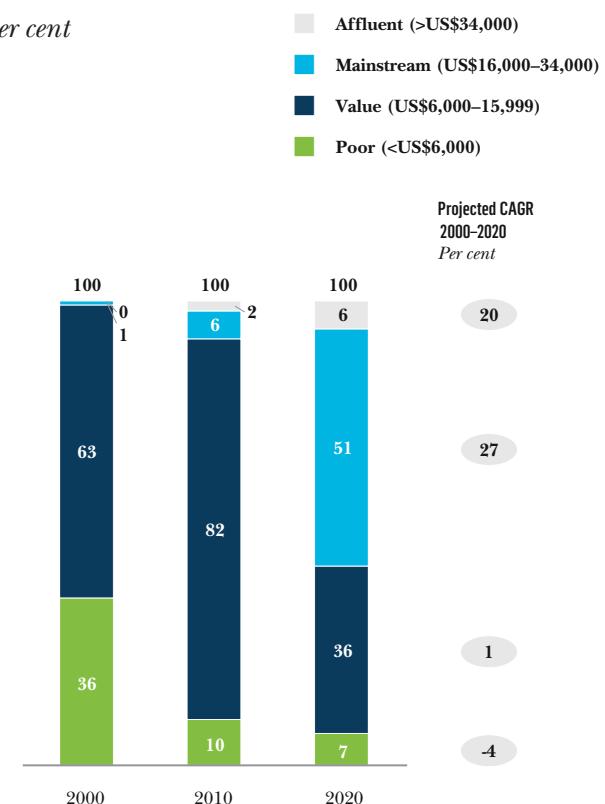
Per cent selected as first choice, 2012



Source: De Beers

FIG. 43: SHARE OF URBAN HOUSEHOLDS BY ANNUAL HOUSEHOLD INCOMEⁱ

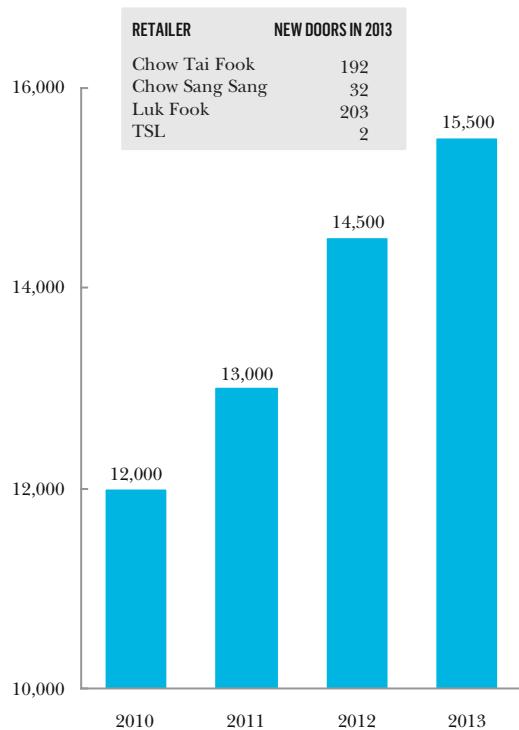
Per cent



ⁱ In real 2010 dollars; in 2010, US\$1 = RMB 6.73
Source: De Beers

FIG. 44: DIAMOND JEWELLERY RETAIL EXPANSION IN CHINA

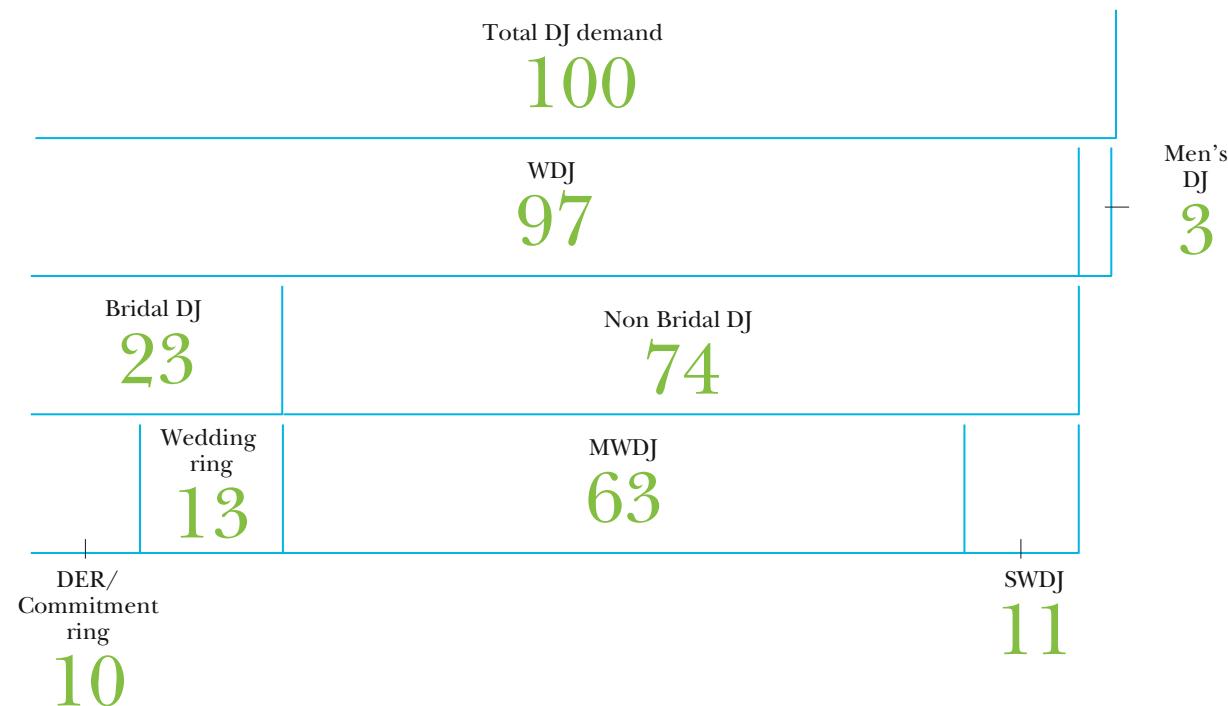
Number of doors, estimatedⁱ



ⁱ De Beers estimate, numbers are approximate
Source: Public filings and De Beers analysis

FIG. 45: DIAMOND JEWELLERY (DJ) MAIN CONSUMER SEGMENTS IN CHINA (2012)

Per cent of DJ value



Note: Area of rectangles reflects approximate proportion of total market by value

Source: De Beers

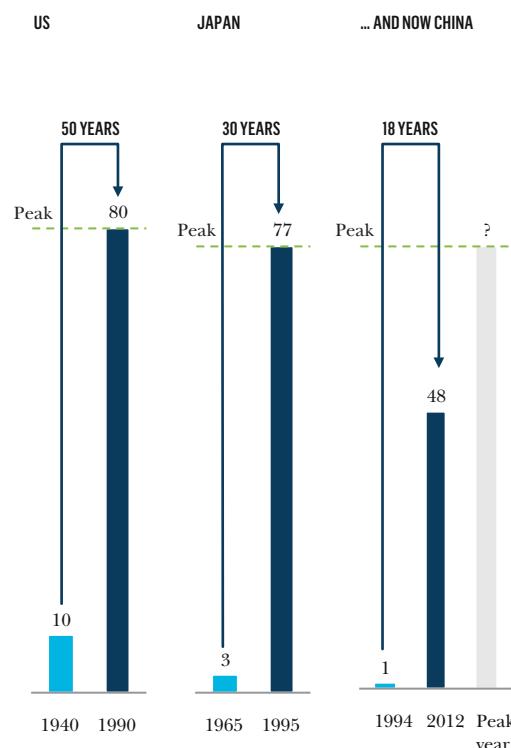
THE IMPORTANCE OF THE BRIDAL SEGMENT IN CHINA

In 2013, diamond jewellery consumption by Chinese women was led by married women who acquired almost two-thirds of pieces and accounted for the same proportion of sales value. The second most important consumer segment was bridal women, who acquired about a fifth of pieces and contributed just under a quarter of sales value. Single women represented the smallest proportion of sales, acquiring 14 per cent of pieces representing 11 per cent of total value (see Fig. 45).

