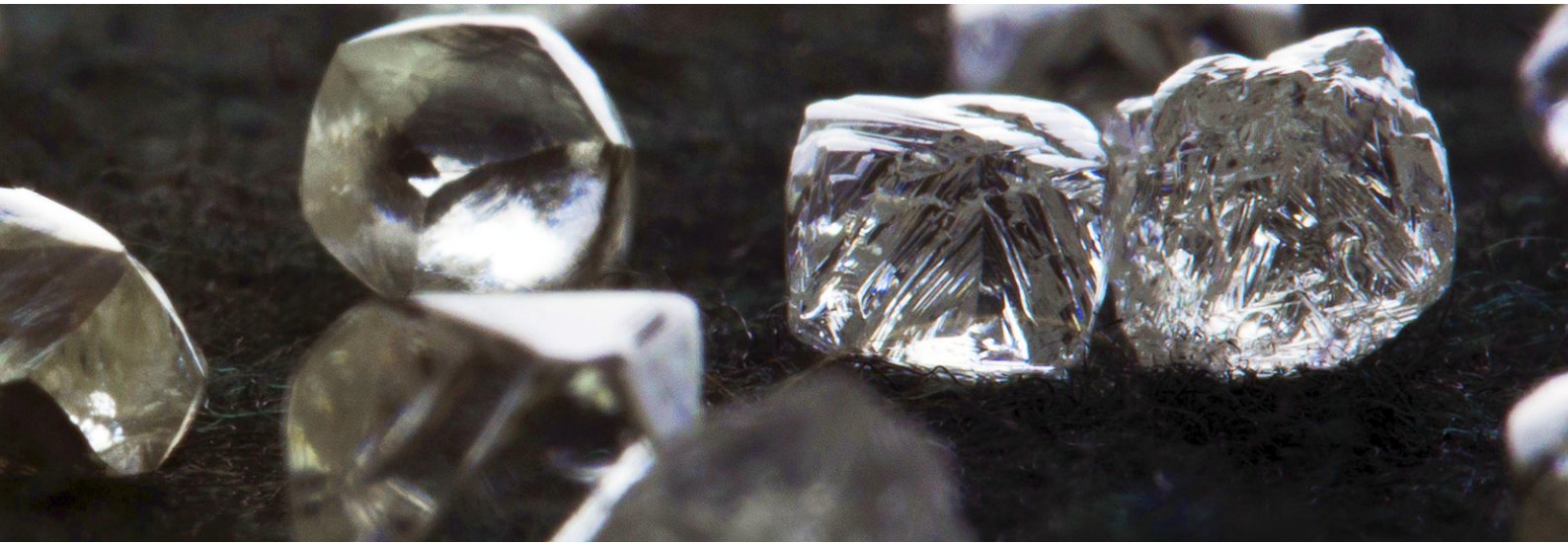


The Global Diamond Industry 2019



Strong origins: Current perspectives on the diamond industry,
plus a 50-year review



BAIN & COMPANY 

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Note to readers

Welcome to the ninth annual report on the global diamond industry, prepared by the Antwerp World Diamond Centre (AWDC) and Bain & Company. This year's edition covers industry performance in 2018 and the first half of 2019 and explains key trends that are shaping the industry.

The report begins with key developments along the value chain. In subsequent sections, we review factors that influenced rough diamond production and sales, midstream performance and global diamond jewelry demand in major markets. This year, we also review the industry's performance over the past 50 years, analyze historic downturns and apply that history to recent events.

We updated our long-term outlook for the diamond industry through 2030. The 2030 supply–demand forecast considers announced production plans, recent changes in mining operations, potential additional sources of supply, expected changes in global and regional macroeconomic parameters, and potential impacts from lab-grown diamonds.

Key points are summarized below:

- ▶ **Short-term challenges caused mining and midstream revenues to shrink by 25% and 10%, respectively, in 2019.** Near record-high rough diamond production in the beginning of 2019 was followed by lower-than-expected demand for polished diamonds, causing a ripple effect through the supply chain. The softer demand for polished diamonds was driven by two major factors: geopolitical and macroeconomic tension lowered consumer confidence and thus demand, and an increase in e-commerce created efficiencies in the supply chain that decreased the need for inventory on hand.
- ▶ **Available financing for midstream players decreased by \$5 billion since 2013.** This 30% decline in financing impacted the ability of manufacturers to support the growth of their operations. Traditional diamond banks curtailed their exposure to the diamond sector. Indian banks adopted a more conservative approach following the poor performance and challenges of the Indian financial sector at large. Cutters and polishers reduced rough diamond purchases about 30% to off-load inventory and improve their cash flow. In 2019, access to affordable financing became even more challenging for midstream players.
- ▶ **In 2019, global diamond jewelry retail sales are expected to decline by up to 2% in US dollars based on the retail performance during the first three quarters of the year.** In local currency, we expect the demand for diamond jewelry to remain stable. The strength of the holiday shopping season will determine the final outcome. The decline is driven by changes in the two largest markets, the US and China, where jewelry sales are expected to decline by 2% and 5%, respectively, in 2019. However, the holiday season may reverse that trend. In the US, the downturn is attributed to three things: shrinking consumer confidence, a decline in Chinese tourists that consequently lowered luxury purchasing, and a 15% tariff on Chinese jewelry that went into effect in September. Despite a shift toward local consumption, the diamond jewelry market in Greater China is also expected to decline.
- ▶ **Softer demand for polished diamonds led to a 3% drop in polished prices and is expected to lead to 10% to 15% lower revenues for midstream players.** The slowdown resulted in some of the lowest profit margins experienced in years, as well as high inventory levels, which have been accumulating since 2017.
- ▶ **Rough diamond sales are expected to fall by 25% in 2019 though rough diamond production remained stable.** Major rough diamond producers responded to midstream pressure by increasing their inventory

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levels and offering more flexible purchasing terms, cutting rough diamond prices by 5%. Junior miners lowered prices by 7% to 10% in attempts to minimize inventory.

- ▶ **Based on historic experience, the market typically returns to precrisis levels within one to two years.** Aside from the current downturn, the diamond market has faced only four recessions in the past 50 years. In the same time frame, rough diamond production has grown three times, and rough and polished prices have increased 450% and 250%, respectively.
- ▶ **We expect the midstream to clear its inventory backlog in the beginning of 2020, bringing a better year for the industry.** However, based on our historical analysis, the industry is not likely to fully recover in 2020 because of ongoing supply–demand inequality and limited growth of financing options for midstream players. Major diamond producers have not announced substantial mining plan cuts, and we do not expect significant retail growth in 2020, as consumers brace for a global recession. The industry will have a stronger chance to rebalance and grow in 2021.

Four key trends are currently shaping the diamond industry:

- ▶ **The rapid growth of e-commerce in the diamond jewelry market lowered polished sales performance in 2019 and will continue to influence the diamond pipeline.** Online sales and more efficient supply chain operations require less inventory on hand, causing a need to rethink the business model for midstream players.
- ▶ **Marketing spending is increasing to address complex consumer needs.** Customer preferences are changing rapidly, and the diamond jewelry industry is facing increased competition from the Experiences and Electronics categories and from lab-grown stones.
- ▶ **The lab-grown diamond market grew 15% to 20% again in 2019.** Chinese and Indian producers drove the increase, aided by the widening price differential of lab-grown diamonds versus natural ones and campaigns that leveraged the “green” benefits of manufactured stones. Select jewelry designers and retailers are beginning to use lab-grown diamonds, signaling their acceptance and driving lab-grown jewelry sales.
- ▶ **The focus on sustainability and social welfare is heightened.** Both consumers and the professional community are seeking transparency throughout the pipeline to ensure diamonds are sourced responsibly and produced sustainably. Blockchain solutions are being used to track diamond origin, and programs are emerging to minimize negative environmental impacts and to support people in remote locations with employment opportunities.

The long-term outlook for the diamond market remains positive despite short-term challenges. In volume terms, rough diamond supply growth is projected to be negative 2% or 0% annually. Demand for mined rough diamonds is expected to recover, either staying flat or growing up to 3% annually through 2030. Recovery requires continued growth of GDP, the middle class and purchasing power, particularly in China and India. To convert increased wealth into growth, the industry must also provide structured marketing support. Both industry-wide and company-specific marketing are necessary to revive and sustain demand. In the conservative scenario, our projection accounts for a possible shift in consumer preferences away from natural diamonds due to lack of marketing support. It also reflects fundamental long-term supply and demand factors rather than short-term fluctuations.



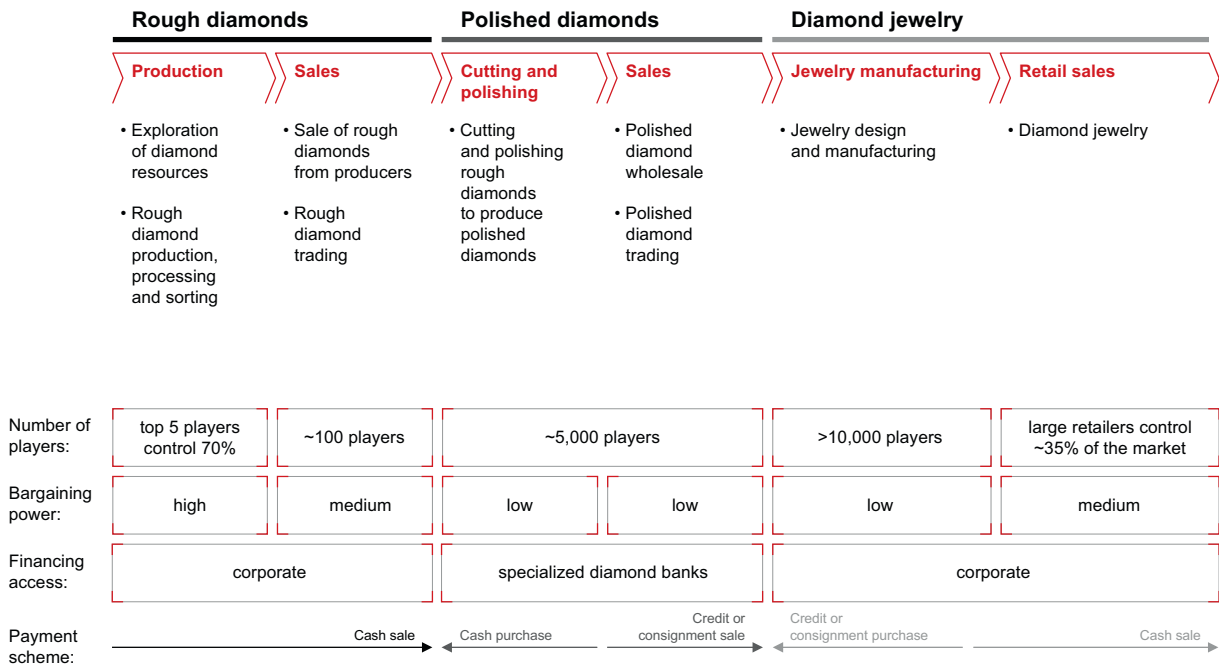
1.

Recent developments in the diamond industry

- The diamond industry experienced short-term challenges in 2019, particularly compared with 2018, in which every segment of the value chain improved. In 2019, rough diamond producers achieved near record-high production while jewelry retailers optimized and lowered their inventory needs. As a result, we expect mining and midstream revenues to decrease by 25% and 10%, respectively, in 2019 and diamond jewelry sales to be nearly stable in local currencies.
- In the second half of 2018, demand for rough diamonds began to stall, causing inventories to rise and prices to decrease. In 2019, rough diamond revenue is expected to decline 25%. In response, major mining companies are adjusting production plans for 2019, cutting their minimum purchase requirements in half and lowering rough diamond prices by about 5%. Smaller players are dropping prices more significantly (as much as 10%), and many smaller producers skipped planned auctions in the third and fourth quarters.
- After modest growth in 2018, cutting and polishing revenues are expected to decline 10% to 15% in 2019. The surge in production, combined with more sophisticated inventory management by retailers, puts pressure on revenue and margins in the midstream. Many cutting and polishing manufacturers are reporting operating margins at or below their breakeven points. To maintain factory utilization, midstream players purchased more small stones, which increased demand for smaller rough diamonds.
- Retail demand has been mixed over the past year and a half. In 2018, robust diamond jewelry sales resulted in 2% growth. But in 2019, retail sales are expected to decline by up to 2% in US dollars and remain stable in local currencies. This is a result of the trade tension between the US and China and deteriorating consumer confidence overall. In the US, a slowdown in Chinese tourism also negatively affected sales. Weakened currencies in most major non-US markets hurt retailers' performance. Like never before, everyone is closely watching this holiday season, which will determine retail's final annual results.
- The short-term situation remains uncertain: rough diamond production is still relatively high, whereas geopolitical and economic uncertainties loom over every key market.
- Learning from past diamond industry recessions, we foresee a resolution in the next two years. If the industry is appropriately supported by marketing, and barring any unforeseen economic or political shocks, it will rebalance. Campaigns should target the mass market, which is not traditionally covered by branded advertisers.

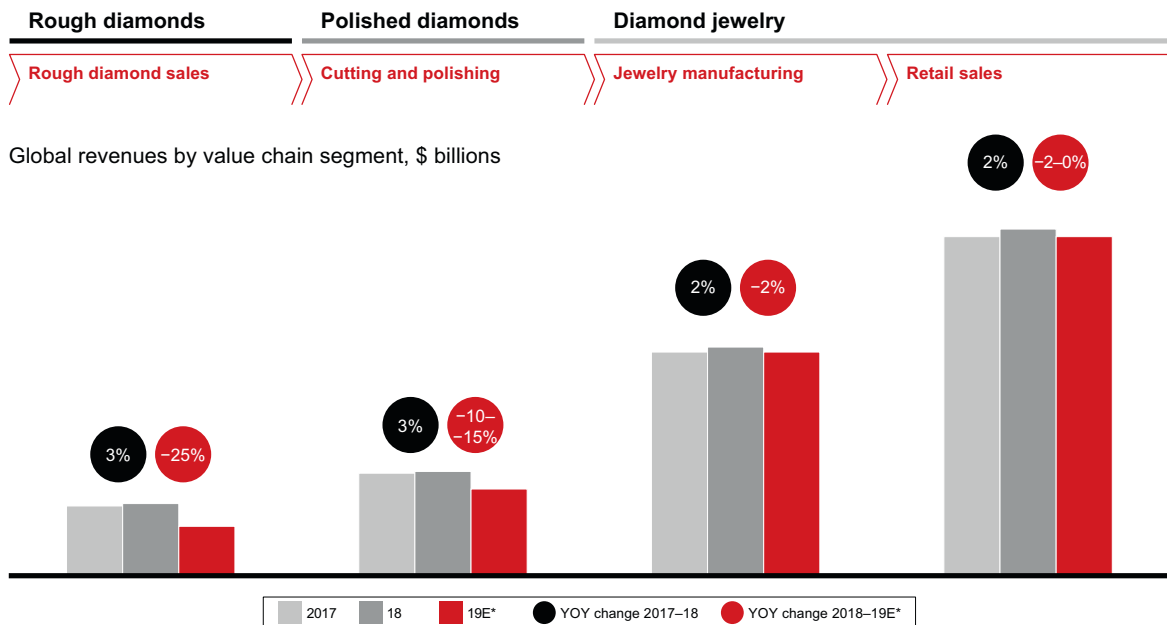
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Figure 1: Bargaining power varies across the diamond value chain



Sources: Company data; Kimberley Process; expert interviews; publication analysis; Bain & Company

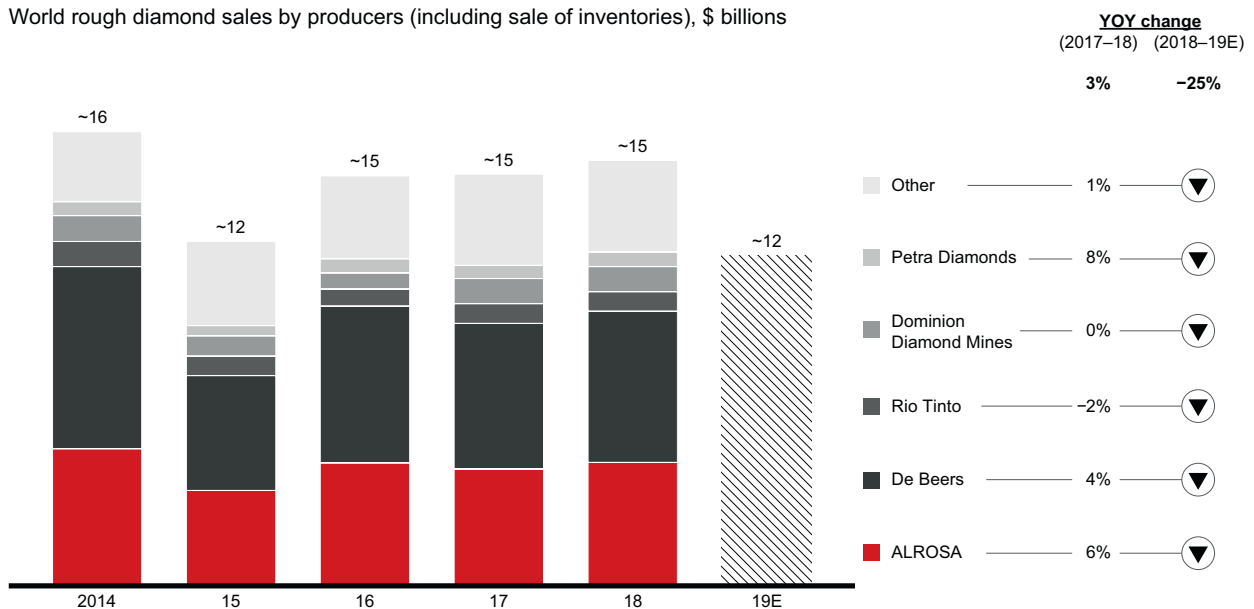
Figure 2: Revenues across the value chain trended downward in 2019



*E indicates estimated value
 Notes: YOY indicates average year-over-year change; Jewelry manufacturing value is estimated at approximately 65% of retail sales based on historic average
 Sources: Company data; Kimberley Process; Gem & Jewellery Export Promotion Council; expert interviews; publication analysis; Euromonitor; Bain & Company

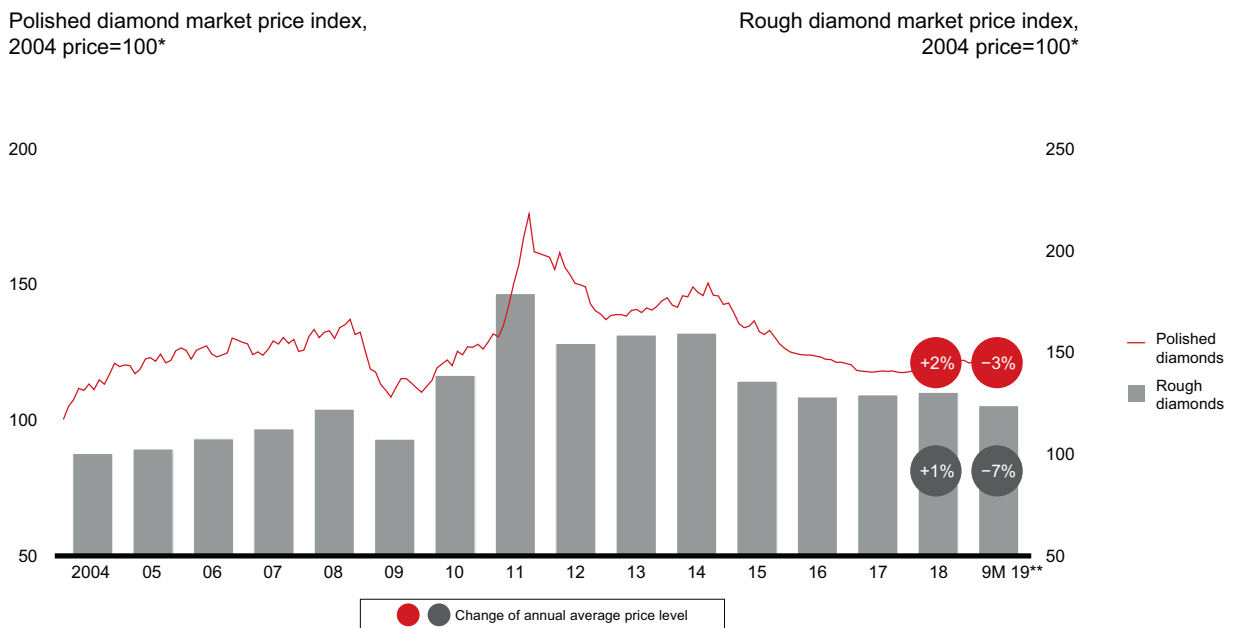
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Figure 3: Rough diamond sales are expected to decline 25%



Notes: ALROSA revenues represent rough diamond sales only; Dominion Diamond Mines 2017 results based on H1 2017, 2018-19 revenues estimated, based on expert interviews; Petra Diamonds data converted from year ending in June to year ending in December, based on company reports for full year and half year; only diamonds tracked by Kimberley Process are included; sales of other players in 2019 include assumption of a 10% price decline for the players that did not publish price data in H1 2019
Sources: Company data; Kimberley Process; analyst reports; expert interviews; technical reports; Bain & Company

Figure 4: Rough and polished prices and trading volume both declined in 2019

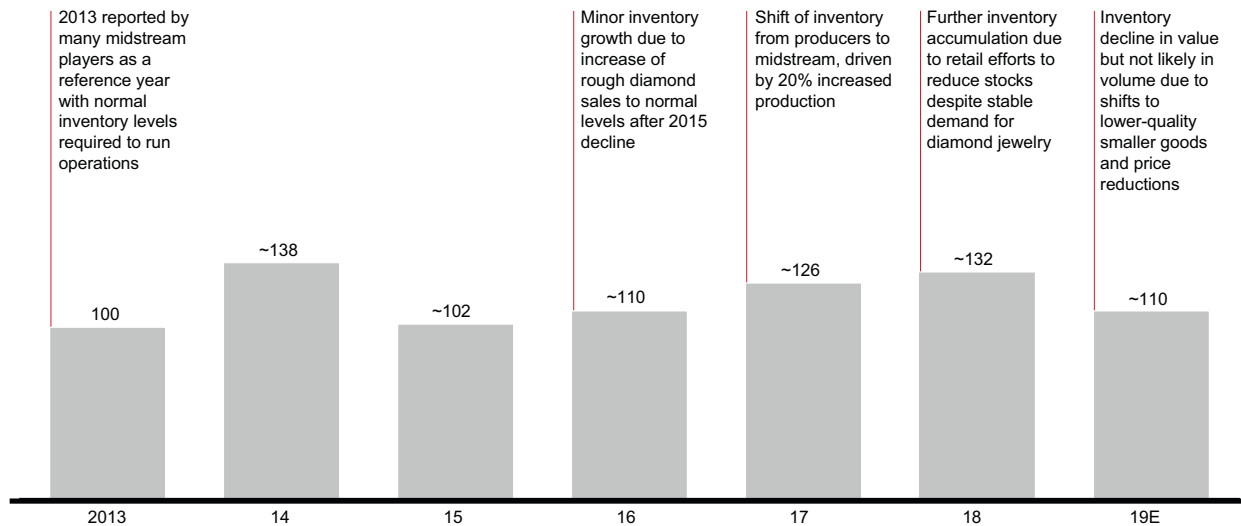


*Market price index shows change in market price for like-for-like diamond categories weighted according to global rough and polished product mix
**2019 data reflects January to September price performance with growth rate for the same period in 2019
Sources: Polishedprices.com; Hennig; Rapaport; Kimberley Process; company data; auction results; expert interviews; Bain & Company

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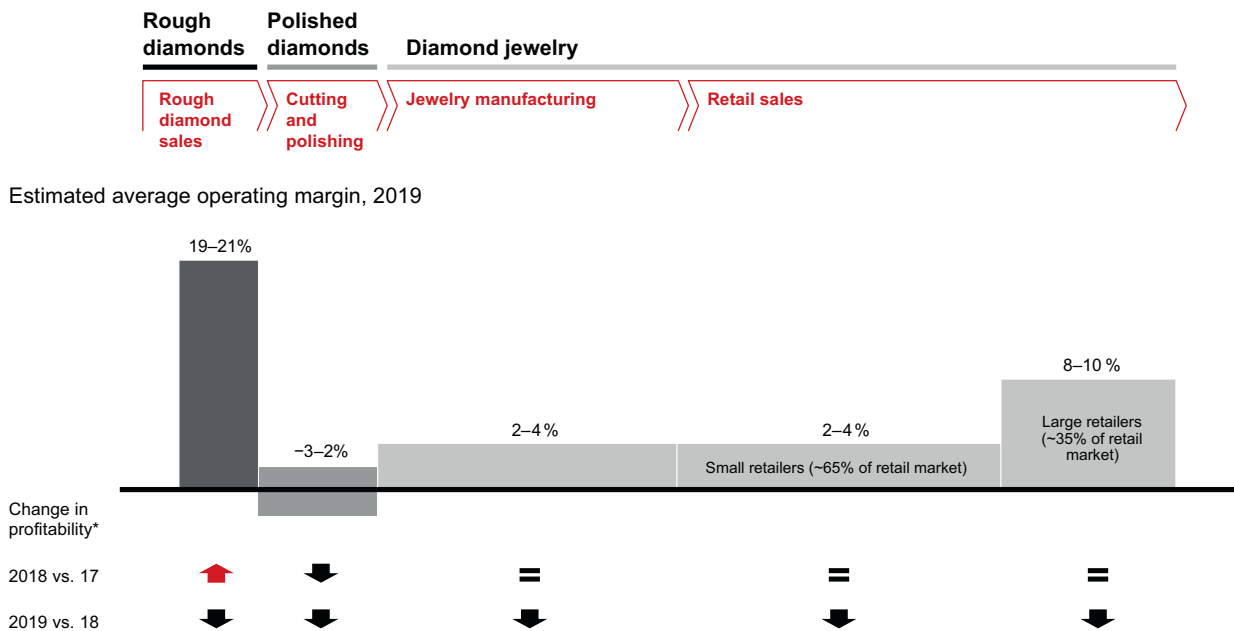
Figure 5: Midstream inventories grew in 2018 but are expected to decrease in 2019

Value of accumulated midstream inventory, index 2013=100



Sources: Company data; Kimberley Process; expert interviews; Gem & Jewellery Export Promotion Council; International Trade Centre; Antwerp World Diamond Centre; China Customs Statistics; Bain & Company

Figure 6: Profit declined across the value chain in 2019



*Rectangle width illustratively corresponds to segment revenue in 2019E
 Notes: Analysis of rough diamond sales is based on data for ALROSA, De Beers, Rio Tinto, Petra Diamonds; analysis of large retail chains is based on data for Chow Sang Sang, Chow Tai Fook, Luk Fook, Signet Jewelers, Tiffany & Co., Titan Company; margins for upstream are adjusted for gains and losses not connected to continuing operations
 Sources: Publication analysis; company data; expert interviews; Bain & Company



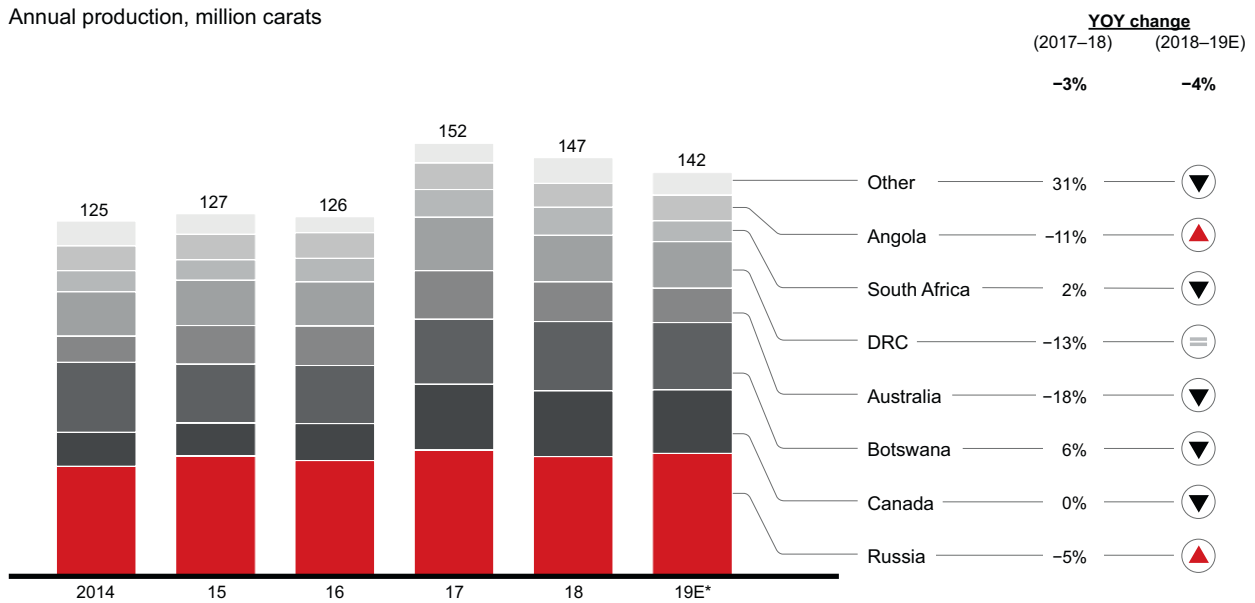
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Rough diamond production

- Between 2010 and 2016, global production was consistently between 120 million and 130 million carats. In 2017, it jumped to roughly 152 million carats and then fell 3% to 147 million carats the following year. The decrease in 2018 is largely attributed to lower production in Australia, the Democratic Republic of the Congo and Russia. The unexpected closure of Mir in Russia and planned downscaling at Argyle in Australia contributed to the decline.
- The 26 million-carat production increase in 2017 was the largest single-year volume increase since 1986, and it created a surplus that affected the entire value chain. As a result, inventory in the mining and midstream markets increased through 2019. Prices and revenues declined in both segments in 2019 despite only a slight decrease in consumer demand. Assortment sales shifted toward smaller stones in 2019, which also contributed to lower sales.
- In 2019, production is expected to drop an additional 4%. Production is depleting at Argyle in Australia; in South Africa, Venetia is transitioning from open pit mining to underground; and production levels were lowered at Orapa in Botswana. These changes will be partially offset by increased supply from several ALROSA mines in Russia and smaller players in Angola.
- During the first half of 2019, pressure on rough diamond prices, sales mix and sales volume led to lower adjusted EBIT (earnings before interest and taxes) margins for most producers. ALROSA maintained the highest margin in the rough diamond production segment. Rio Tinto and several other junior miners with high shares of small-gem- and near-gem-quality diamonds reported negative EBIT margins in the first half of 2019.
- We expect the supply of natural diamonds to decline substantially starting in 2021, with an annual decrease of 8% compared with 2020 projections. The downward trend from the past few years will be amplified by supply contraction at Argyle and at Diavik and Ekati in Canada.

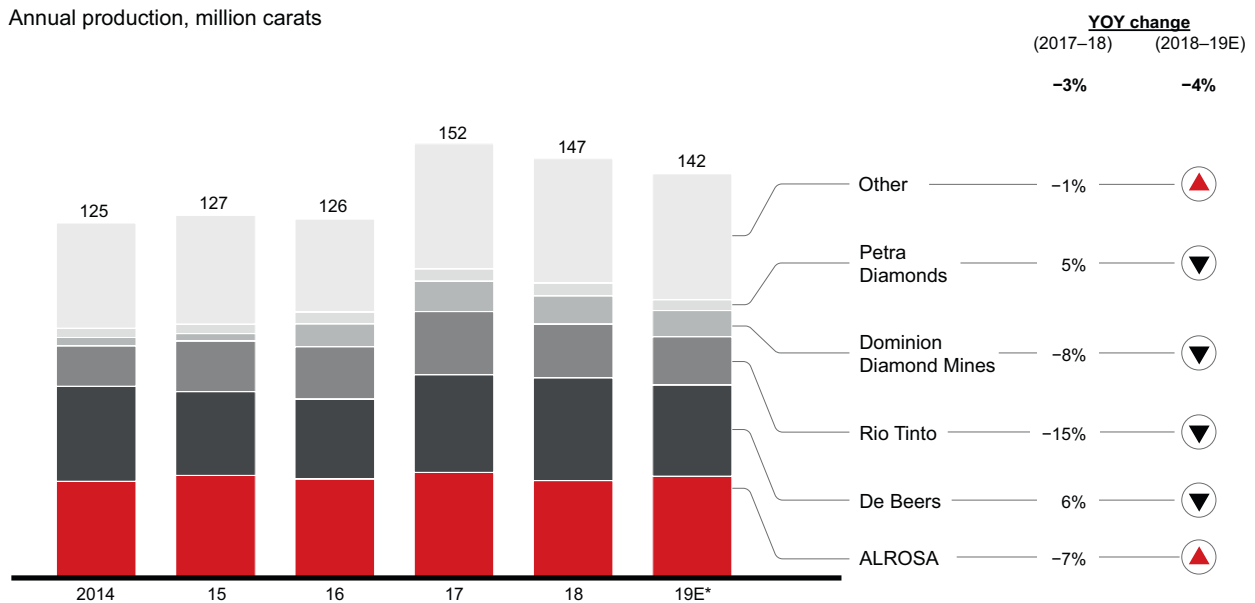
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Figure 7: Production is expected to decline by 4% in 2019



*Estimated based on company production plans
 Notes: Only diamonds tracked by Kimberley Process are included; 2019 data is a preliminary estimate and is to be updated with 2019 Kimberley data; Kimberley data for 2017 and 2018 was adjusted in accordance with production of AGD Diamonds (additional 1.4 million carats was accounted in 2017 instead of 2018 to reflect reported real production of 4.4 Mcts instead of 3 Mcts), and data for 2018 was adjusted in accordance with reported production of Debswana mines and Karowe mine (additional production of 0.12 Mcts for Botswana in 2018); DRC is Democratic Republic of the Congo
 Sources: Company data; Kimberley Process; expert interviews; publication analysis; Bain & Company