The acquisition levels for each of these three segments were very different: 48 per cent of brides acquired diamond jewellery, while among married women acquisition was seven per cent and among single women four per cent. Brides' jewellery also had the highest average price and the highest average carats per piece. Even so, bridal acquisition rates remain well below the peaks seen in US and Japan, as average household wealth continues to grow (see Fig. 46).

FIG. 46: PENETRATION OF BRIDAL DIAMOND JEWELLERY

Per cent



Source: De Beers

GROWTH IS LIKELY ACROSS ALL THREE ROUTES TO DIAMOND OWNERSHIP

As described above, the bridal segment in China is important today not only for commercial reasons but also because of the important role it plays in the consumer's introduction to the diamond category. There are three main routes into the diamond jewellery category for the Chinese consumer (see Fig. 47). By far the most common of these is falling in love and getting married (the 'Love route'). Typically, a diamond solitaire ring is acquired as part of an engagement or marriage celebration; later on, earrings or necklaces may be given as further expressions of love.

Major milestones in life such as birthdays and wedding anniversaries form the second most important route into the category for Chinese consumers (the 'Milestone route'). Younger consumers, in particular, often receive their first piece of diamond jewellery as a gift for a special occasion from their parents or boyfriend.

Finally, there is the 'Spoiling route': receiving or buying their first diamond jewellery piece (usually earrings or a bracelet) as a treat. In 2013, 18 per cent of Chinese consumers bought diamond jewellery for 'no specific occasion' and 24 per cent of diamond jewellery was self-purchased rather than received as a gift.

FIG. 47: CHINESE WOMEN'S MAIN ACQUISITION ROUTES

Love route

- The Love route starts with the diamond ring, typically acquired for engagement or marriage celebration
- The diamond is used as a symbol of true love and promise
- It is often chosen together with the purchaser
- Less likely to be motivated by price

Around

50%

of all journeys

Source: De Beers

Milestone route

- First acquisition is a solitaire pendant acquired to celebrate a personal milestone
- The diamond represents success and achievement
- Likely to be a gift from a boyfriend, spouse or parent
- Quick decision (few days – 22 per cent) or even unplanned (36 per cent)

Around

23%

of all journeys

Spoiling route

- First acquisition is earrings or bracelet
- The diamond is ornamental, attracting compliments
- More likely that this is a nice treat, acquired as a present from a boyfriend
- Recipients are younger and have more say in choosing the item

Around

16%

of all journeys

JI LAYMAY'S JOURNEY



JI LAYMAY'S PROFILE

26 years old

Living in
Shanghai

An employee
working in
finance

A wedding
diamond ring
bought from
Donghua

TESTIMONIAL

Ms Ji planned to buy a diamond ring because her wedding was approaching. She thought that a diamond ring was a necessity for her marriage.

Her friends recommended she go to the Tiffany and Cartier stores to have a look. However, the prices were too high for her.

Ms Ji decided to learn more about diamonds on the internet before continuing her search. That is the first time she noticed the brand Forevermark, although she did not click the link. Online, she learnt about the 4Cs and browsed various designs and cuts.

CONTEXT

In 2012, almost half of new brides, in Tier 1, 2 and 3 cities, acquired a diamond engagement ring, up from below one per cent in 1994.

In China, brands enter into the purchase decision very early. 99% of women have awareness of major local and some international brands, and on average each customer is aware of 5.5 brands.

10% of women sought advice from friends and family when making significant jewellery purchases.

Over a fifth of Chinese women use the internet for research into diamond jewellery:

- 11% look to learn more about quality and prices
- 6% educate themselves on brands
- 5% are pre-selecting designs.

Among single women and affluent consumers, internet use for these purposes is even higher at 40% and 56%.

Source: De Beers

As the Chinese market matures, we expect to see growth across all three of these consumer journeys: 'Love', 'Milestones' and 'Spoiling'.

The growing importance of 'Milestones' and 'Spoiling' makes it more likely that consumers will acquire more than one 'must-have, one-off' piece of diamond jewellery over their lifetime. It also opens the door to more indulgent pieces and more varied designs, moving beyond the solitaire-only design that still makes up 80 per cent of diamond pieces across all types of jewellery, including rings, neckwear and earrings.

ENGAGING THE CONSUMER WILL BE KEY TO GROWTH

The diamond jewellery selection process in China involves a high level of engagement from the woman who will be acquiring the piece, even when receiving diamond jewellery as a gift.

The vast majority of recent acquirers or consumers currently choosing a piece of diamond jewellery consider branded offers as their first or second choice. When it comes to actual acquisition, Chinese consumers prefer to buy from trusted domestic retailers such as Chow Tai Fook and Chow Sang Sang, which surveyed consumers say they can trust.

Since 2008, however, claimed acquisition of diamond jewellery from international brands Cartier and Tiffany by young middle-class consumers has grown eight to nine times.

The purchase process is consultative: both the man and the woman need to be convinced, despite the fact that 71 per cent of pieces are paid for by the giver alone. In 2013, nearly half of pieces gifted were chosen by the recipient of the gift together with the actual purchaser.

As part of this process, customers undertake extensive browsing in shops. The most common place is a specialist jewellery retailer, with almost six in 10 acquirers, followed by jewellery counters/sections in department stores, with more than a third of acquirers.

The purchase journey involves a range of touch-points before a selection is made, including word-of-mouth recommendations from friends and family. The internet has its role to play too. Although not a significant sales channel in China, the internet is used by over a fifth of acquirers for related purposes, such as to learn about fine jewellery quality and prices, learn about brands, and to pre-select designs. The internet is used more frequently in the diamond purchase process by single women, 40 per cent of whom resort to it, and also by affluent consumers (about six in 10 research online).

In addition, mobile usage in China is growing quickly, with mobile broadband and WiFi penetration rates up 64 per cent and 600 per cent respectively from 2011 to 2013⁴⁴. Retailers and jewellery brands need therefore to maintain a strong online presence in China.

Chinese spend abroad has become more important on a global scale. In the diamond jewellery category, the average price of pieces acquired abroad is over 50 per cent higher than the average paid at home.

According to McKinsey Consumer and Shopper Insights, the spend by Chinese tourists on goods, including jewellery and other luxury items, accounts for about a third of a total projected spend overseas in 2014 of US\$154 billion. This level of spend was generated by an estimated 93 million trips abroad in 2013, more than five-fold growth in trips since 2002. Chinese travel abroad is expected to grow by 13 per cent annually to reach 135 million trips by 2016. Overall, the Chinese are reported to represent no less than 27 per cent of global luxury purchases, with 60 per cent of this figure being conducted abroad⁴⁵.

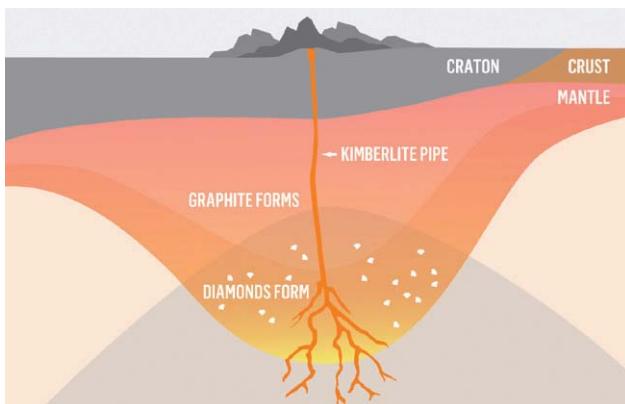
It is evident that China presents a huge growth opportunity for diamonds. But the Chinese consumer is increasingly sophisticated and discerning. To succeed, retailers and brands will need to establish a trusted name, and be prepared to meet the Chinese consumer's desire for inspirational and authentic stories, information and assurance of high-quality products.

IN FOCUS: THE MIRACLE OF PRODUCTION

Challenges and innovation in rough diamond production.

The Canadian Arctic and Botswana are a long way from the diamond jewellers of Fifth Avenue in New York, Times Square in Hong Kong, Bond Street in London, and Place Vendôme in Paris. However, it is in places like these that the world's most valuable diamonds are being extracted at immense cost and effort.

Diamonds were formed within the earth's sub-cratonic lithospheric mantle by processes more than three billion years ago. They tend to occur within ancient and stable parts of the earth's crust, known as cratons, where they have been protected from destructive geological processes and were then transported to the earth's surface within kimberlite.



ESCALATING COST AND COMPLEXITY

Finding, developing and mining kimberlite pipes in some of the world's most inhospitable places are astonishing feats of engineering and human ingenuity. They each require enormous investments in exploration, project development, infrastructure, mine equipment and also human capital – training miners to mine in a safe and sustainable way.

The cost and capital intensity of diamond mining projects are rising, for three main reasons. Firstly, global demand for capital goods has driven price increases in equipment. At the same time, operating costs in some of the major mining geographies have increased significantly over the last few years. In Botswana, for example, the cost of electricity increased 11 per cent per year between 2002 and 2012⁴⁶ and labour costs increased 14 per cent per year⁴⁷. In Russia, the price of electricity increased 12 per cent per year over the same period⁴⁸ and labour costs 19 per cent⁴⁹, while in South Africa power prices have risen by an average of 14 per cent over the same period⁵⁰ (see Fig. 48).

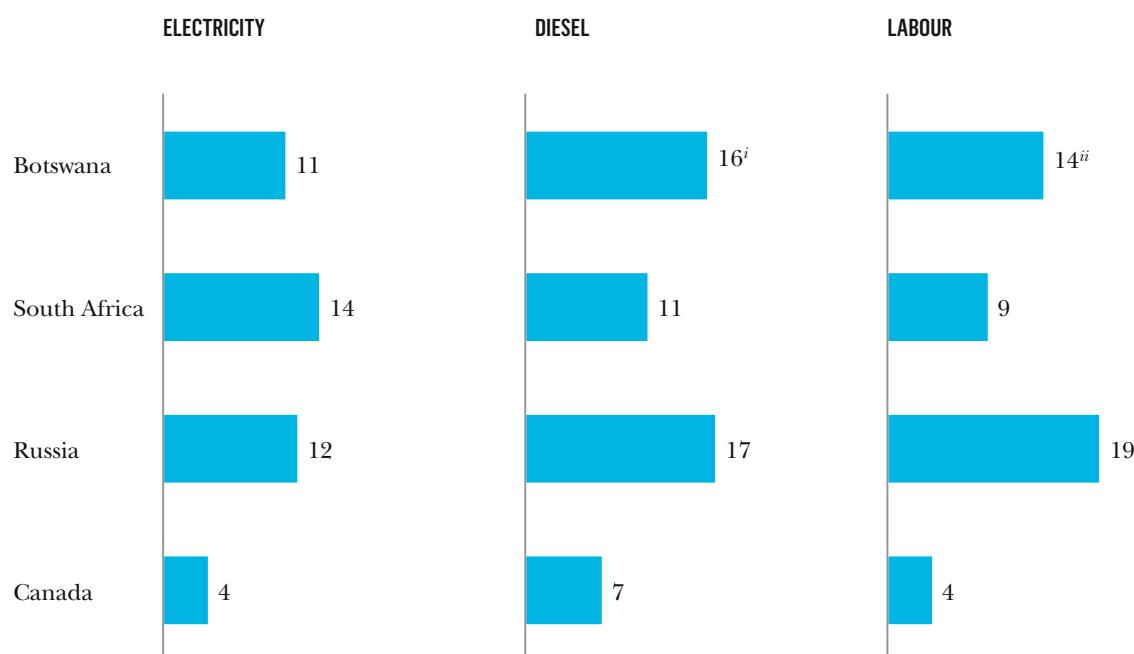
Secondly, diamond miners are developing deeper and more remote parts of existing deposits, such as the Jwaneng Cut 8 project or the Venetia Underground mine.

Finally, new projects are further away, in more hostile natural environments that include the Arctic. Such operations are inherently more complex to run and involve greater infrastructure investments.

Miners go to extraordinary lengths to bring diamonds to market. This has always been the case and supply will continue to increase as demand grows. However, this cannot happen without substantial effort and investment. The cost and complexity of mining diamonds will continue to increase, and diamonds will remain one of the most coveted of earth's products.

FIG. 48: COSTS INCREASES ACROSS THE MOST COMMON OPEX INPUT FACTORS

CAGR 2002-2012 in local currencies (nominal), per cent



ⁱ From 2006 to 2012

ⁱⁱ From 2002 to 2011

Source: South Africa: Eskom, SAPIA, South Africa Department of Mineral Reserves; Botswana: Ministry of Minerals, Energy and Water Resources, Botswana department of statistics, press searches; Russia: Russian Statistics

FROM DISCOVERY TO START OF PRODUCTION

Time lapse to development has increased for diamond mines.

MINE	YEARS TO PRODUCTION	
<i>Mir</i>	4 years	 average 5 years }
<i>Aikhal</i>	1 year	
<i>Udachny</i>	16 years	
<i>Orapa</i>	4 years	
<i>International</i>	2 years	
<i>Jwaneng</i>	10 years	 average 20 years }
<i>Jubilee</i>	10 years	
<i>Argyle</i>	6 years	
<i>Catoca</i>	29 years	
<i>Ekati</i>	17 years	
<i>Zarnitsa</i>	45 years	
<i>Komsomolskaya</i>	26 years	 average 16 years }
<i>Nyurba</i>	5 years	
<i>Diavik</i>	9 years	
<i>Arkhangelskaya</i>	25 years	
<i>Victor</i>	20 years	
<i>Snap Lake</i>	11 years	
<i>Grib</i>	18 years	 average 22 years }
<i>Karpinskogo-1</i>	35 years	
<i>Botuobinskaya</i>	21 years	
<i>Gahcho Kué</i>	21 years	
<i>Renard</i>	16 years	