Figure 8: Most diamond producers lowered guidance for 2019

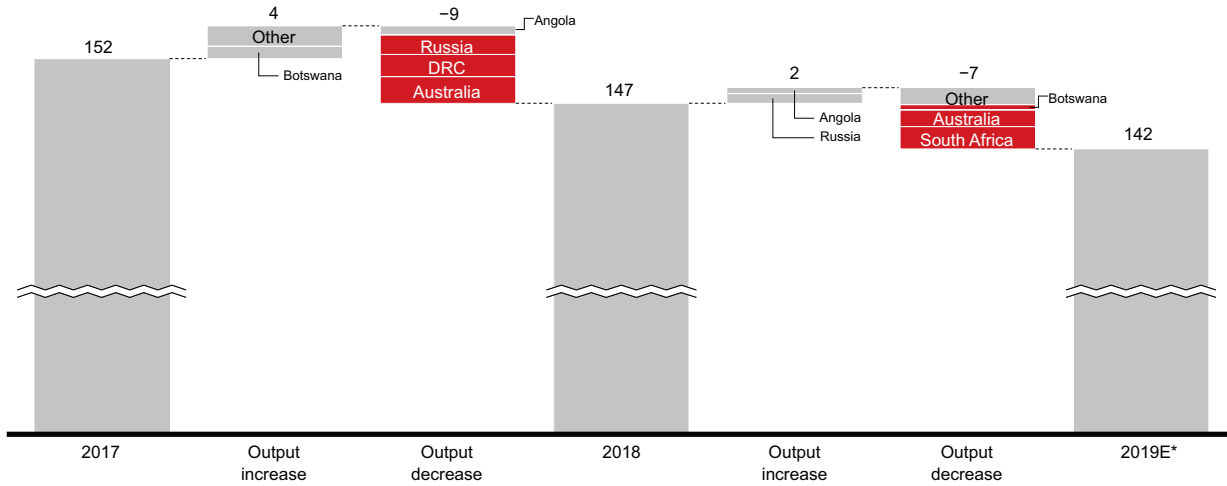


*Estimated based on company production plans
 Notes: Dominion Diamond Mines production accounts for 40% Diavik and 100% Ekati, and 2017-19 results are estimates based on expert interviews; 2019 data is a preliminary estimate and is to be updated with 2019 Kimberley data; only diamonds tracked by Kimberley Process are included; Kimberley data for 2017 and 2018 was adjusted in accordance with production of AGD Diamonds (additional 1.4 Mcts was accounted in 2017 instead of 2018 to reflect reported real production of 4.4 Mcts instead of 3 Mcts), and data for 2018 was adjusted in accordance with reported production of Debswana mines and Karowe mine (additional production of 0.12 Mcts for Botswana in 2018)
 Sources: Company data; Kimberley Process; expert interviews; Bain & Company

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Figure 9: Australia, South Africa and Botswana experienced the most decrease in production in 2019

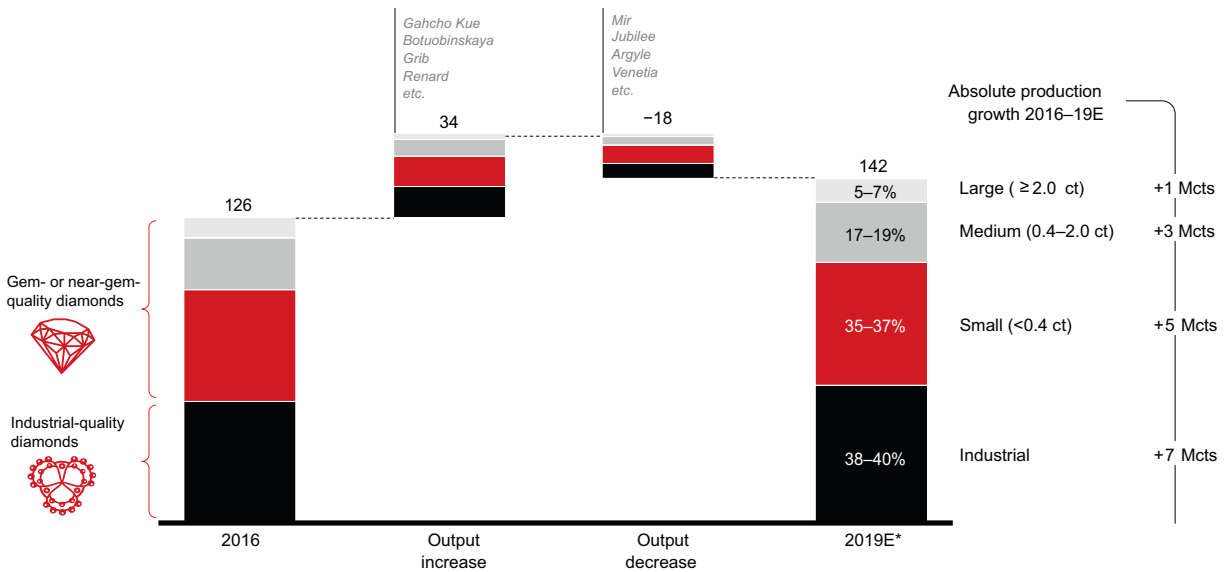
Annual production dynamics, million carats



*Estimated based on company production plans
 Notes: Only diamonds tracked by Kimberley Process are included; 2019 data is a preliminary estimate and is to be updated with 2019 Kimberly data; Kimberly data for 2017 and 2018 was adjusted in accordance with production of AGD Diamonds (additional 1.4 Mcts was accounted in 2017 instead of 2018 to reflect reported real production of 4.4 Mcts instead of 3 Mcts), and data for 2018 was adjusted in accordance with reported production of Debswana mines and Karowe mine (additional production of 0.12 Mcts for Botswana in 2018)
 Sources: Company data; Kimberley Process; expert interviews; Bain & Company

Figure 10: Annual production increased by 16 million carats over the past three years

Annual production by rough diamond size groups, million carats

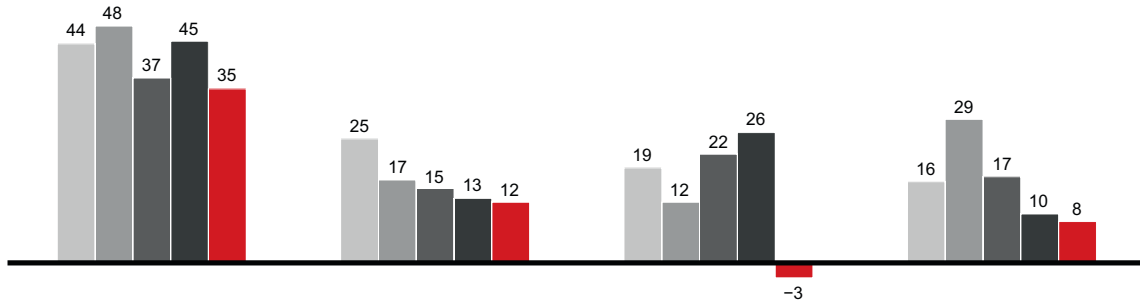


*Estimated based on company production plans
 Notes: Optimistic scenario is based on the official production plans of volumes produced at the new mines; industrial-quality diamonds are used for nonjewelry purposes; quality examples: bort, dressers, drilling
 Sources: Company data; Kimberley Process; expert interviews; Bain & Company

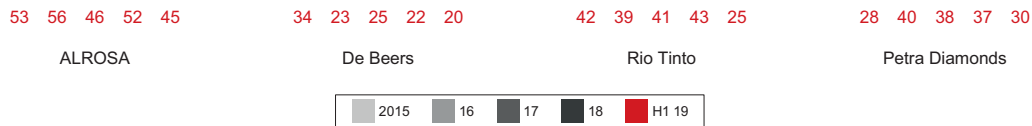
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Figure 11: Diamond producer margins showed mostly positive dynamics in 2018—but not in 2019

Adjusted EBIT margin (gains and losses not connected to continuing operations are excluded), %



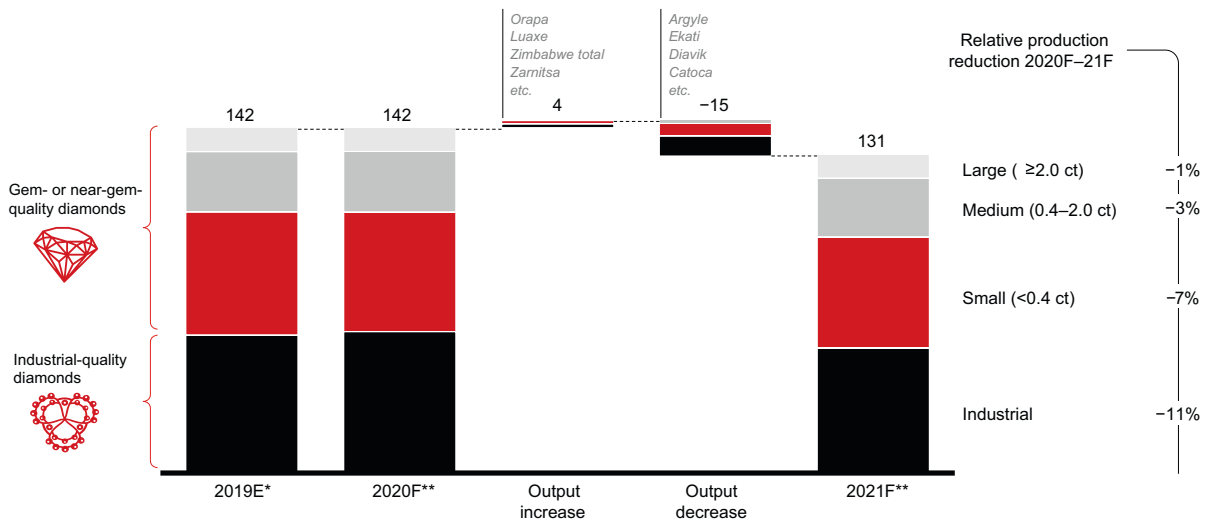
Adjusted EBITDA margin (gains and losses not connected to continuing operations are excluded), %



Notes: EBIT is earnings before interest and taxes; EBITDA is earnings before interest, taxes, depreciation and amortization; Rio Tinto revenues and EBIT include diamond mining only; Petra Diamonds data converted from year ending in June to year ending in December, based on company reports for full year and reports for half year
Sources: Company data; Bain & Company

Figure 12: Production could decrease to 2016 levels in three years, with the greatest reductions in small and industrial diamonds

Annual production (optimistic scenario), million carats



*Estimated based on company production plans
**F indicates forecast values
Note: Diamond sizes for rough diamonds
Sources: Company data; Kimberley Process; expert interviews; Bain & Company



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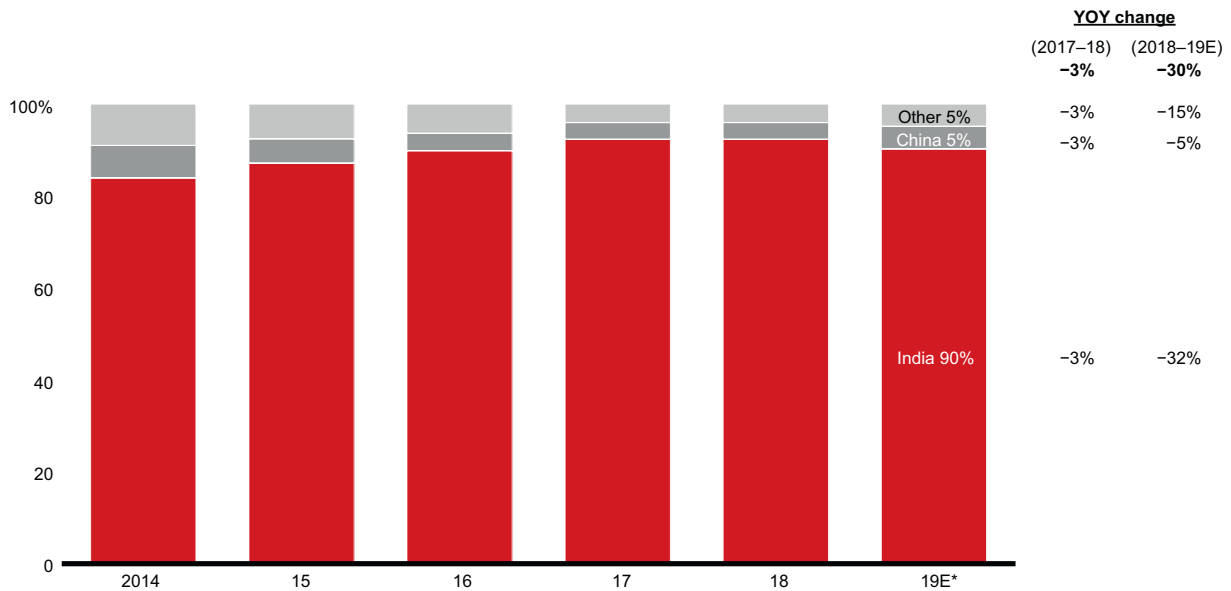
Cutting and polishing

- In 2018, cutting and polishing revenue grew 3%, supported by a healthy increase in consumer demand for diamond jewelry. However, polished diamond sales are expected to drop 10% to 15% by the end of 2019 because of slowing demand for diamond jewelry globally, lower diamond content in jewelry designs, inventory optimization by major retailers and declining available financing for midstream players.
- The combination of lower polished diamond sales and excess inventory accumulated by the midstream in 2017 and 2018 reduced net imports by 3% and 30% in 2018 and 2019, respectively. India experienced the steepest decline. In India, weakened local currency, liquidity issues resulting from bank financing cuts, and ongoing effects of demonetization contributed to stockpiling of incoming goods.
- Slower sales and stretched working capital damaged the sector's profitability. On average, operating margins in the cutting and polishing segment contracted 2% to 3% in 2019 compared with 2018. To sustain profitability, the midstream companies cut excess capacity and shifted their focus to melee diamond production to maintain factory utilization and minimize working capital. The decline of rough diamond prices exacerbated the situation, leading to stock devaluation and, in some cases, affecting financing options. In the midterm, the segment will continue to operate with significant pressure on the bottom line.
- Interest rates, maturity and availability of financing continued to challenge the midstream segment in 2019. Interest rates increased to match rising default risk. In 2019, cutting and polishing players needed longer-maturity loans for two reasons: growth in consignment practices increased the number of days for receivables to turn over, and inventory turnover days increased because of lower demand among certain assortment groups. Traditional diamond banks tightened financing and credit requirements, and key Indian banks became more conservative following the generally poor performance of the Indian financial sector. The current situation presents an opportunity for nontraditional financing options, which are currently limited to a handful of large midstream players.
- Short-term pressure on the midstream could lead to long-overdue restructuring and consolidation within the segment. Even in the current situation, some companies are making money. Successful players have shifted from a supply-driven mindset to a demand-driven model in which they make purchasing decisions in line with downstream demand. These companies also offer greater transparency, which is attractive to financing institutions and banks.

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Figure 13: India continued to dominate the cutting and polishing industry

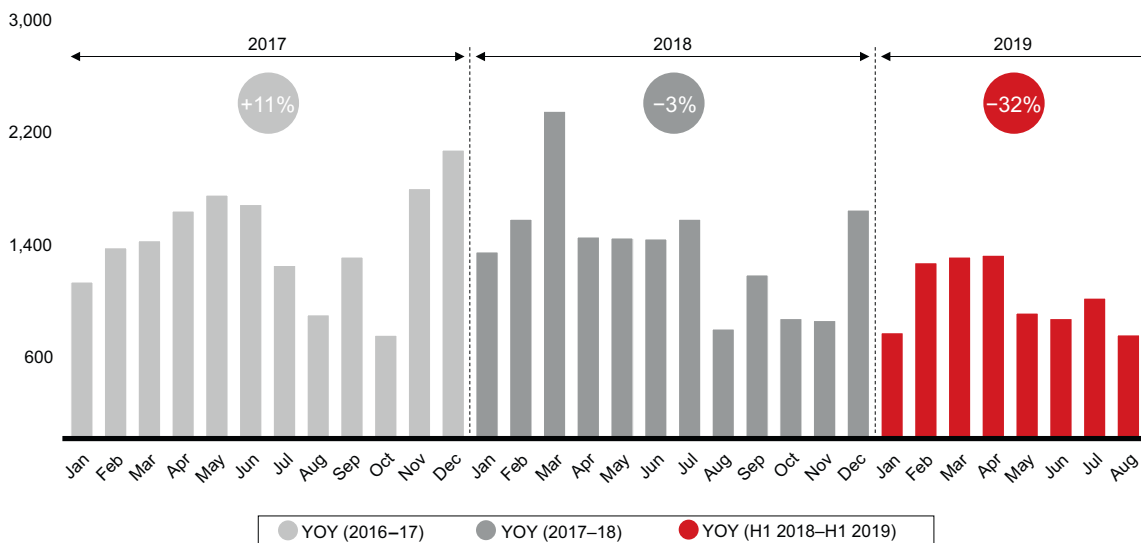
Net import of rough diamonds to cutting and polishing countries, \$



*Estimated based on eight months in 2019
Sources: Gem & Jewellery Export Promotion Council; International Trade Centre; Antwerp World Diamond Centre; China Customs Statistics; Israeli Central Bureau of Statistics; expert interviews, Bain & Company

Figure 14: In India, net imports of rough diamonds decreased 3% in 2018 and 32% in the first eight months of 2019

Net import of rough diamonds in India, \$ millions

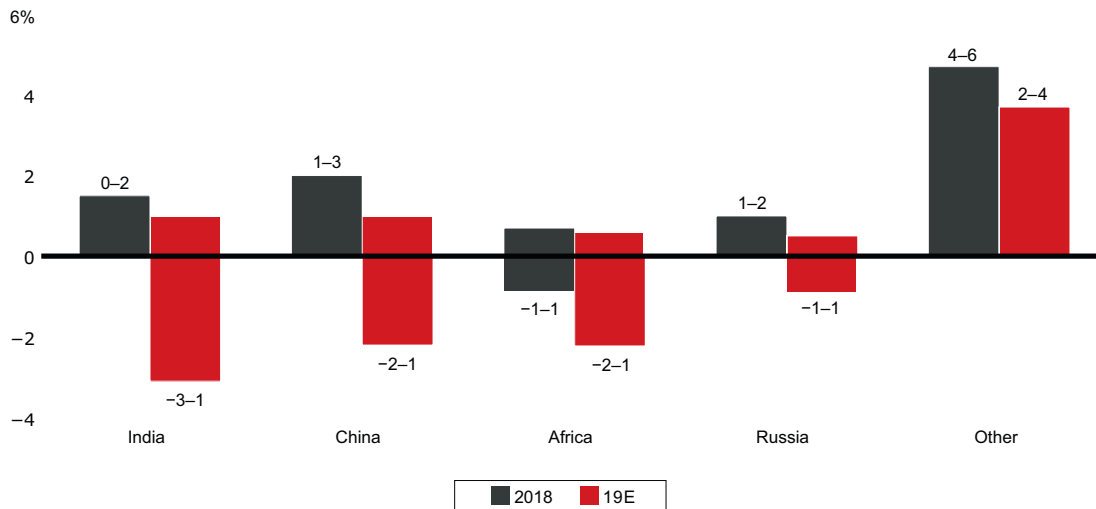


Sources: Gem & Jewellery Export Promotion Council; Bain & Company

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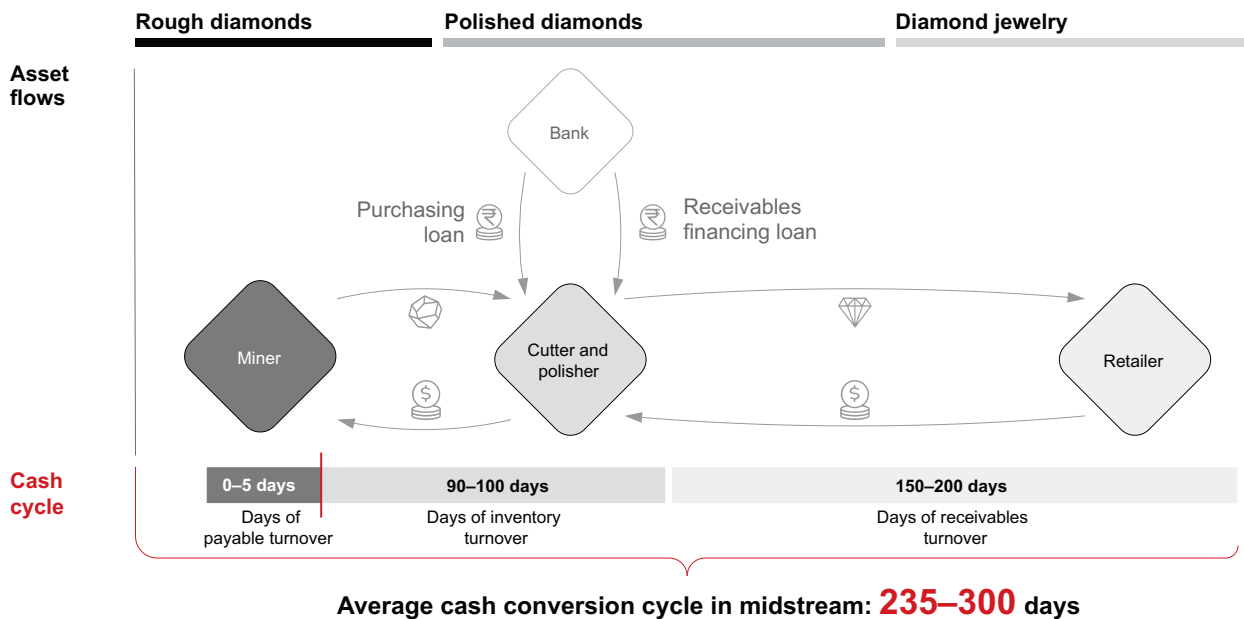
Figure 15: Cutting and polishing profit margins were stable in 2018 but are expected to decrease in 2019

Average operating margin of middle-market companies



Sources: Expert interviews; Bain & Company

Figure 16: Average cash conversion is 235 to 300 days in the midstream, which explains the need for financing

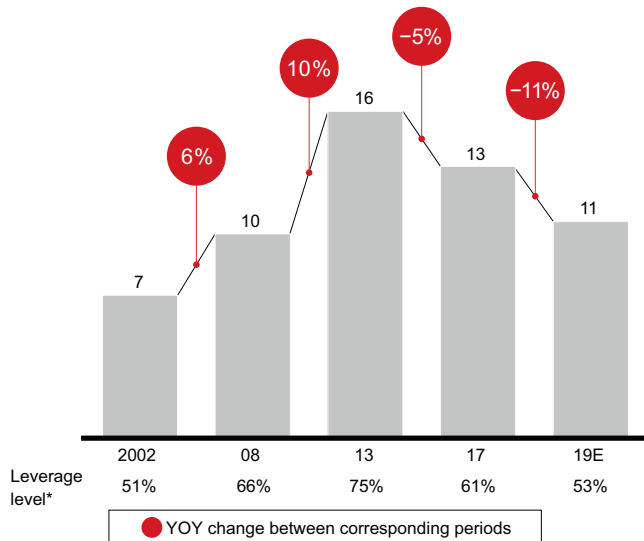


Sources: Expert interviews; Bain & Company

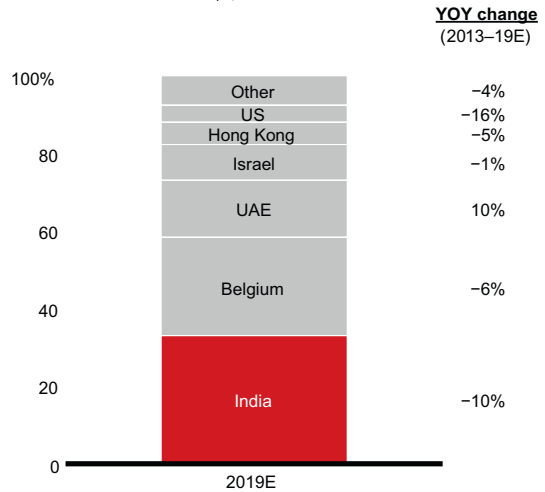
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Figure 17: Outstanding debt in the midstream is expected to reach \$11 billion in 2019

Midstream level of outstanding debt, \$ billions



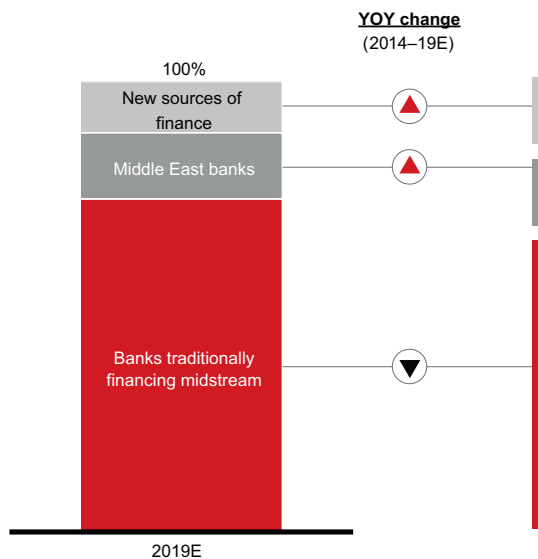
Outstanding industry debt from banks and institutional investors, \$ billions



*Leverage level is the ratio between total debt outstanding and cutting and polishing revenues
 Note: UAE is United Arab Emirates
 Sources: Expert interviews; Bain & Company

Figure 18: Decreased financing from traditional banks created opportunities for alternative financing

Midstream level of outstanding debt by value, \$



Key trends and performance in 2019

- New structured products with four- to seven-year maturity rates are being offered by hedge funds and other players, guaranteeing stable costs over the financing period
- There are more financing options from banks in the United Arab Emirates and Middle East
- Traditional diamond banks and Antwerp are curtailing their exposure and operations; in Israel, lending is vanishing due to decreased trading, cutting and polishing activity in the region
- Indian banks reduced their outstanding debt with more conservative financing approaches and less exposure in Antwerp
- Furthermore, in 2019 ABN AMRO in Antwerp and Stanbic Bank in Botswana declared temporal withdrawal of financing for certain new rough purchases due to worsening profitability of the midstream

Sources: Expert interviews; Bain & Company



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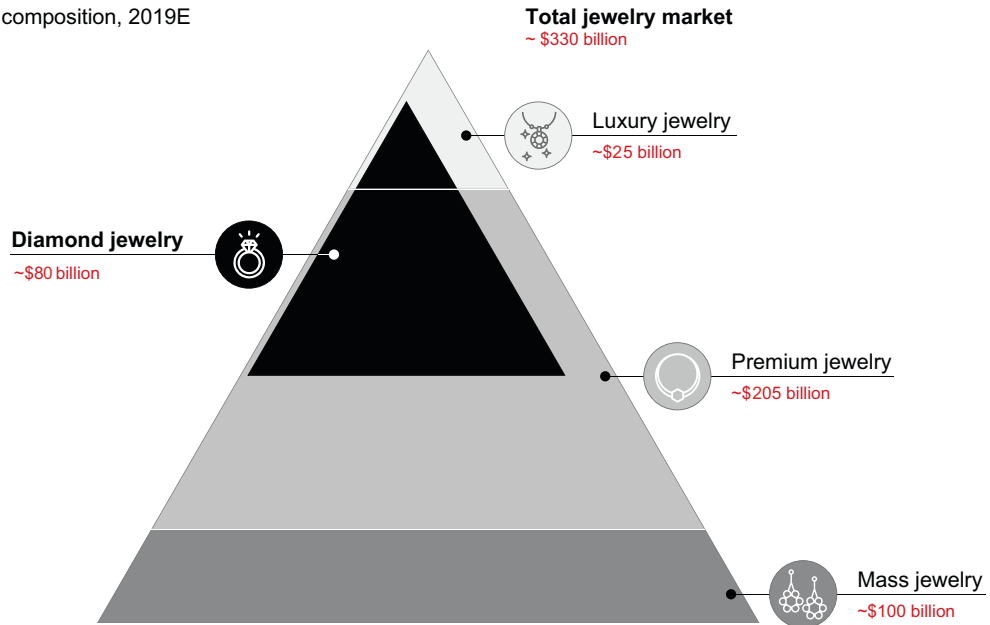
Diamond jewelry retail

- The global personal luxury goods market, the bellwether of the diamond jewelry industry, experienced slower growth in 2018 and 2019. The slump was caused by moderating global GDP growth, lower consumer confidence. Global diamond jewelry retail posted 2% sales growth in 2018, but sales are expected to decline by up to 2% in 2019, based on the results of the first three quarters. A strong holiday season could reverse the trend.
- In 2019, US diamond jewelry retail sales are expected to fall 2%, in contrast to 3% growth in 2018. There are three key reasons for the reversal. First, consumer confidence fell to its lowest point since 2016 because of uncertainties surrounding the labor market, trade tension and a possible recession. Second, a continuous decline in Chinese travelers to the US lowered luxury purchases overall. And third, an extra 15% tariff on Chinese jewelry went into effect in September 2019 and could impact sales during the crucial holiday season.
- In 2018, the Chinese market, including Hong Kong, grew 4%. In 2019, that trend reversed; the Chinese market is expected to decrease by 5% in US dollars equivalent and 1% in local currency. The shift is attributed to yuan depreciation, declining consumer confidence stemming from trade tension between the US and China, and significantly lower sales in Hong Kong amid protests in the area. The decrease will be partially offset by growth in local consumption in Mainland China. A repatriation trend is being driven by import duty reductions, stricter gray market control and price harmonization among international retailers.
- The Indian diamond jewelry market declined by 1% in 2018 following rupee depreciation and the bankruptcy of large jewelry retailer Gitanjali in India. In 2019, sales are expected to return to healthy 3% growth due to increased customer confidence, a growing population of working women and a shift in preference from occasion-only to everyday jewelry. However, retail sales are being reined in by tighter tax controls for luxury spending, a spike in gold prices and continuing rupee depreciation.
- In 2019, performance in Europe was negatively affected by sociopolitical turmoil in the UK and France, but this was partially offset by higher tourism spending in the Eurozone. Japan is expected to remain stable in 2019 because of lower consumer confidence and decreased spending by Chinese tourists.
- The midterm outlook for 2019–20 remains uncertain given continued geopolitical instability, strong signs of an impending recession and limited marketing support, especially for nonbranded and lower-end jewelry. The branded luxury diamond jewelry segment, which accounts for about 15% of the total diamond jewelry market, is expected to perform well, growing at high single digits. That is in line with the growth of personal luxury goods.

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Figure 19: The diamond jewelry market is influenced by personal luxury and mass consumption trends

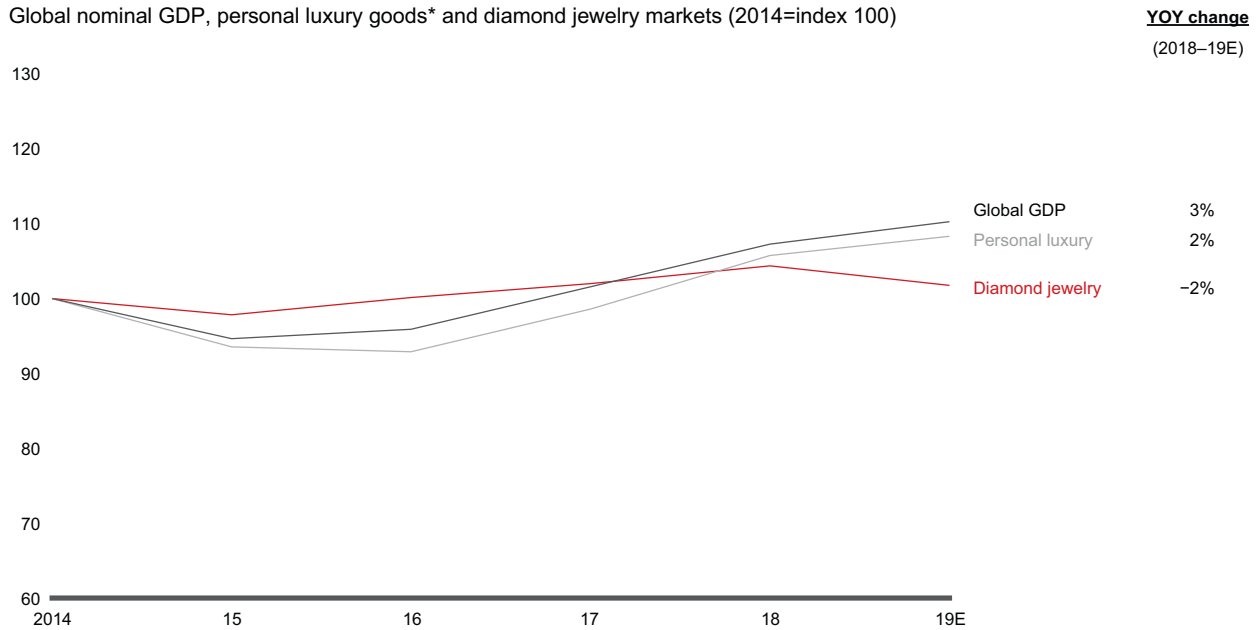
Global jewelry market composition, 2019E



Note: The size of each shaded area in the triangle corresponds to the estimated market size in 2019
Sources: Publication analysis; Euromonitor; company data; expert interviews; Bain & Company

Figure 20: Personal luxury and diamond jewelry spending have largely followed GDP over the past five years

Global nominal GDP, personal luxury goods* and diamond jewelry markets (2014=index 100)