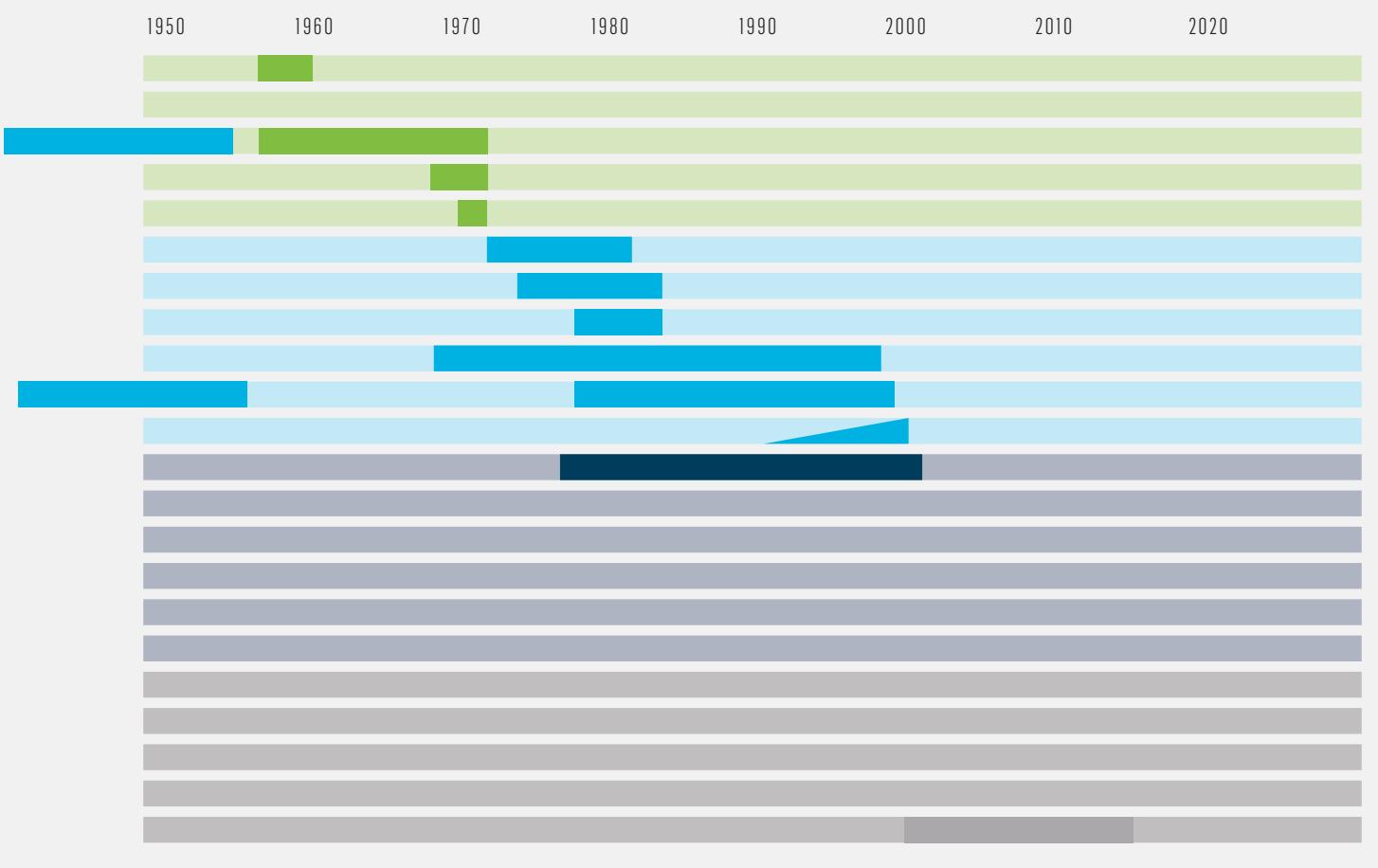
LOOKING FOR BROADER ECONOMIC AND SOCIAL CONTRIBUTIONS

The governments of many diamond producing countries have a strong desire to ensure that diamond extraction maximises local social and economic benefits.

Diamond mining companies make substantial direct and indirect contributions to local economic development in most countries where they mine. With lifespans that can cover decades, mining projects require large-scale and long-term capital investment, often reaching billions of US dollars. This investment often attracts significant additional inward investment to host countries. It results in direct economic and fiscal benefits including infrastructure development, provision of local healthcare and education, direct employment, and payment of taxes and royalties. Indirect benefits include the development of a supply chain to support the mining operations, skills development, indirect employment and community support.

For example, in Canada, De Beers has numerous comprehensive Impact Benefit Agreements (IBAs) with aboriginal communities in the areas near the company's operations. These IBAs not only provide compensation for any loss or potential loss of land during the construction, operation and closure of a mine, but they also provide a framework regarding priorities for local training, employment, business contracts, environmental management and social investment in areas such as culture and heritage activities.

In 2013, De Beers distributed more than US\$5 billion – or over 90 per cent of the value of total sales – to governments, suppliers, employees, shareholders and other finance providers. And of this, more than US\$3 billion was paid to stakeholders in Africa, where De Beers has the greatest proportion of its operations.



DIAMONDS IN THE DESERT



It's in Botswana, a sparsely populated country in southern Africa, that Jwaneng, one of the most valuable diamond mines in the world, was discovered in 1972 by De Beers' geologists. Ten years later, the mine commenced operations, yielding about 12 million carats per year. The ore that is mined at Jwaneng is particularly rich in high-quality diamonds. Jwaneng represents 60-70 per cent of the overall revenues of Debswana, the joint venture between De Beers and the Government of the Republic of Botswana.

The mine has been extended through various programmes, gradually unearthing new parts of the ore body by deepening the mine pit (see chart below). The most recent of these projects, known as Cut 8, will remove an initial 500 million tonnes of waste earth to expose the ore and, to ultimately,

recover more than 100 million additional carats and prolong the life of the mine to at least 2028. The project began in 2010 and the total investment cost is US\$3 billion – the single largest private investment in Botswana's history.

JWANENG IS ONE OF THE MOST VALUABLE DIAMOND MINES IN THE WORLD

Mining always carries safety risks, and while open-pit mines such as Jwaneng are generally seen as safer than underground mines, risks remain. Technology can help improve safety, however: in October 2013, a slope failure was predicted using stability analysis. As a result, the mine was evacuated ahead of the actual slope collapse and no workers were harmed, unlike an earlier instance in 2012, when a similar incident tragically resulted in a loss of life.



FIRE IN THE ICE



Thousands of miles lie between the heat of Botswana and the frozen lakes of the Canadian Arctic. Canada has been home to some of the largest recent developments of diamond mines; however, mining in the Arctic carries particular challenges. One example of this is De Beers' mine at Snap Lake in the Northwest Territories, 220 kilometres north of the closest city, Yellowknife.

The portrait of Calinda gives you a sense of what life is like for the mine workers there.

Calinda is 31 years old and has worked at Snap Lake since she completed the Underground Miner Training Program in 2008. "These past 4.5 years as a female underground miner have been an honour," said Calinda, who is a lube truck operator underground.

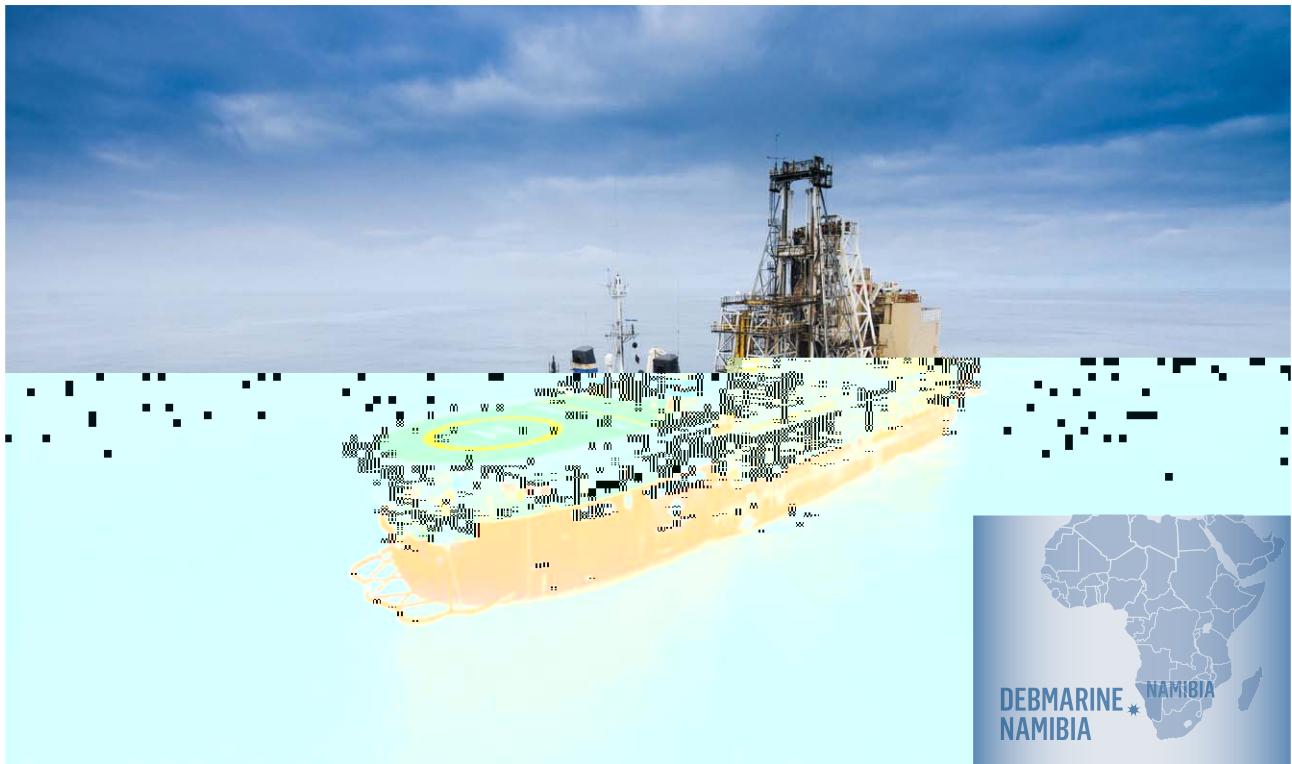
Calinda typically works a 12-hour shift for two weeks on the mine before returning home to the Tlicho community of Wekweeti for the next two weeks. The mine can only be accessed by plane, so she and her colleagues catch a special charter flight for De Beers employees to and from the mine from Yellowknife, and then board another plane home.