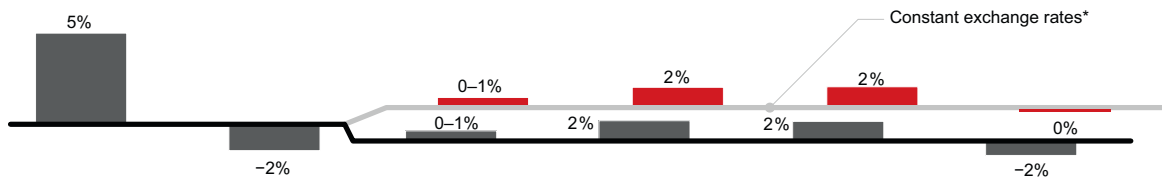


*Personal luxury goods include luxury jewelry, watches, beauty goods, apparel and accessories
Note: Personal luxury goods market growth rate in 2019E is based on Bain Luxury Goods Worldwide Market Study – Spring 2019 Update
Sources: The Economist Intelligence Unit; Bain & Company Luxury Goods Worldwide Market Study, 2014-19; publication analysis; company data; expert interviews; Bain & Company

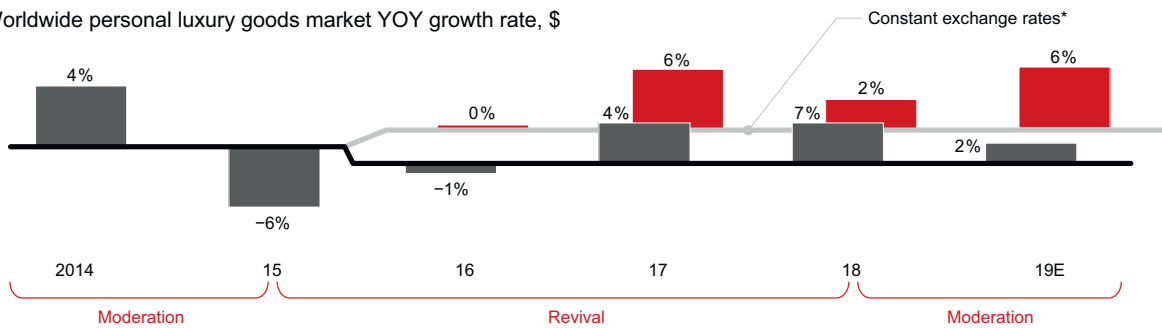
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Figure 21: Global diamond jewelry sales grew in 2018 but are expected to decline in 2019

Worldwide diamond jewelry retail sales YOY growth rate, \$



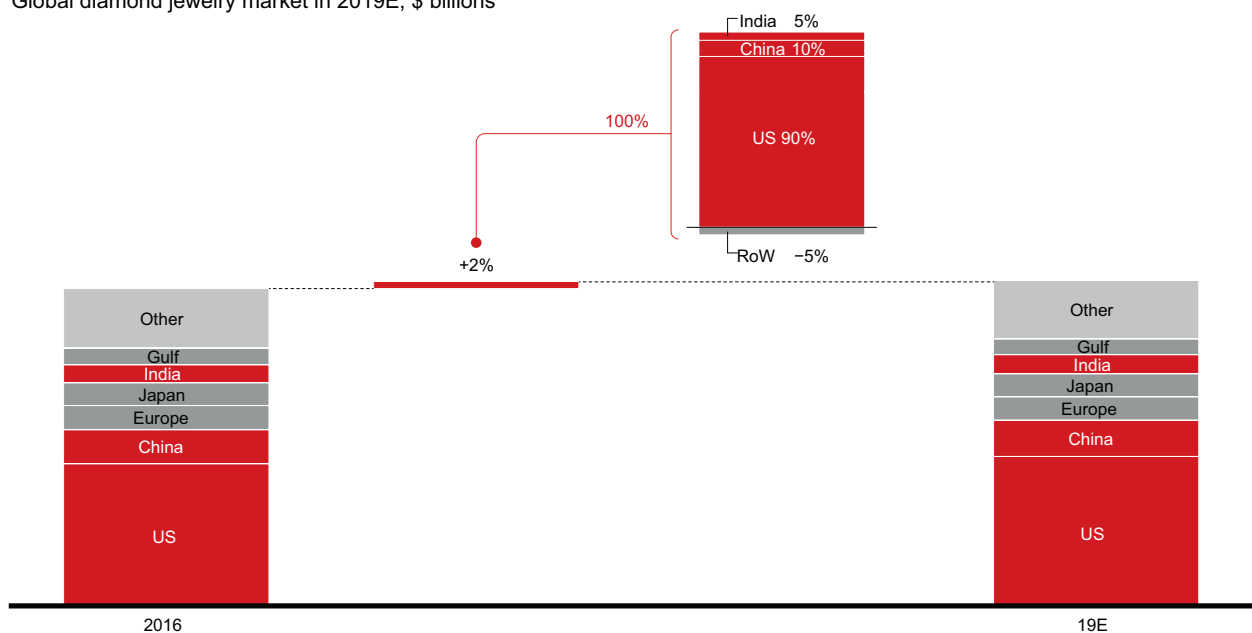
Worldwide personal luxury goods market YOY growth rate, \$



*Compared with previous year
 Note: Personal luxury goods market growth rate in 2019E is based on Bain Luxury Goods Worldwide Market Study – Spring 2019 Update
 Sources: Euromonitor; Bain & Company Luxury Goods Worldwide Market Study, 2014–19; publication analysis; company data; expert interviews; Bain & Company

Figure 22: The US, China and India drove diamond jewelry sales growth over the past three years

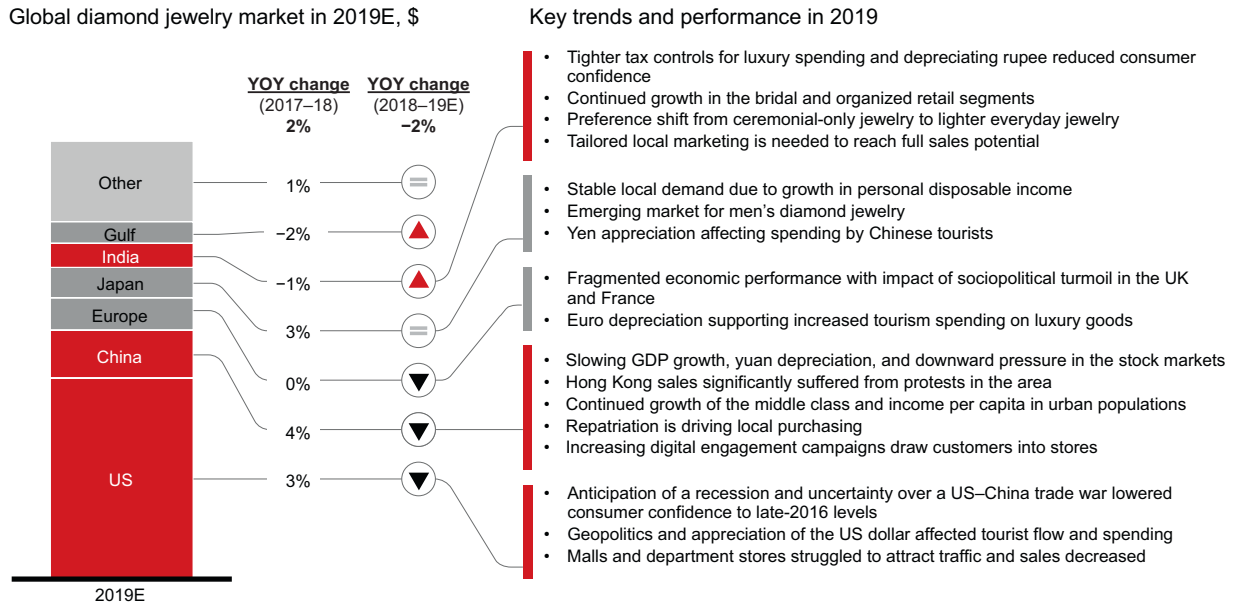
Global diamond jewelry market in 2019E, \$ billions



Notes: China includes Hong Kong; RoW=rest of the world
 Sources: Publication analysis; Euromonitor; company data; expert interviews; Bain & Company

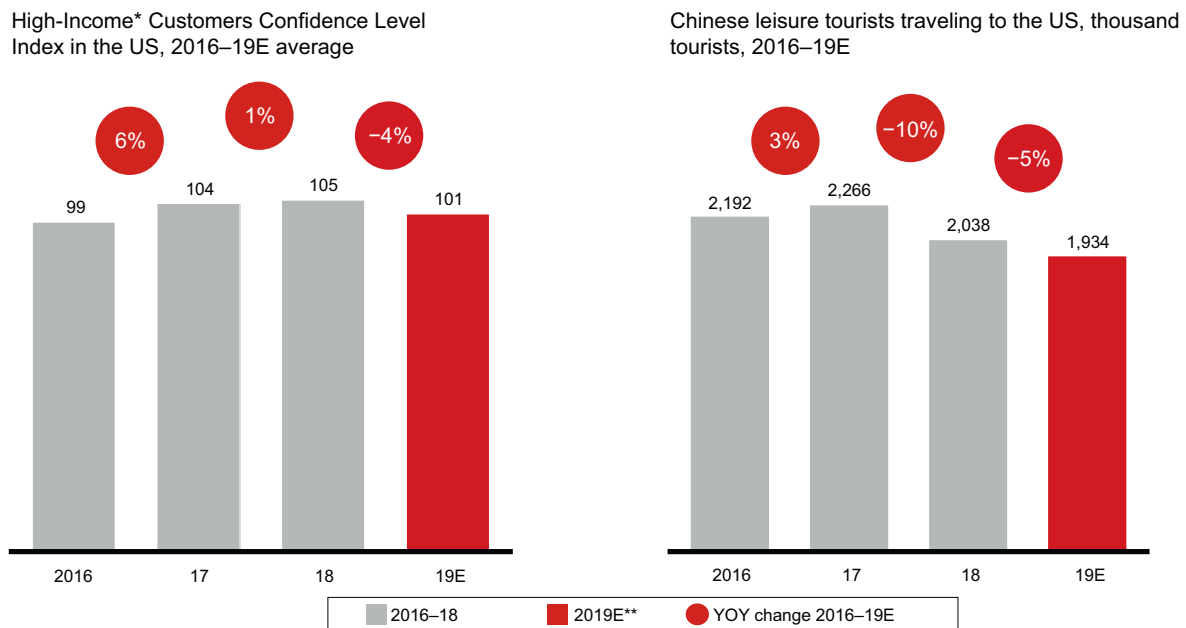
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Figure 23: Diamond jewelry sales grew in most geographic markets in 2018; in 2019, growth is expected to continue in India and the Gulf



Notes: China includes Hong Kong; Gulf includes Saudi Arabia, United Arab Emirates, Oman, Bahrain and Qatar
Sources: Publication analysis; Euromonitor; company data; expert interviews; Bain & Company

Figure 24: Fewer Chinese tourists and lower consumer confidence affected the US market



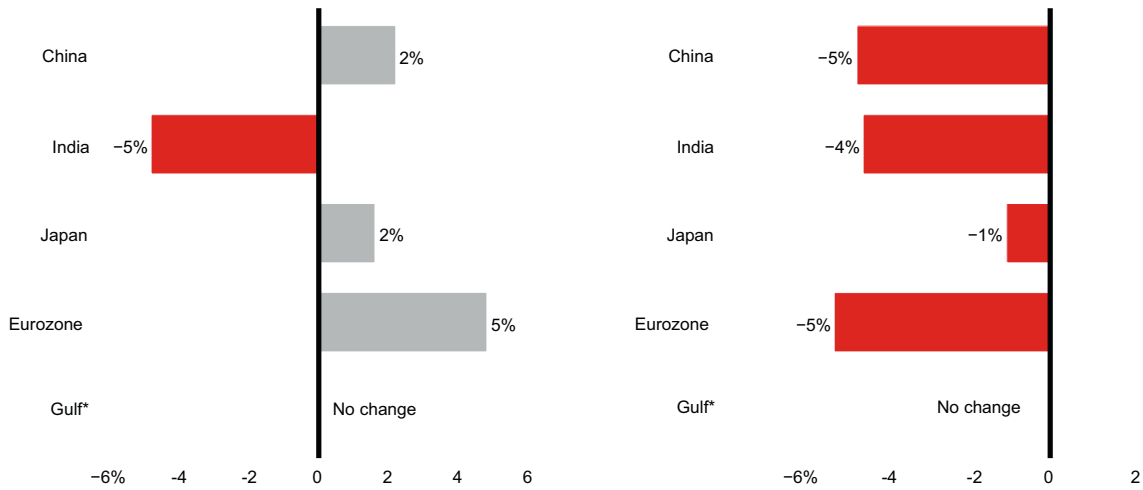
*High-income customers correspond to top 33% of customers by income
**Estimation is based on H1 2018 to H1 2019
Sources: US National Travel and Tourism Office; University of Michigan; Euromonitor; Bain & Company

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Figure 25: Appreciation of the US dollar in 2019 led to a decrease in retail sales at current exchange rates

Change of currency value vs. \$,
2018 average vs. 2017 average

Change of currency value vs. \$,
2019E** average vs. 2018 average



*Includes Saudi Arabia, United Arab Emirates, Oman, Bahrain and Qatar

**2019E exchange rate dynamics are calculated based on the first eight months of 2019 compared with the same period in 2018

Sources: The Economist Intelligence Unit; Bain & Company



5.

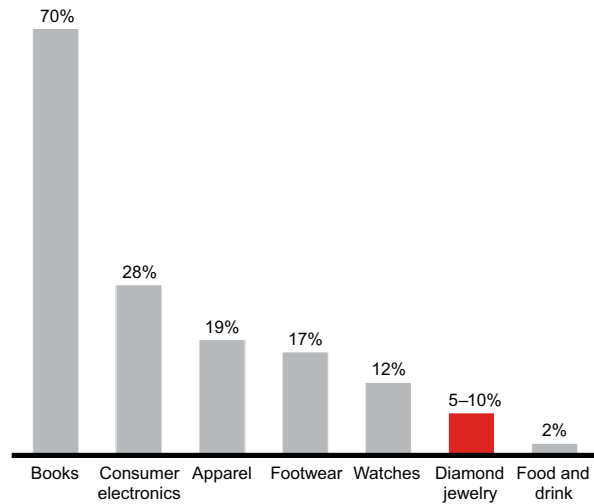
Key industry trends

- Four trends have the highest potential to impact the industry in the near term: rapid growth of online sales channels, increased marketing spending to support the natural diamond industry, developments in lab-grown diamonds, and an increased focus on the environment and sustainability.
- At just 5% to 10%, the share of online diamond jewelry sales lags behind other consumer products. However, e-commerce is accelerating, and major diamond jewelry retailers in the US and China increased their online sales to 13% and 11%, respectively. Greater pricing transparency and retail stock optimization caused by e-commerce will significantly affect demand and pricing for polished diamonds.
- Mining companies increased their marketing efforts, both brand-focused and generic, and raised marketing budgets to historically high levels. In 2019, more than \$200 million was invested in diamond industry marketing, including \$70 million to \$80 million of generic marketing channeled through the Diamond Producers Association. The industry is using marketing to combat complex challenges, such as rapidly changing customer preferences, increased competition from the Experiences and Electronics categories, and the rapidly growing lab-grown diamond market.
- In 2018 and 2019, production of lab-grown diamonds increased 15% to 20%, with majority of the growth coming from China. As the lab-grown market evolves, several business models are emerging. Chinese companies primarily use high-pressure, high-temperature (HPHT) technologies to produce rough diamonds, competing on lowest production cost. In the US, companies are pursuing a vertically integrated business model by selling premium branded jewelry. If we assume that early growth in the lab-grown market happened because both wholesale and retail prices were decreasing differentially, allowing players to earn better margins than with natural stones, then wholesale prices have stabilized. We expect additional pressure on retail prices to accelerate lab-grown diamond jewelry sales.
- Both consumers and investors are demanding more transparent and environmentally responsible practices. Multiple industry initiatives are focused on pipeline transparency and traceability, which could increase the confidence of both lenders and consumers. Midstream operations may become more transparent and more efficiently managed as a result.

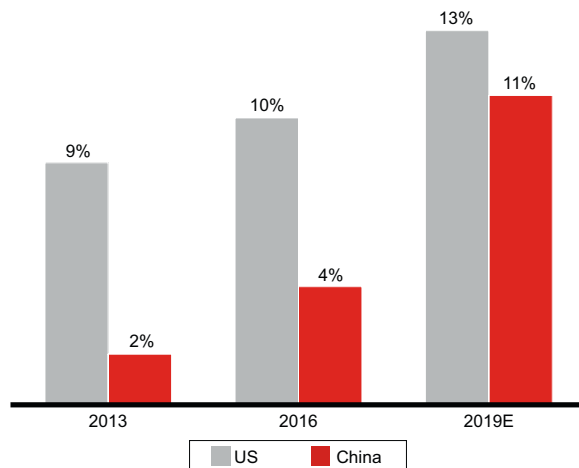
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Figure 26: Online diamond jewelry sales trail other consumer goods categories but are growing in major markets

Penetration of online in major consumer goods markets, 2019E



Share of online diamond jewelry sales of leading players, 2013-19E



Note: Leading players include Tiffany & Co., Signet, Chow Tai Fook, Lukfook, Chow Sang Sang
Sources: Euromonitor; Bain Luxury Report 2018; company data; Bain & Company

Figure 27: e-Commerce presents opportunities to optimize inventory and increase sales



Opportunities for inventory management optimization

- **Technological stock optimization:** Online sales models require less stock than physical stores
- **Consignment model:** Online retailers can showcase goods on their websites, even if they have not purchased the diamond; suppliers maintain ownership longer
- **Data-driven optimization:** Online retailers use data on consumer preferences and purchasing patterns to build predictive models and optimize operations and inventory management



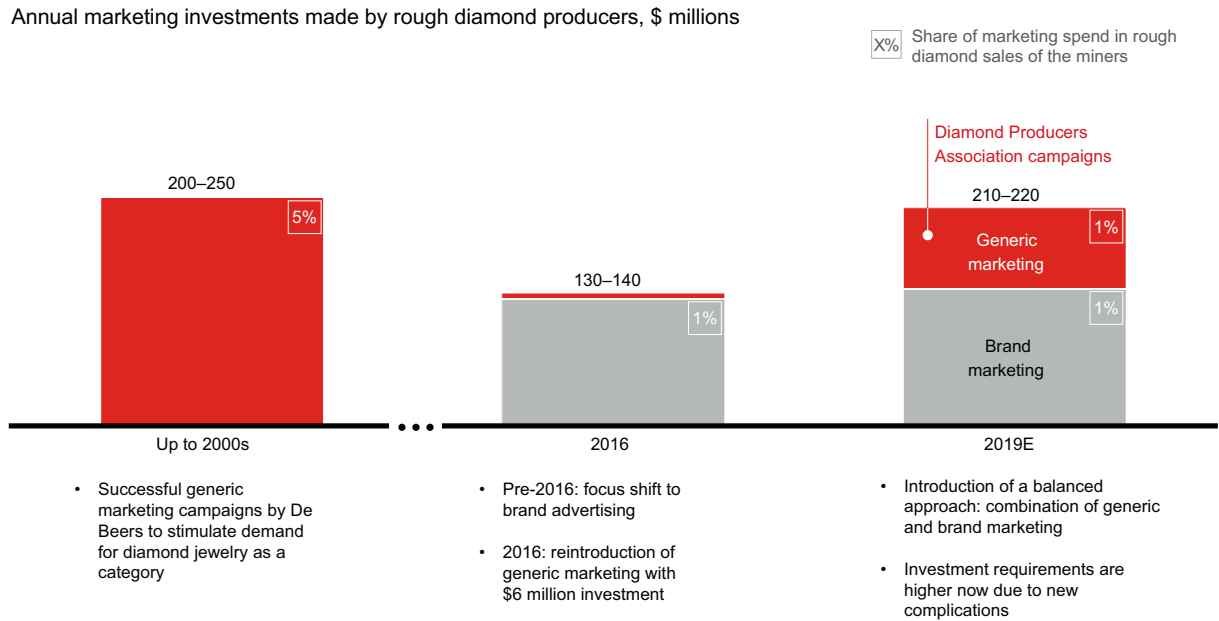
Opportunities for sales growth

- **Wider geographic reach:** Online storefronts reach customers in regions with limited physical footprints
- **Convenience:** e-Commerce appeals to Millennials and Generation Z, who are accustomed to online functionality, even for offline purchases (e.g., “click and collect,” stock availability checks)
- **Tailored marketing:** Online marketing increases sales across the industry by reaching target audiences more efficiently

Notes: Millennials (Generation Y) were born between 1980 and 1994; Generation Z is the newest generation to be named and was born between 1995 and 2015
Sources: Expert interviews; literature search; Bain & Company

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Figure 28: Marketing spending returned to near-record levels, but challenges loom



Notes: Generic marketing is investment in promotion of diamond jewelry to stimulate overall consumer demand; brand marketing is investment in proprietary diamond brands; marketing promotion costs do not include the costs of De Beers Diamond Jewelers retail network
Sources: Expert interviews, company data, Bain & Company

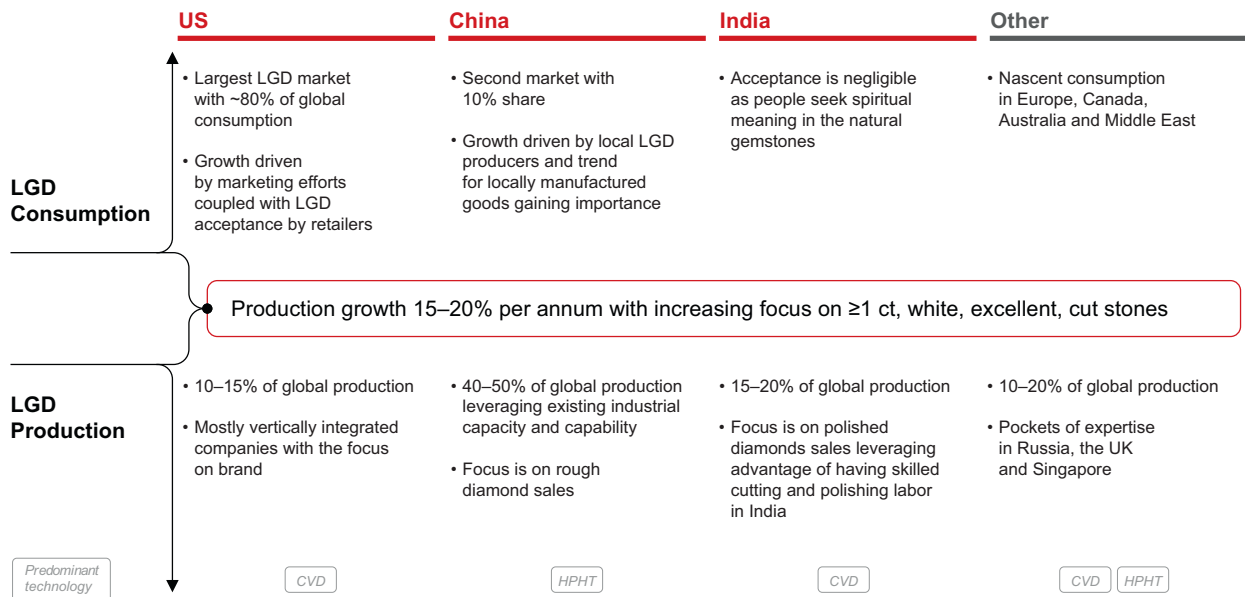
Figure 29: Recent marketing campaigns differed by country

	“Real Is Rare”	“For Me, From Me”	“Hand-in-Love”	“The Most Precious Gift”	“5 Truths”
Primary geographic focus	US India	US	China	India	Global
Description	Campaign and platform marketing new purchase occasions and positive impact of diamonds	Women self-purchase campaigns, supported by retailer trainings and regional media programs	Communication platform to promote authenticity of love and importance of commitment in collaboration with diamond jewelry retailers	New TV/print/digital campaign to celebrate the birth of a child with a diamond gift	Educational campaign on natural diamonds on social media

Sources: Expert interviews; company data; Bain & Company

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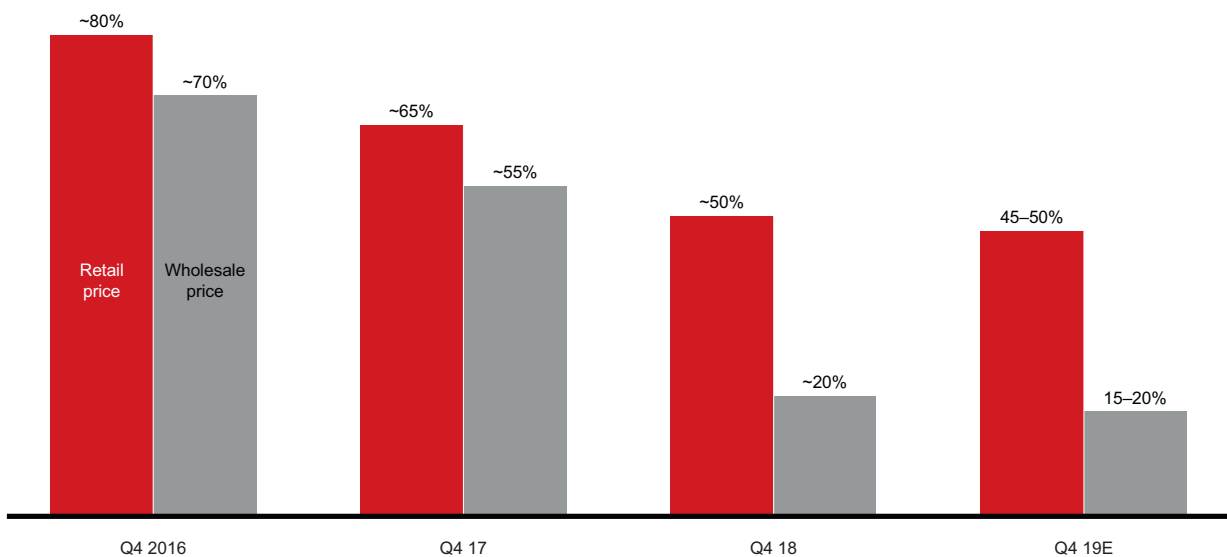
Figure 30: Most lab-grown diamonds are purchased in the US but produced in China, India and the US



Notes: CVD is chemical vapor deposition; HPHT is high-pressure, high-temperature; LGD indicates lab-grown diamond
Sources: Company data; publication analysis; expert interviews; Bain & Company

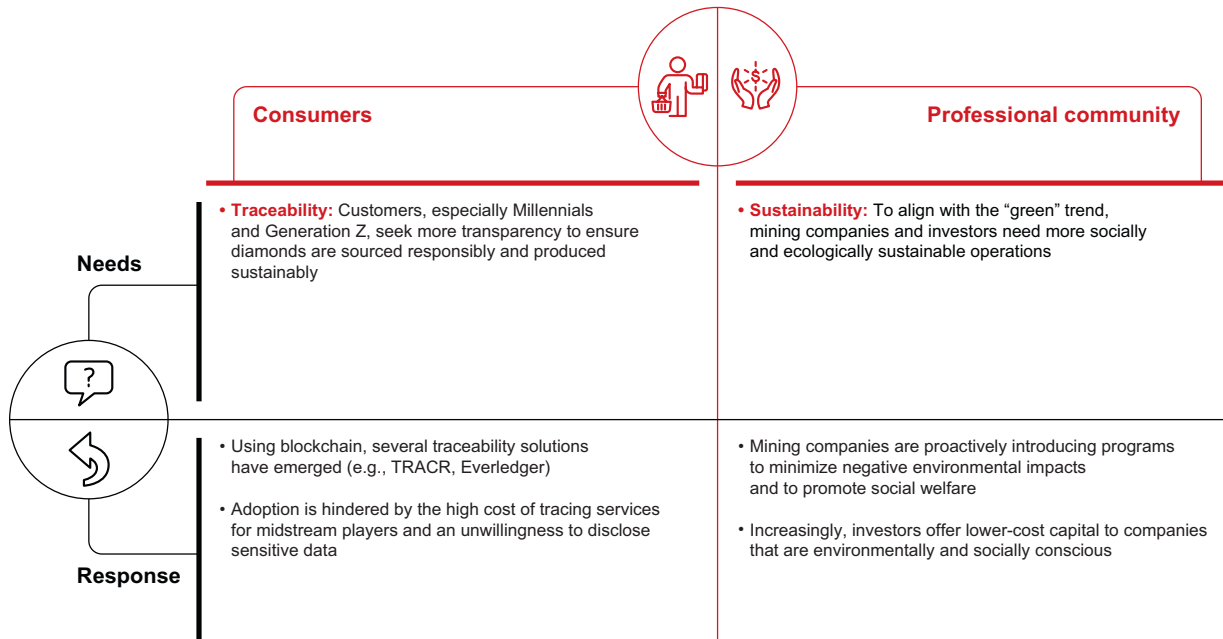
Figure 31: Both retail and wholesale price discounts for lab-grown diamonds have stabilized

Price of lab-grown diamond as a percentage of natural (1 ct G VS polished)



Note: Values calculated with the average discount and price for the given period; G refers to gem color
Sources: Thomson Reuters; expert interviews; online retailers' websites; Bain & Company

Figure 32: Sustainability requirements are evolving, prompting industry response



Notes: Millennials (Generation Y) were born between 1980 and 1994; Generation Z is the newest generation to be named and was born between 1995 and 2015
Sources: Expert interviews; Bain & Company

Figure 33: Diamond producers are improving their environmental and social performance

Actions undertaken:

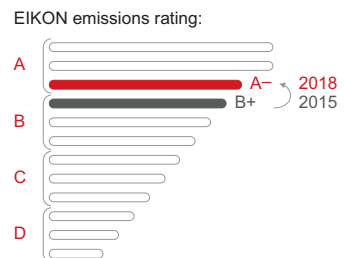
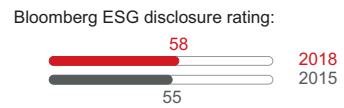
2018 environmental impact programs

- Leading diamond miners collectively conserved over 260,000 hectares, which is three times the area used for mining
- De Beers cut energy consumption per carat by ~16% in 2018 compared with 2015

2018 social impact programs

- ALROSA’s Verhkne-Munskoe deposit created 1,000 jobs for people in northern Russia, where employment opportunities are limited
- Training and education programs organized by Petra Diamonds Cullinan Charity Fund helped alleviate poverty and unemployment
- In partnership with UN Women, De Beers invested \$3 million to promote gender equality

Average positions of the leading diamond miners, 2015 vs. 18



Notes: Leading diamond miners include ALROSA, Anglo American (De Beers parent company), Rio Tinto, Petra Diamonds, Dominion Diamonds (for 2015–18); ESG indicates environmental, social and governance
Sources: EIKON; Bloomberg; Yahoo Finance; company data; publication analysis; Bain & Company

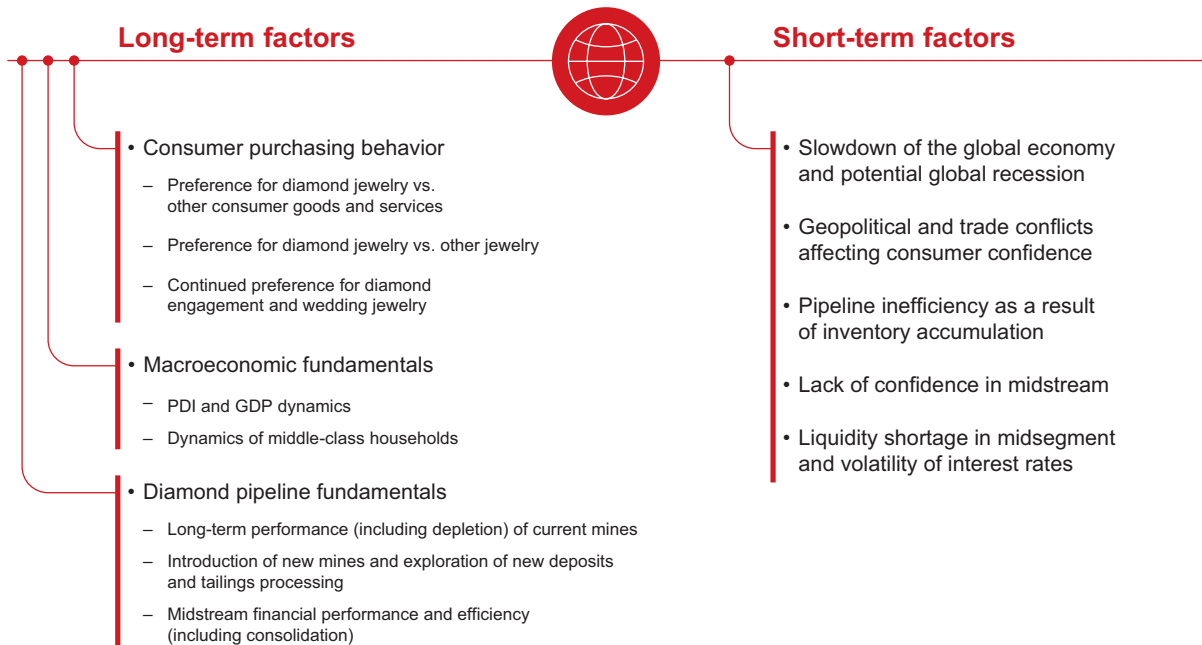


6.