At Snap Lake, it is dark and remains so throughout most of the day. Temperatures can go down to -45 degrees Celsius and colder on the surface, although down in the mine it's warmer, where the air is heated to an average temperature of three to five degrees Celsius. De Beers provides all the warm clothing and safety items required for each employee to do his or her work safely.

SAFETY IS A BIG DEAL AT SNAP LAKE – THE MINE HAS WON TWO REGIONAL SAFETY AWARDS FOR OUTSTANDING PERFORMANCE

As Calinda explains: "Safety is our top priority: it's on everyone's minds, all the time, and we work together to keep each other and the environment safe. At the beginning and the end of every shift, the team does a handover, to ensure everybody is aware of the exact location they are mining."

TREASURES OF THE DEEP



In 1908, railway worker Zacharias Lewala was shovelling sand off a railway line in Kolmanskop, a few kilometres inland from the port of Lüderitz in Namibia, and picked up several stones, thereby unknowingly starting a diamond rush in Namibia. But how did this whole coastline along southwest Africa come to be strewn with diamonds?

It's another quirk of nature. Millions of years ago, glacial floods carried diamonds down the Orange River from some 500 miles inland and out to sea. Over millennia, the diamonds tumbled along the riverbed, in the process being naturally cleaned and polished, and arrived on the seabed in near-perfect form, making them amongst the most sought after treasures of nature.

It has taken a massive investment in new offshore mining technology by De Beers to enable these diamonds to be brought to the surface. Unaffected by the wild crashing waves of the Atlantic Ocean, the Debmarine Namibia mining fleet is a triumph of engineering ingenuity.

A gigantic crawler – like a monster vacuum – ploughs along the seabed sucking up the diamond-rich sediment and pumping it up to the ship (which is essentially a floating mine) on the surface. The 'mv Mafuta' is the latest of Debmarine Namibia's five deep sea mining vessels.

At a cost of more than US\$100 million, it is the largest and most sophisticated of Debmarine Namibia's fleet. The ship is automatically kept in position by a GPS that moves both ship and crawler along predetermined tracks to comb the seabed areas that geologists determine are most likely to yield the largest number of high-quality gems. Four hundred tonnes of sediment are pumped aboard every hour. The sediment enters an unceasing production line where it is automatically sized and separated, and the diamonds sealed in cans, a complex process untouched by human hands.

A GIGANTIC CRAWLER – LIKE A MONSTER VACUUM – PLOUGHES ALONG THE SEABED SUCKING UP THE DIAMOND-RICH SEDIMENT AND PUMPING IT UP TO THE SHIP (WHICH IS ESSENTIALLY A FLOATING MINE) ON THE SURFACE

Once the diamonds are extracted, the sediment is returned to the seabed to minimise environmental damage. Once a month, when the crew of the vessel change over amid the strictest security, the diamonds are brought ashore by helicopter before being transported to the sort house and eventually beginning the long journey to diamond jewellery retail stores all over the world.



IN FOCUS: SAFEGUARDING THE INDUSTRY THROUGH TECHNOLOGY

Technology plays a vital role across the entire diamond pipeline, helping both to secure future supply and to maintain the diamond dream.

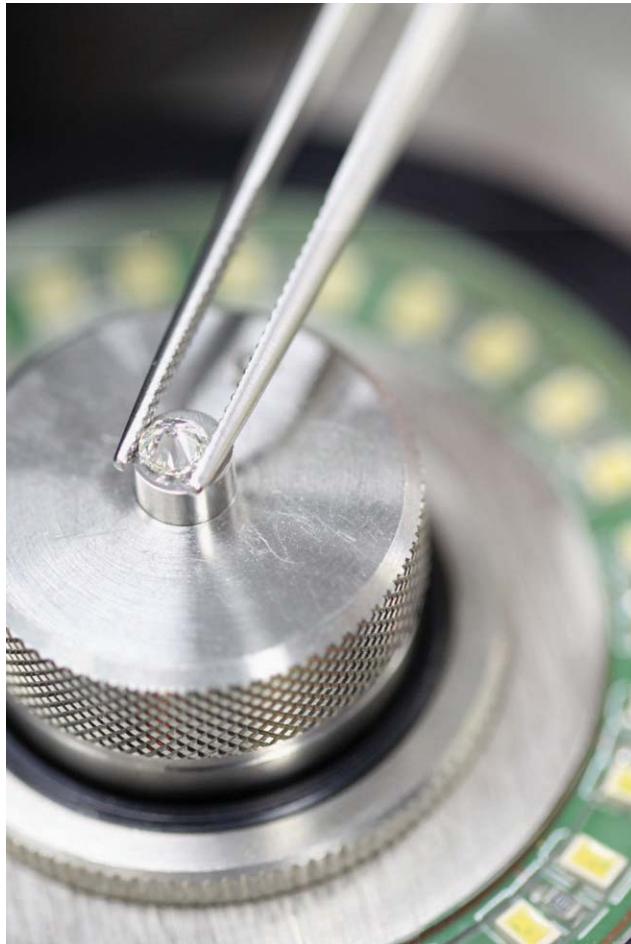
SECURING SUPPLY IN A SAFE AND SUSTAINABLE MANNER

Throughout the pipeline, technology is critical to ensuring the supply of diamonds: in exploration, mining and sorting for diamonds efficiently, and also making sure that these activities are safe and minimise environmental impact.

EXPLORATION

Geologists rely on technological innovation to help them discover new viable sources of diamonds in locations that are often remote, previously underexplored and difficult to work in, such as near the Arctic Circle. In many such remote areas, traditional approaches to exploration are limited, and geologists therefore need to use new techniques to select targets⁵¹.

One new exploration technique, in particular, has been made possible by the recent development of SQUID (Super Conducting Quantum Interference Device). SQUID is a very sensitive magnetometer used to measure extremely subtle magnetic fields. This technology provides significant benefits over current exploration methods such as airborne magnetic and ground exploration systems, and has provided geologists with an important new tool⁵².



Another example is improvements in geophysical hardware that De Beers Exploration has developed. These improvements have resulted in the development of new systems with improved signal-processing capabilities, substantial reduction of noise, increased power and more sensitive receivers.

Furthermore, technology is a critical part of reducing the environmental impact of exploration. The development of geophysical down-hole logging tools, for example, will improve the accuracy of 3D modelling, reducing the number of drill holes required. This not only reduces cost, but also minimises the effects on local environments.

PRODUCTION

Technology also plays an important role in the advancement of mining with ever-improving process efficiencies and novel and unique extraction methods. De Beers has been at the forefront of many of these innovations, ranging from process improvements through the adoption of dense media cyclones to the exploitation of new resources by the pioneering of marine mining for offshore deposits.

Technology also enhances the industry by detecting and deterring diamond theft through improved surveillance, smart security systems and access control. In particular, Scannex, a security system developed by De Beers that allows safe, low-dosage, full-body x-ray, ensures that diamonds do not leave with employees exiting the high security areas of the De Beers operations⁵³. This technology has also had applications outside mining (see Fig. 49).

Additionally, several producers including De Beers are using strategic laboratory facilities to add value to production operations by extracting critical data and information required to target, discover and evaluate diamond deposits. Such laboratories may comprise in-house sample treatment, indicator mineral, analytical, microdiamond and macrodiamond capacity and capability.

SAFETY

Technology also helps geologists and producers to manage the safety risks associated with operating in remote locations. Commercially available technologies include SMARTY cameras in vehicles to encourage safe driving, monitor driving behaviour, and enhance overall safety on the road; rollover protection aimed at protecting equipment operators and motorists from injuries caused by vehicle overturns or rollovers; and smaller, safer drill rigs.

FIG. 49: EXTENDING THE BENEFITS OF TECHNOLOGY OUTSIDE MINING

De Beers' Scannex technology has been used in hospitals to scan patients in a rapid and cost-efficient manner. This technology was first developed alongside a team from the University of Cape Town in the 1990s. Following its success, De Beers formed Lodox Systems (Pty), a separate company incorporated in South Africa, to produce the machines.