Historical analysis of industry recessions and implications

- Over the past 50 years, the diamond market has grown three times. Historically, nominal pricing adjustments for rough and polished diamonds were 4% and 3%, respectively. There has generally been a strong correlation between rough and polished prices, aside from some short-term deviations that can be explained by supply and demand issues.
- The relationship between supply and demand is well illustrated throughout the industry's recessions and recoveries. Since 1970, the industry has experienced four major downturns: global recessions disrupted the industry in the late 1970s and early 1980s and again in 2008–09. In 1985 and 2015, downturns were caused by inefficiencies in the diamond pipeline.
- Downturns caused by global macroeconomic recessions typically experienced 6 to 12 months of price decline followed by one or two years to reach full price recovery. Upstream players historically adjusted their supply of rough diamonds to support price recovery, and this helped midstream players and retailers destock until demand returned. In 2009, for example, mining companies decreased rough diamond sales by 50%.
- In comparison, downturns caused by internal pipeline inefficiencies took longer to recover. In 1985, the introduction of Argyle increased supply by 7 million carats. It took three years for stock to fully work through the system and for prices to return to historic levels. In 2015, slower demand for diamond jewelry and retail footprint rationalization in China were followed by a 20% jump in production in 2017. Those factors led to stock accumulation throughout the pipeline, the effects of which are still felt today.
- We expect 2020 to be better for the industry once the midstream starts to clear its excess inventory in the beginning of the year. However, ongoing supply–demand inequality will prevent full recovery of the industry and may be exacerbated by a continuing decrease in available financing for midstream players. Few producers have announced sufficient mining plan cuts, so we do not foresee a major decline in supply. Retail sales will not grow significantly because consumer confidence and spending are diminishing in anticipation of a global recession. There is also no short-term expectation of an increase in available financing.
- The industry's first and strongest opportunity to rebalance and regain growth will be 2021. Rough diamond supply is projected to decrease about 8%, and macroeconomic indicators are expected to improve if the global recession is short-lived.

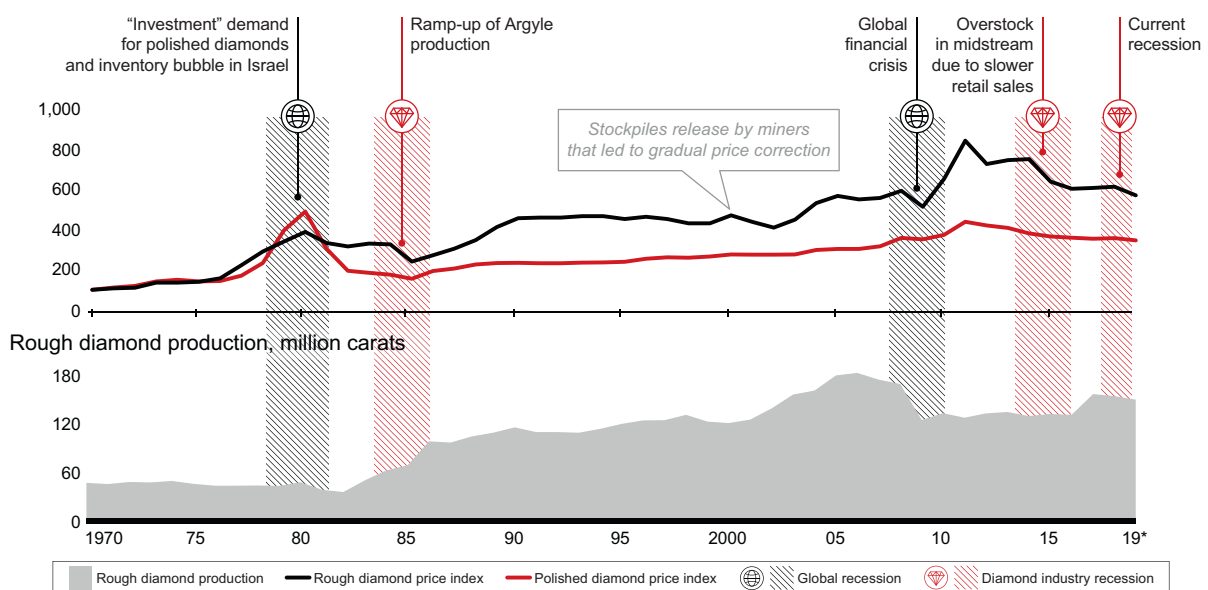
Figure 34: Short-term volatility and a few long-term factors are causing the recent industry trends



Note: PDI is personal disposable income
Source: Bain & Company

Figure 35: Before 2019, the industry experienced only four recessions in the past 50 years

Rough diamond and polished diamond nominal market price indexes, 1970 price=100



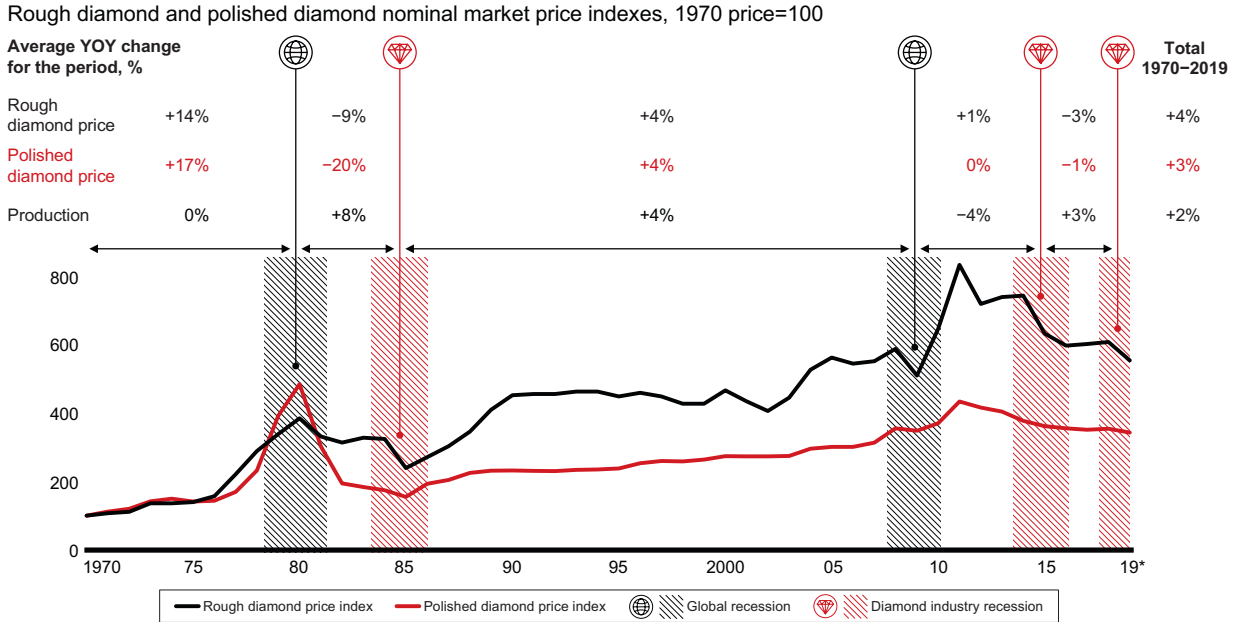
*Data on 9 months of 2019

Notes: Market price index shows change in market price for like-for-like diamond categories weighted according to global rough and polished product mix; polished diamond price reflects Rapaport Diamond Index, Rounds, 1 carat

Sources: Diamond Trading Company; Rapaport; Kimberley Process; WWW Diamond Forecasts; company data; expert interviews; Bain & Company

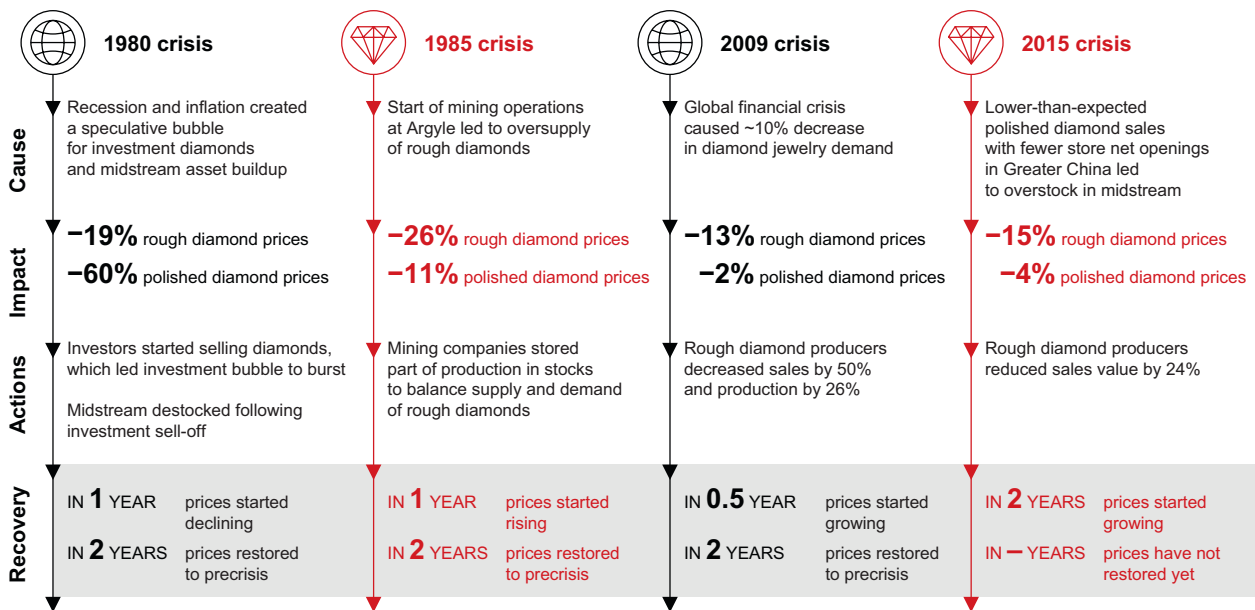
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Figure 36: Since 1970, the industry has experienced healthy long-term price growth for rough and polished diamonds



*Data on 9 months of 2019
 Notes: Market price index shows change in market price for like-for-like diamond categories weighted according to global rough and polished product mix; polished diamond price reflects Rapaport Diamond Index, Rounds, 1 carat
 Sources: Diamond Trading Company; Rapaport; Kimberley Process; WWW Diamond Forecasts; company data; expert interviews; Bain & Company

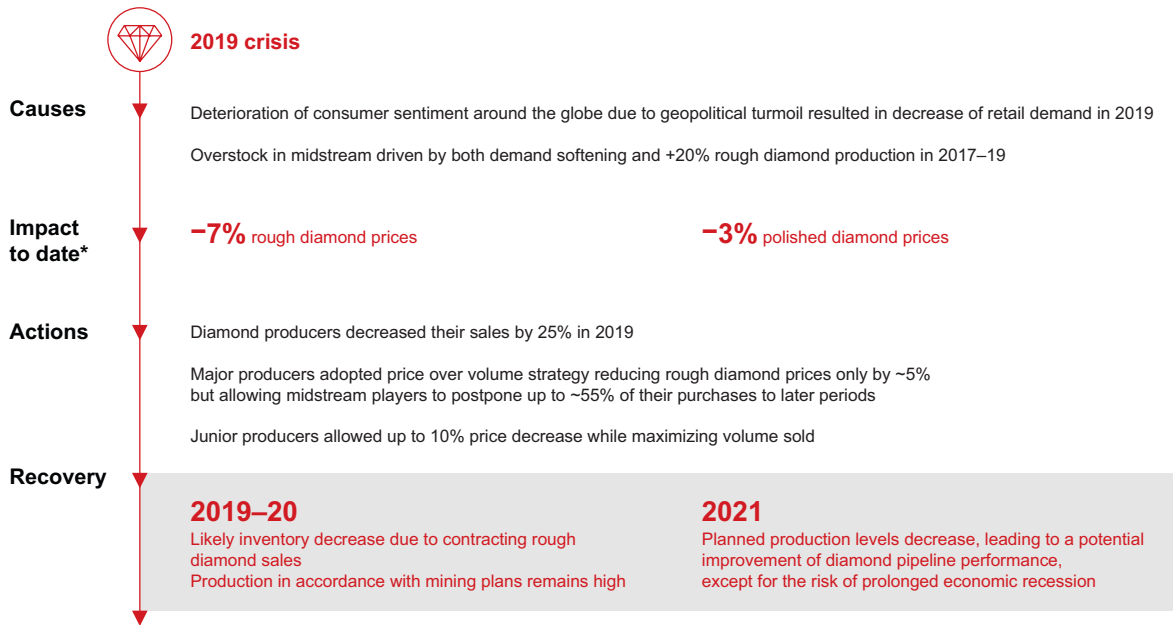
Figure 37: Recessions caused by internal dynamics took longer to recover than downturns caused by global economics



Notes: Total impact during the crisis, which is 1980-82 for 1980 crisis, 1984-85 for 1985 crisis, 2008-9 for 2009 crisis and 2014-15 for 2015 crisis; recovery timing is measured by time of rough diamond price recovery to the precrisis level or long-term trend
 Sources: Diamond Trading Company; Rapaport; Kimberley Process; company data; expert interviews; Bain & Company

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Figure 38: Perspective on the current downturn



*Impact on prices is shown as average price for eight months in 2019 vs. 9 months in 2018
 Sources: Rapaport; WWS Diamond Forecasts; Kimberley Process; company data; expert interviews; Bain & Company



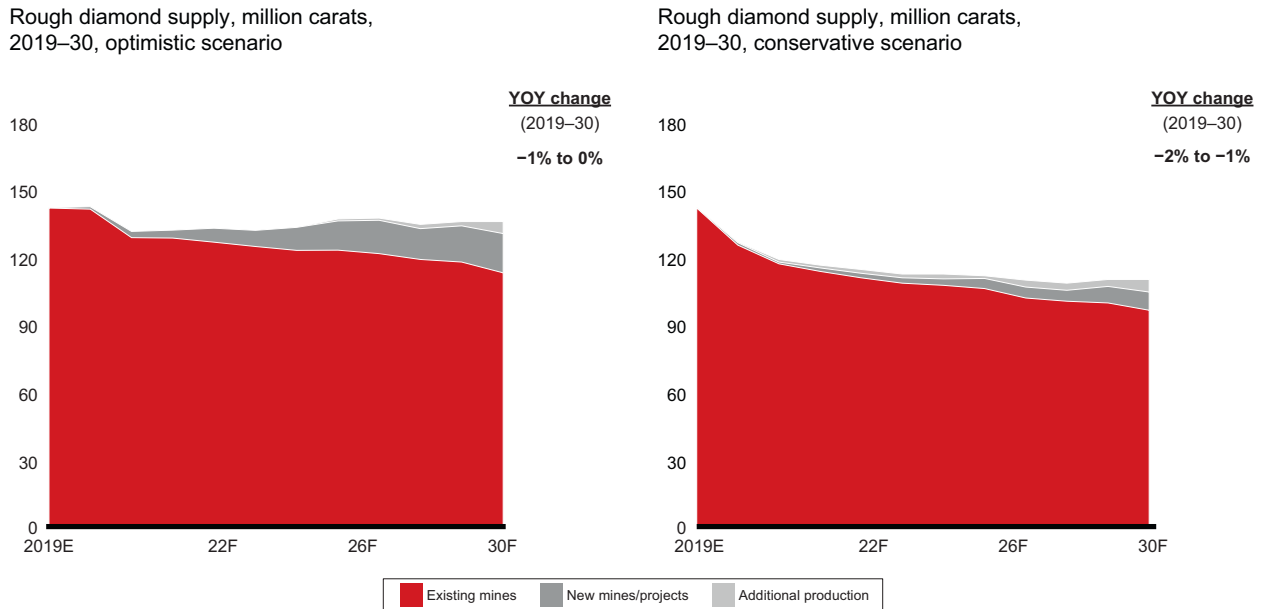
7.

Updated supply and demand model

- Global rough diamond supply is projected to decrease 8% to 15% by 2021 compared with 2019. The dip will be followed by stable production through 2030. If mining companies are confident in long-term price growth, they will invest in new projects to maintain production levels around 140 million carats. If confidence is lacking, supply may decrease annually by 1% to 2%, settling at around 110 million carats. If fundamental factors such as GDP and middle-class growth are strong, and if marketing efforts create sufficient emotional appeal for diamond jewelry, then demand is expected to grow at an average annual rate of up to 3%. Our outlook incorporates potential shifts in consumer preferences and reflects fundamental supply and demand factors rather than short-term fluctuations.
- The global economy is projected to grow at an annual rate of 3% through 2030. The US, China and India will continue to lead growth in diamond jewelry consumption. Following a relatively brief recession in the next one to two years, we expect the US to grow around 2% annually in the long term. The middle class will expand in China and India by 4% and 9%, respectively, and personal income will increase for Millennials and Generation Z. In combination, these factors provide a strong foundation for growth. Growth rates may be slower over the next few years if a global economic slowdown occurs, but long-term diamond jewelry consumption should be unaffected.
- Based on lessons learned from natural and synthetic sapphires, we expect lab-grown diamond substitution to stay within 5% to 15% in value terms through 2030. Lab-grown and natural sapphires have remained separate markets for more than 20 years, and synthetic sapphires account for 15% of the total gem-quality market in volume. Lab-grown diamond prices have been falling, which may lead to a sustainable business in costume jewelry. As mines deplete, lab-grown diamonds could offset a portion of the reduction in supply of natural diamonds.
- This forecast does not consider several factors that could disrupt the supply–demand balance in the short term and slow the overall global trajectory. Consumer confidence and demand for diamond jewelry could be negatively affected if the US recession is longer than expected or if the slowdown and uncertainty in China caused by trade tension continue. Ongoing currency fluctuations and short-term policy changes in India could disrupt that country’s potential, as they have in the past. The biggest potential disruption is consumer preference. Continued and concerted marketing efforts are imperative to sustain long-term demand.