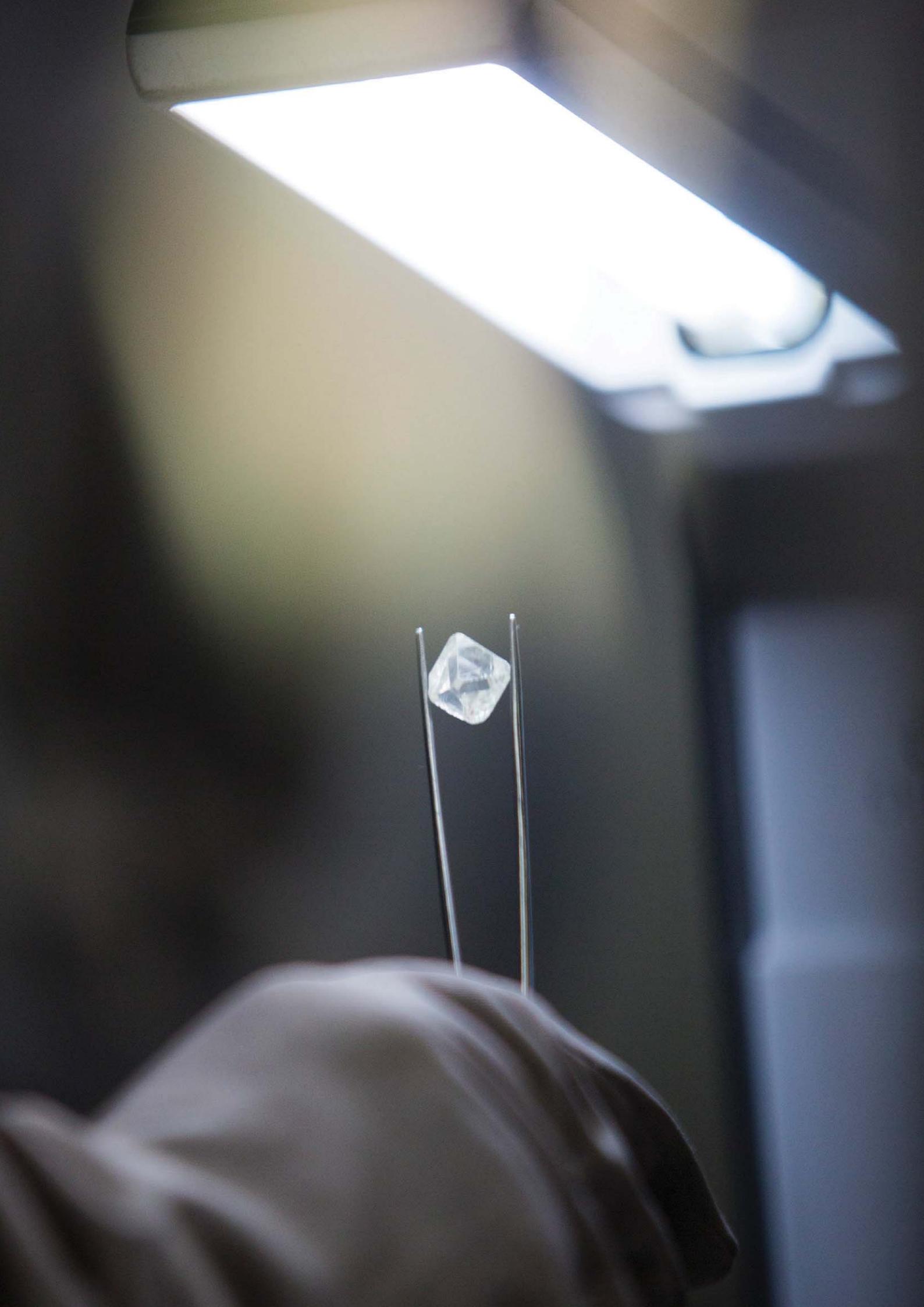
The Groote Schuur hospital in South Africa was one of the first in the world to use the scanner. "About 1,250 patients a year benefit from the Lodox machines. In the past, time-consuming multiple images had to be done but the Lodox saves time so life-saving decisions can be made more quickly.⁵⁴"

To date, five Lodox machines have been installed, and orders for a further 12 have been placed⁵⁵.



MIDSTREAM OPERATORS

In sorting, valuing and sales, De Beers utilises proprietary technology to produce consistent assortments of its diamonds to satisfy the needs of its customers. In order to achieve this at economically viable rates, De Beers has developed and implemented advanced proprietary sorting technology for weighing and shape/colour/quality sorting of around 300 million stones that pass through the business each year. Sophisticated electro-mechanical feed and dispense mechanisms, and state-of-the-art image-processing, enable the fastest sorting machines to operate at up to 15 stones per second.



SAFEGUARDING THE CONSUMER AGAINST THE RISK OF UNDISCLOSED SYNTHETICS

When a consumer acquires a diamond, he or she wants to know for certain that it is a rare and inherently precious natural gem, brought to the surface after lying for hundreds of millions of years within the earth's mantle. Any damage to consumers' confidence in their natural diamond purchases could have consequences for the whole industry.

Undisclosed synthetic diamonds present exactly such a risk. The inability to distinguish confidently (and therefore disclose) synthetics from natural gem diamonds could lead to a collapse of consumer and trade confidence in the value-perception of, and desire for, natural gem diamonds. This may ultimately lead to consumers abandoning the category, temporarily or permanently.

Several organisations (De Beers included) have been working hard over many years to minimise the risks to consumer confidence resulting from deliberate or inadvertent undisclosed synthetics.

De Beers has invested nearly US\$65 million in research over the last 30 years (in today's value) to develop sophisticated technology, including DiamondSure™, DiamondView™ and DiamondPlus™ (see sidebar for further detail), that can readily detect all types of gem synthetics, providing consumers with the confidence that they are not unknowingly purchasing an undisclosed synthetic instead of a natural gem.

At the end of 2013, evidence came to light that some synthetic products may have been seeded, undisclosed, into parcels of natural diamonds in the major diamond trading centres. Earlier in 2012, more than 600 Chemical Vapour Deposition (CVD) synthetic colourless diamonds were found to have been sold undisclosed to someone who then submitted them to the International Gemological Institute facilities in Belgium and India. Small quantities of undisclosed high-quality CVD synthetic diamonds were also detected in China and in India⁵⁶.

Although technology was already available to detect synthetic gems, the first generation of detection technology had focused on screening larger gems. At the time, there was no cost-effective method of screening melée diamonds in the supply chain. It was not therefore possible to assess accurately the extent to which undisclosed synthetic melée posed a consumer confidence risk to the industry.

Research and development efforts were accelerated to address this issue, and effective melée-screening technology is now available.

WHAT IS A SYNTHETIC?

A synthetic is a product that has been partly or completely crystallised by artificial or human intervention through a variety of processes, such as High Pressure High Temperature (HPHT) or Chemical Vapour Deposition (CVD).

In some cases, synthetic diamond stones are treated to improve their colour, using heat treatment, irradiation or a combination of these treatments.

The first commercially successful synthesis of diamond was announced by the General Electric Company in 1955. These synthetics were produced using HPHT processes. An alternative method of diamond synthesis carried out by Union Carbide, based on Chemical Vapour Deposition techniques, is claimed to have pre-dated that of HPHT by two years.

The primary use of synthetics since then has been in industry, where they are used for wide range of applications, including mechanical, optical and electronic. Significant advances in the production of synthetics have occurred since then, with the first incidence of HPHT synthetics in the jewellery industry being noticed in the late 1980s and that of CVD synthetics in the late 1990s⁵⁷.

The Swiss Gemmological Institute (SSEF) has developed a non-portable Automated Spectral Diamond Inspection (ASDI) machine designed to screen colourless melée diamonds at a rate of 3,000-4,000 per hour⁵⁸.

De Beers, drawing on a co-ordinated effort between its Global Sightholder Sales and Technologies divisions, and the International Institute of Diamond Grading and Research (IIDGR), built a compact, portable automated machine, the Automatic Melée Screening (AMS) device, to scan both colourless and near-colourless melée quickly and cost-effectively. The AMS machine was piloted in Antwerp in mid-2013 and is now being sold to De Beers' Sightholders, helping to maintain confidence across the industry. The first 100 AMS machines were produced and available for shipment to the Sightholder community less than 12 months after the issue first surfaced. By the end of July 2014, orders for 60 AMS machines had been received, with installation and training having been completed for 25 of these units.