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Figure 39: Supply is expected to decrease 8–15% by 2021, followed by stable production into 2030



Notes: New mines: Jay (Ekati), Luaxe, Chidliak, Star-Orion South, Zarya, Lace and Ghaghoo; additional sources can come from tailings retreatment and production from new reserves that are identified in existing mines as a result of brownfield exploration and development; additional sources also could include potential projects that are not in development now but may become viable should rough prices increase
Sources: Company data; Kimberley Process; expert interviews; Bain & Company

Figure 40: Although a near-term recession is expected, the long-term macroeconomic forecast is positive

US

- The recession is expected to be short-term and relatively mild
- Long-term GDP growth is forecasted at 2%, driven by automation and robotization
- The next economic growth cycle will likely benefit capital and equity holders most
- The lower middle class is most at risk; 30 million to 50 million jobs could be affected by 2030
- Average personal disposable income would grow slower than GDP through 2030
- The diamond jewelry market is anticipated to grow 1–3% annually from its highest level, provided current levels of affinity for diamonds remain

China

- A recession is not expected, but a slowdown is likely; lower consumer confidence may affect short-term consumption
- Long-term economic growth of 5% will be driven by middle-class expansion, income growth and technological advancement
- Consumption in China will be fueled by the middle class, which will grow by 4% per annum and represent 65% of all households vs. 40% today
- The diamond jewelry market is anticipated to grow 2–4% annually, cementing China as the second-largest and most important diamond jewelry market

India

- Fundamental factors remain strong; robust domestic consumption supports an annual 6% GDP growth forecast
- Domestic policies can negatively impact diamond jewelry consumption, weakening macroeconomic growth factors
- The middle class is expected to double, driven by urbanization and innovation, and a 5–10% increase in working women is expected over the next decade
- Long-term annual growth of the diamond jewelry market is expected to be 3–5%

Sources: Euromonitor; The Economist Intelligence Unit; Bain & Company

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Figure 41: The long-term outlook for real global GDP and PDI remains healthy, notwithstanding a potential short-term recession

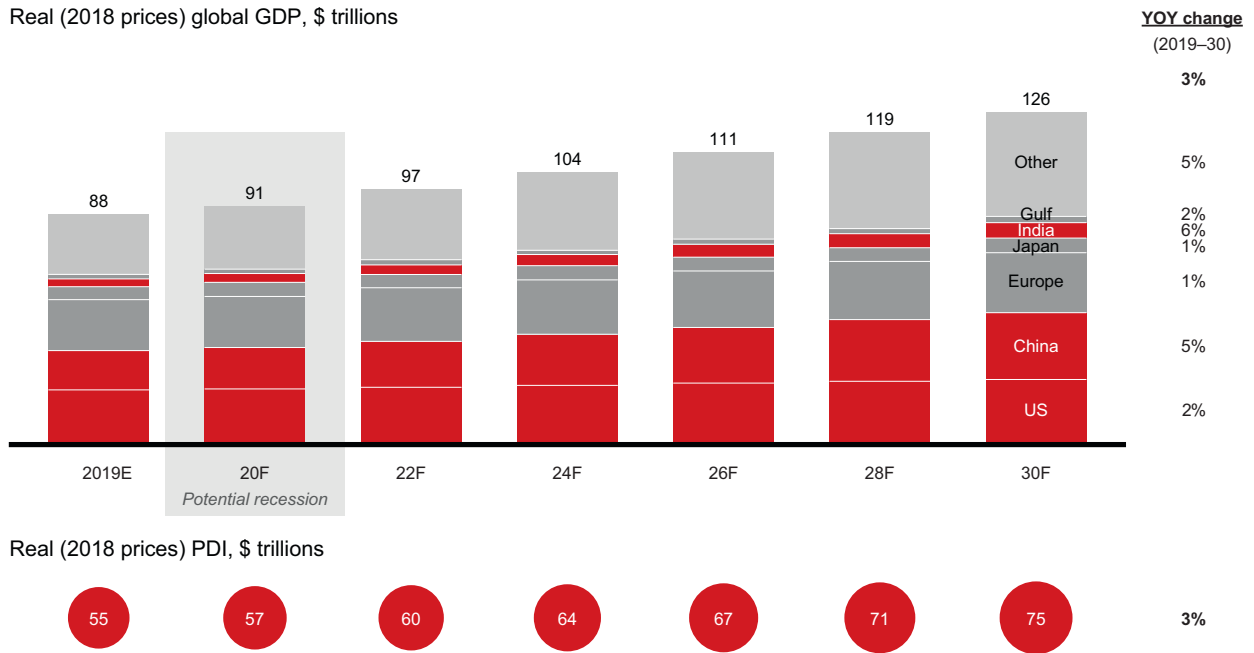
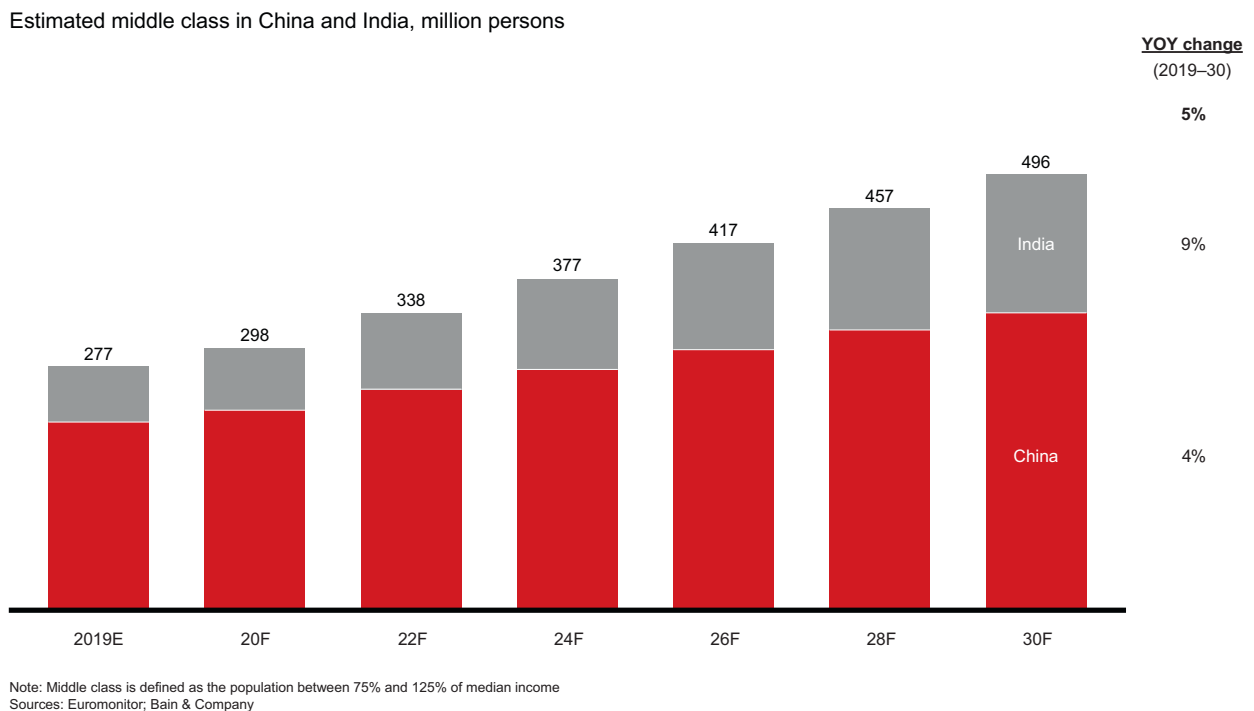
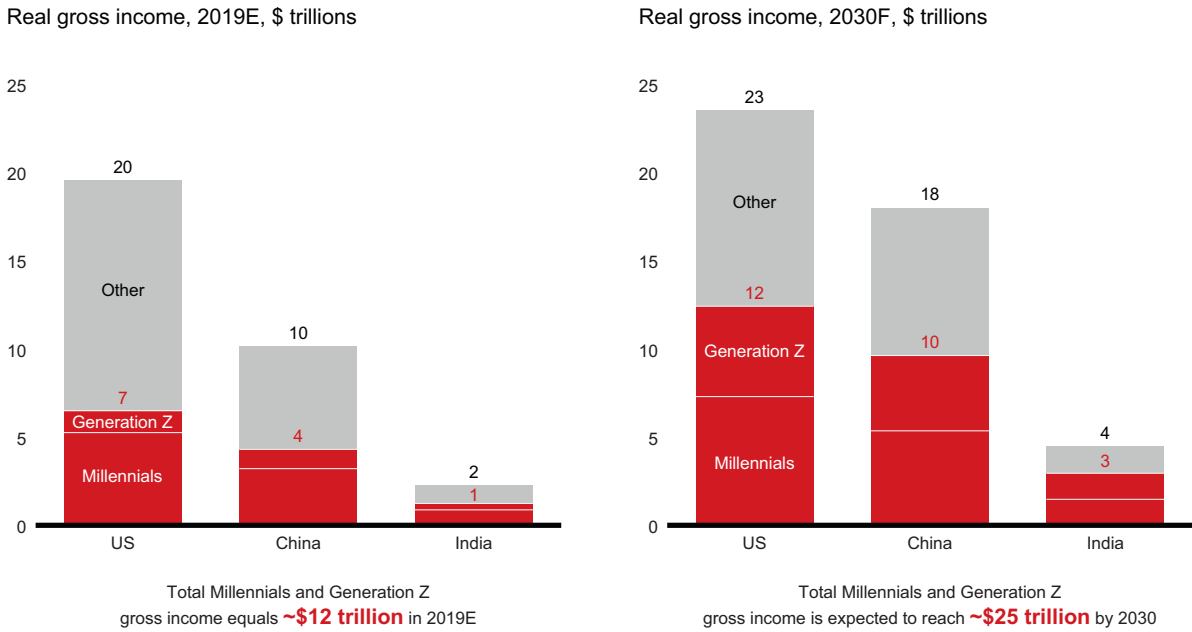


Figure 42: Growth of China’s and India’s middle class will reinforce positive long-term demand



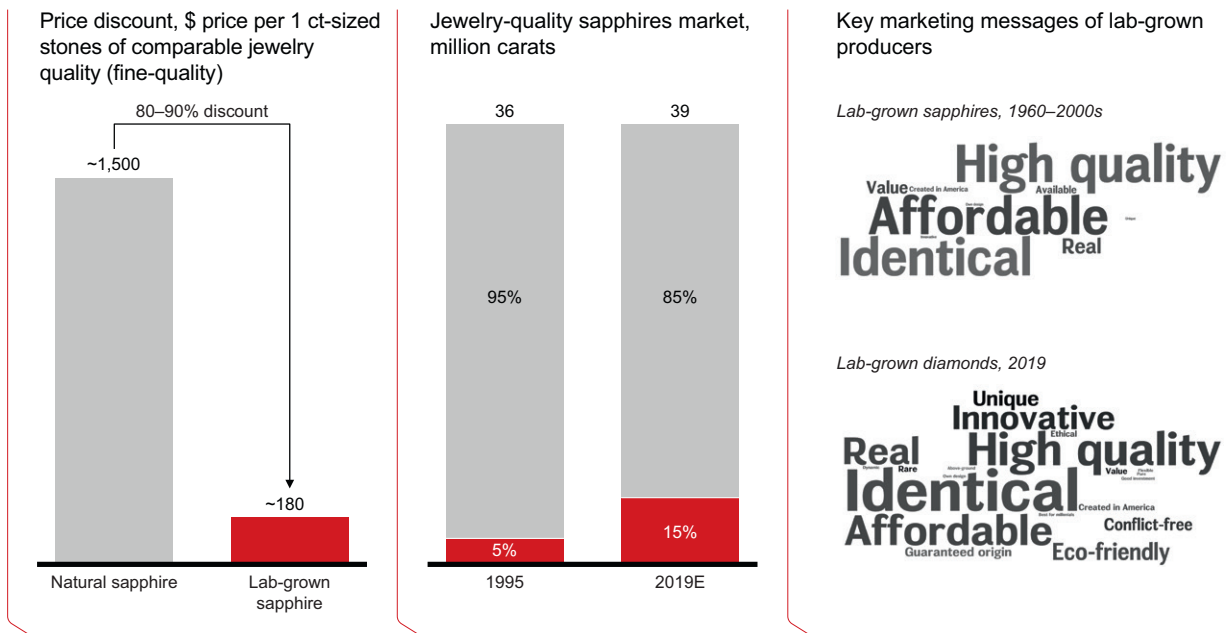
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Figure 43: In the US, China and India, the combined real gross income of Millennials and Generation Z will double by 2030



Notes: Millennials (Generation Y) were born between 1980 and 1994; Generation Z is the newest generation to be named and was born between 1995 and 2015; income is represented in real terms
Sources: Euromonitor; Bain analysis

Figure 44: Synthetic sapphires account for 15% of the sapphire jewelry market



Notes: Colored gemstone messages are based on vintage ads of Chatham Created Gems and Diamonds; lab-grown messages are based on the message mentions on the websites of Diamond Foundry, Chatham Created Gems and Diamonds, Lightbox, NDT, Scio Diamonds and IIA Technologies
Sources: Preciousgemstones.com; US Geological Survey; expert interviews; Bain & Company

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Figure 45: Key assumptions behind long-term scenarios for natural rough diamond demand

Optimistic scenario

- Next global recession is short and mild across all key markets
- Global GDP growth is expected to be 3% or higher
- Effective marketing campaigns (brand and generic) result in natural diamond jewelry being a primary choice to celebrate special moments in life for Millennials and Generation Z
- Transparent and efficient diamond value chain with companies across all segments having access to debt or equity financing

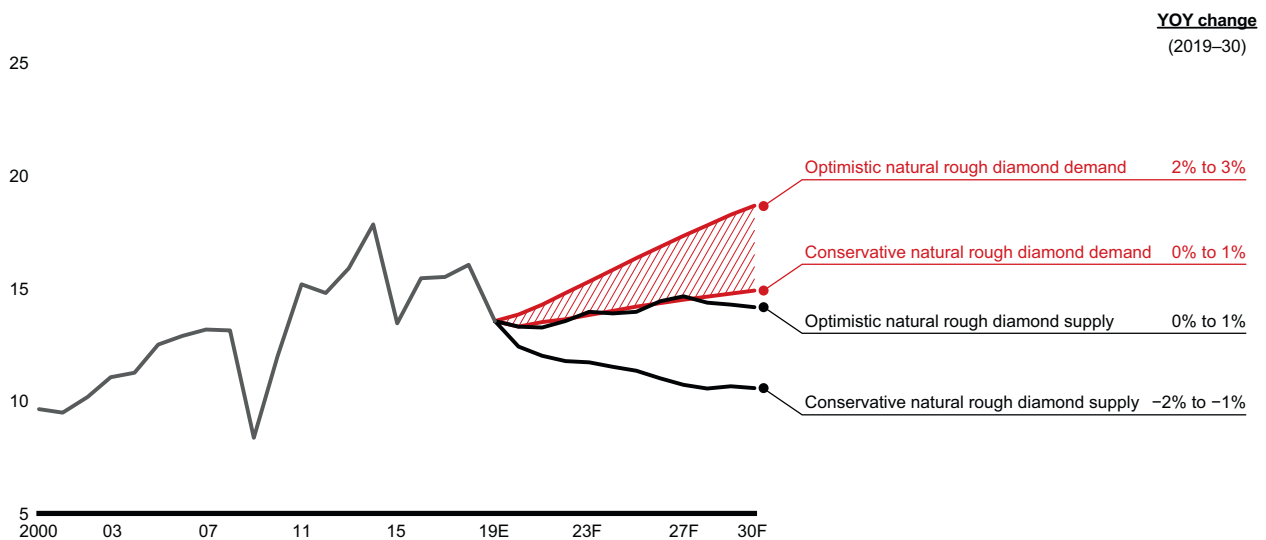
Conservative scenario

- Prolonged global recession; slowdown of growth in China and India
- Global GDP growth is expected to be ~1–2% or lower
- Lack of sufficient marketing support lead to decrease of affinity for natural diamond jewelry among Millennials and Generation Z
- Persisting inefficiencies with the diamond pipeline

Notes: Millennials (Generation Y) were born between 1980 and 1994; Generation Z is the newest generation to be named and was born between 1995 and 2015
Sources: Euromonitor; The Economist Intelligence Unit; company data; expert interviews; Bain & Company

Figure 46: The supply–demand outlook is moderately optimistic

Natural rough diamond supply and demand values, \$ billions (in real terms), 2000–30F, 2019 prices, constant exchange rates, optimistic and conservative scenarios



Note: Natural rough diamond supply value correspond to the value of natural rough diamond production; rough diamond demand has been converted from polished diamond demand using historical ratio of rough diamond and polished diamond values
Sources: Kimberley Process; The Economist Intelligence Unit; Euromonitor; company data; expert interviews; Bain & Company

Key contacts for this report

This report was prepared by Olya Linde, Partner from Bain & Company, together with Ari Epstein, Chief Executive Officer, AWDC. The authors were supported by a global team including Sophia Kravchenko, Roman Kolesnikov, Daria Babazhanova, Anton Matalygin, Julia Gavrilova, Masha Shiroyan, and Bain's Mining and Luxury Goods practices.

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