DE BEERS' PROPRIETARY DETECTION TECHNOLOGY

De Beers continues to make its detection technology available to Sightholders and the industry at large. Additionally, the company is working to raise awareness of how undisclosed synthetics might deliberately or unwittingly be introduced into the pipeline and of how this risk can be managed.

De Beers has developed four different types of detection machines and introduced them to the wider diamond industry:



DiamondSure™ is a portable screening instrument designed to screen rapidly for synthetics and simulants (with a measurement time of a few seconds per stone).



DiamondView™ is designed to identify the two per cent of stones that are referred for further testing by DiamondSure™. From the characteristic surface fluorescence patterns which are imaged and produced by short-wave ultra-violet illumination, a user is able to identify whether a stone is natural or synthetic.



DiamondPlus™ simplifies and significantly speeds up the task of detecting HPHT treatments applied to type II natural diamonds. It tests loose diamonds of between 0.05 and 10 carats within 15 seconds. DiamondPlus also helps to identify CVD synthetics, by detecting a feature which is very commonly found in CVD synthetics currently available.



The Automated Melée Screening Device (AMS) machine is a compact, automated version of DiamondSure™ with

additional detection functionality, which enables 360 small stones per hour to be tested completely 'hands-off.' It makes it possible to screen melée-sized diamonds (1 to 20 pts) in a cost-effective manner. During pilot testing, an average pass rate of 98.5 per cent was achieved on nearly 80,000 colourless and near-colourless melée diamonds. The remaining 1.5 per cent diamonds were sent for further testing with DiamondView™ and confirmed as natural. No synthetic melée was found during this test.



De Beers has estimated total synthetics production capacity by combining publicly available information about the number and type of machines used by the main synthetics producers with the practical experience of Element Six Technologies (a leader in synthetic diamond production for technical applications, wholly owned by De Beers) in using such technology.

If all known CVD reactors capable of producing gems were used solely for synthetic gem production, the company estimates that annual production would be around 150,000 polished carats. HPHT production of colourless and near-colourless synthetics is estimated at below 10,000 carats.

In reality, however, most of the available capacity is used for industrial purposes, not for gem-quality production. Based on disclosed volumes, known cases of undisclosed synthetics and initial feedback from users of the AMS machines, the company estimates that production of gem-grade synthetics is in the range of 15,000-60,000 carats per year. The majority of these carats are produced by two or three companies based in South East Asia and North America.

Overall, the volume of gem-quality synthetics produced by either CVD or HPHT processes is estimated to still be low.

Despite these low volumes, the diamond industry must remain vigilant about the persistent risk of undisclosed synthetics. To date, through technological innovation, the industry has been successful in safeguarding consumer confidence. Continual investment in developing and deploying technology will be required to sustain that success in future.

INITIAL SIGHTHOLDER FEEDBACK ON AMS

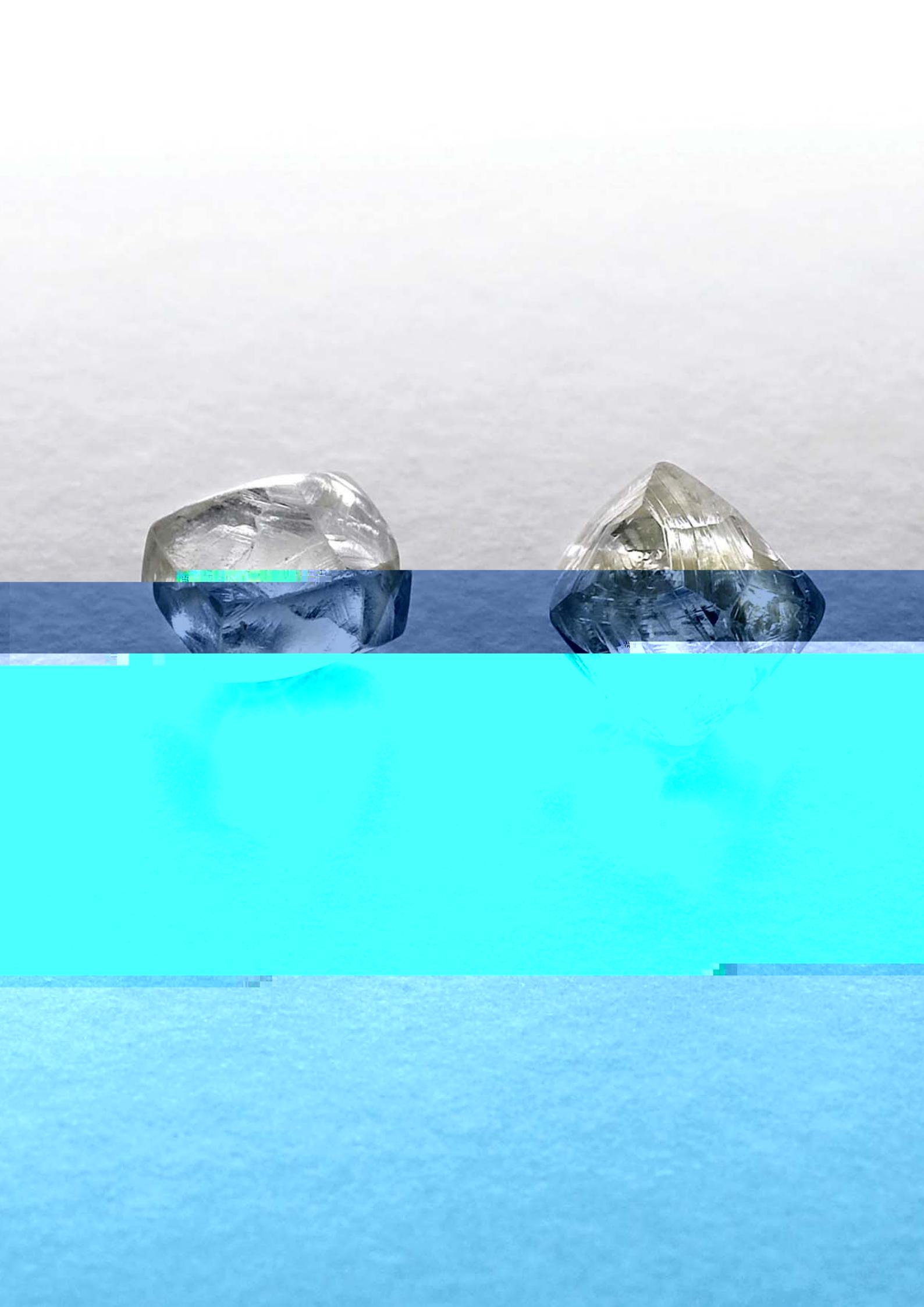
1 “A relationship with a client is all about trust. It is our duty and responsibility to reassure our clients that all diamonds supplied are 100 per cent natural. While our in-house systems and processes already ensure this, **it is inevitably more reassuring for them to know that all shipments have been screened by the latest and most efficient technology available**, prior to their leaving our offices.”

2 “Like most responsible members of the industry, we are concerned that unscrupulous traders may facilitate synthetics entering the system undisclosed. Therefore, despite being fully confident of the integrity of our own pipeline, we wish to give our clients total confidence by adding an extra line of defence by screening all mêlée shipments on exit. **Currently, the AMS machine is the most practical technology** for this purpose, and on that basis we have integrated it into our processes.”

3 “**The machine is practical and simple to use** and, therefore, having been assured of the efficiency of its detection processes by the International Institute of Diamond Grading and Research, we find the AMS machine a highly effective final safeguard in the fight against undisclosed synthetics.”

4 “All deliveries to our clients receive a final QC before they leave our offices. Just as weights are checked and stone counts made, **it is easy to integrate a final screening by the AMS machine into our operations.**”





GLOSSARY

BENEFICIATION *Creation of activities beyond mining the natural resource in producing countries. For diamonds, this usually means sorting, valuing, selling and manufacturing*

4Cs *The four main characteristics that define the quality of a polished diamond: carat, colour, cut and clarity*

CAGR *Compound annual growth rate, a year-on-year percentage growth rate over a specified period of time*

CARAT *A unit of mass for diamonds and gemstones, standardised worldwide in the 20th century at exactly one-fifth of a gram (the metric carat). One of the 4Cs*

CARATS PER PIECE *The number of carats in an individual piece of jewellery*

COLOURLESS DIAMOND *A diamond's colour is a result of its composition: colourless diamonds allow more light to pass through than a coloured diamond*

CONFLICT DIAMONDS *Mined rough diamonds used to fund rebel and revolutionary activities against legitimate and internationally recognised governments*

CRATON *An old and stable part of the continental lithosphere that may contain diamonds. Having often survived cycles of merging and rifting of continents, cratons are generally found in the interiors of tectonic plates*

CUTTING AND POLISHING *The process of preparing a rough gem-quality diamond so that it can be used in the manufacture of jewellery*

CVD *Chemical Vapour Deposition: a process to create synthetic diamonds*

CVD REACTOR *A machine designed to create synthetic diamonds using the CVD process*

DENSE MEDIA CYCLONE *A device used in the recovery plant to separate the diamondiferous material from waste*

DIAMOND *A precious stone consisting of a clear and typically colourless crystalline form of pure carbon, the hardest naturally occurring substance*

DIAMANTAIRES *The French term 'diamantaire' ('diamantair' in Flemish) is used in the diamond industry to denote a person who possesses diamond-related skills*

DIAMOND JEWELLERY ACQUISITION *Diamond jewellery received as a gift or self purchased*

DIAMOND DEPOSIT *A body of rock or other mineralisation containing a concentration of diamond of possible economic interest*

DIAMOND DREAM *The allure that diamonds have for consumers on the basis of their association with romance and a sense of the eternal, and the fact that they are seen as a lasting source of value*

DIAMONDIFEROUS *Containing or yielding diamonds*

DIAMOND JEWELLERY *Jewellery containing diamonds, no matter how big or small, including in combination with other precious or semi-precious stones*

DIAMOND PIPELINE *The industry value chain that runs from consumers and retail stores to jewellery manufacturers, cutters and polishers, back to producers and explorers*

DIAMOND RECYCLING *The sellback or trade-up of previously-owned diamonds or diamond jewellery*

DOWN-HOLE LOGGING *The process of measuring physical, chemical, and structural properties of penetrated geological formations using logging tools that are either lowered into the borehole on a wireline cable (wireline logging) or placed just behind the drill bit as part of the drill pipe itself (logging-while-drilling)*

DOWNSTREAM *The stage of the diamond value chain that includes jewellery retailing to end consumers*

DER *Diamond Engagement Ring*

EBIT *Earnings Before Interest and Tax: an indicator of a company's profitability, calculated as revenue minus expenses, excluding tax and interest*

FINE JEWELLERY *Jewellery made with precious materials such as gold, and precious and semi-precious stones*

GEM *A cut and polished precious stone fine enough for use in jewellery*

GEM-GRADE, GEM-QUALITY *A rough or manufactured precious stone fine enough for use in jewellery*

GIA *Gemological Institute of America. A US-based non-profit organisation established in 1931 engaged in research, gem identification and grading services as well as a variety of educational programmes worldwide*

HPHT *High Pressure High Temperature: a process to create and treat synthetic diamonds*

IBA *Impact Benefit Agreement: an agreement made with aboriginal peoples to ensure that they benefit from mining projects and are compensated for any negative impacts of mines on their communities, their land, and their traditional way of life*

IIDGR *The International Institute of Diamond Grading and Research is the part of De Beers which offers polished diamond grading services and through which De Beers' diamond verification instruments are sold*

INDICATOR MINERALS *Minerals that are used to help locate diamond deposits. They are minerals which are characteristic of kimberlite, but which are usually more abundant than diamonds (and therefore easier to find). Indicators form in association with diamonds in the kimberlite and are scattered over a wide area by erosion. By tracing these indicators, the source of the kimberlite may also be found*

INDUSTRIAL DIAMONDS *Natural diamonds and synthetics used for non-jewellery purposes in manufacturing processes across various industries (oil and gas, precision tools, mining, etc.)*

INTERNATIONAL GEMOLOGICAL INSTITUTE *A diamond, coloured stone and jewellery certification organisation established in 1975 and headquartered in Antwerp*

KIMBERLEY PROCESS (KP) *Intergovernmental rough diamond certification scheme aimed at preventing the sale of conflict diamonds entering the legitimate diamond value chain*

KIMBERLITE *An intrusive igneous rock that is sometimes diamondiferous. It is unevenly grained, containing minerals such as olivine, phlogopite and pyrope garnet, cemented with a groundmass consisting of minerals such as serpentine, calcite and chromate. Kimberlite occurs in the earth's crust in vertical structures known as kimberlite pipes*

MACRODIAMOND *A recovered rough diamond greater than 0.5mm*

MELÉE *A term used to describe small cut and polished diamonds. The diamond weight for melée diamonds ranges from as low as 0.001 carats (1000th/carat) to 0.18 carats*

MICRODIAMONDS *Very small rough diamonds, less than 0.5mm*

MIDSTREAM *The stage of the diamond value chain that includes sales of rough diamonds, cutting and polishing, primary and secondary sales of polished diamonds and jewellery manufacturing*

NATURAL DIAMOND *A diamond formed naturally over millions of years in the earth's crust*

NEAR GEM QUALITY *A quality band between gem-quality and industrial diamonds*

OPEN-PIT MINING *Mining from the surface to expose the ore below*

POLISHED *Diamonds that have been cut and polished (manufactured) in preparation for use in jewellery manufacture*

PWP *Polished Wholesale Price, a term referring to prices achieved by cutter polishers in Cutting Centres for polished diamonds*

RESERVES *Mineral deposits that can be economically extracted*

RIPPLE EFFECT *Temporary mismatch between supply and demand caused by the de-stocking or re-stocking activities of midstream operators in response to changes in market conditions*

ROIC *Return On Invested Capital: The return on invested capital measure gives a sense of how well a company is using its money to generate returns. Comparing a company's return on capital (ROIC) with its cost of capital (WACC) reveals whether invested capital was used effectively*

ROUGH DIAMOND *A diamond that has been mined but not yet cut and polished in preparation for use in jewellery manufacture*

SIGHT *An event during which customers can inspect and buy diamonds from De Beers*

SIGHTHOLDERS *Term contract rough diamond customers of De Beers*

SIMULANT *A substance used to imitate diamond*

SMALLS *Colloquial term for rough diamonds under three grainers. A grainer is a unit often used in the diamond trade to approximate the weight of a rough diamond; a grain is approximately 0.25 carats*

SMARTY CAMERA *An in-vehicle Event Data Recorder (EDR) which makes constant video recordings of a journey; it is designed to reduce risk by encouraging safe driving behaviour and aiding in the process of investigating car accidents*

SOLITAIRE *An item of jewellery (for example, a ring) that highlights a single diamond*

SORTING *The process of classifying rough diamonds into a variety of categories based on their natural characteristics, specifically their colour, clarity, carat and model or shape*

SYNTHETIC *A man-made diamond that has the same chemical composition, crystal structure and physical properties as its natural counterpart. Where a product is man-made, but has the same structure as a natural counterpart, an accepted description must be used to make clear that the product is man-made. Synthetic is one such description*

TREATMENT Any non-natural processes (other than shaping, polishing and surface cleaning) that change, interfere with and/or contaminate the natural appearance, composition or durability of a gemstone. For diamonds, this includes colour treatments (and decolourisation or 'bleaching'), fracture-filling, laser-drilling, irradiation treatment, and coating

UNDISCLOSED SYNTHETIC A synthetic diamond that has been falsely passed off as a natural gem

UPSTREAM The stage of the diamond value chain that includes rough-diamond exploration and production

WACC Weighted Average Cost of Capital: A calculation of a company's cost of capital in which each category of capital is proportionately weighted. All capital sources – common stock, preferred stock, bonds and any other long-term debt – are included in a WACC calculation

WHOLESALER An organisation that buys polished diamonds in order to distribute them to jewellery manufacturers and retailers

END NOTES

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