The Diamond industry for a brilliant future from a PHI perspective on the establishing of a new Asia Diamond Exchange in the Long Thanh Multi-Logistics Center, Long Thanh District, Dong Nai Province, Vietnam.

This work was commissioned by PHI Group and PHILUX Global Funds (Luxembourg) and prepared by Dr. B. Smet (Text and Content) and Mr. R. Risino (graphs, design and legal review). It is based on secondary market research, analysis of financial information available or provided to B. Smet and his corporate group, and a range of interviews with industry participants.

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Chapter 1: Developments in the Diamond Industry in 2020 -2021

Welcome to this first comprehensive report outlining on the global diamond industry, prepared in different stages since early 2018, prior to the setup and activation of PHILUX Global Funds, the main financier of the new Asia Diamond Exchange in Vietnam. This first edition covers industry performance in 2019 - 2021, effects of the Covid-19 pandemic in 2021 and an update on consumer preferences and attitudes.

We also assess potential recovery scenarios in 2022 and beyond.
The report begins with key developments along the value chain, including industry trends that were accentuated or accelerated by the global pandemic. We review factors that influenced rough diamond production and sales, midstream performance, and global diamond jewellery demand in major markets.

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. PHI and its structures opt for a wholistic approach and as such envision and prognose to cater for the entire diamond industry, from production, trade, polishing and manufacturing.

We start with a brief summary on the diamond market in difficult COVID-19 pandemic macro-economic circumstances:

1. The diamond industry suffered during the Covid-19 crisis but fared better than the personal luxury market overall. Across the value chain, revenues decreased by 15% to 33%. Operating margins followed with a decline of 1 p.p. to 22 p.p. Despite the significant drops, $64 billion diamond jewellery retail performed better than the personal luxury market, which contracted by 22% at current exchange rates in US dollars.

2. Rough diamond production continued its downward trend, falling to 111 million carats. After peaking at 152 million carats in 2017, rough diamond production has declined by about 5% per year. In 2020 and 2021, production decreased by 20% compared to 2019 levels. Notwithstanding changes, the mix of diamonds remained largely constant, with medium and large diamonds accounting for 25% of production volume in carats but around 70% to 80% in value in US dollars.

3. The mining response at the start of the Covid-19 crisis helped midstream players weather the worst of the storm. Major miners cancelled sales in the first half of 2020 through mid-2021 and allowed clients to postpone purchases. Up-stream inventories of rough diamonds grew to 65 million carats by the end of third quarter, before decreasing on the strength of the fourth-quarter sales to 52 million carats (+17% to end of 2019 inventory level).

4. Despite challenges in 2019-2021, midstream players finished the year on a strong note. The midstream started 2020 with 9% less inventory, healthier financial balance sheets and a more consolidated market structure. In 2021, midstream players cleared existing stockpiles even further and reduced inventories by 22%.

5. The midstream segment lowered its debt by half compared to its peak level in 2013; debt levels decreased to $7 billion in 2021.

   Financing decreased because of lower trading levels and a higher reliance on self- financing. Larger midstream companies with transparent operations continued to access financing from big banks, while alternative financing options (e.g., peer-to-peer financing) emerged for smaller players.

   Large midstream companies, banks in the Middle East and specialized funds were set up to provide additional financing in the sector. Deleveraging is expected to speed up restructuring and consolidation of the midstream and to create long-term benefits across the pipeline.

6. Prices for rough and polished diamonds continued to feel pressure. Rough and polished diamond prices began trending downward in 2018, then decreased by 7% and 4%, respectively, in 2019-2020, because of over-stocking in the midstream. In 2021, rough and polished prices fell by 11% and 3%, respectively.

   Divergence between rough and polished price dynamics helped midstream players post record-high operating margins in 2021. Higher-quality diamonds recovered faster, ending in positive territory compared to the start of 2020 and recovering most of their price drop from the past two years.

7. Lockdowns, travel restrictions and economic uncertainty contributed to lower diamond jewellery sales. Sales were −15% in 2020 and -17% in 2021, with most of the decline happening in the first and second quarters. In addition, demand for diamond jewellery became more localized due to travel restrictions.

   Demand returned during the fourth quarter, culminating in a strong holiday season across the globe. Once fully tallied, we expect 2022 sales to be better than analysts predicted based on the first three quarters. Preliminary estimates show growing consumer confidence and an increase in pre-holiday retail activities.

8. Consumers continue to value diamond jewellery as a desirable gift and a key element of marriage. In a customer sentiment survey issued by the Dubai Diamond Exchange in 2021, US consumers said jewellery and watches are among the top four gifts they would like to receive.

   Consumers in China and India ranked them in the top two. In the US, China and India, 60% to 70% of respondents believe diamonds are an essential part of a marriage engagement. After the pandemic, 75% to 80% of consumers said they intend to spend the same amount or more on diamond jewellery than they would have before the crisis. This indicates a strong, ongoing emotional connection with the diamond story.

9. Covid-19-related travel restrictions localized jewellery consumption in 2021. The biggest winner was China. Because Chinese consumers had limited opportunities to travel, they turned to local retailers and Hainan duty-free stores for luxury and premium purchases. Major local chains reported double-digit growth in sales in the second half of the year.

   In addition, major retailers are expanding their retail footprints, particularly into lower-tier cities where the middle class and wealth are growing. The repatriation trend is expected to subside in the long term, once global travel resumes, but new consumers in lower-tier cities will provide continued demand for jewellery and drive further growth in China.

Pandemic COVID-19 accelerated pre-existing trends that have been shaping the worldwide diamond industry:

A. The diamond value chain is becoming more digital, although brick-and-mortar stores still have value.

   A digital pipeline for business-to-business (B2B) commerce emerged during the pandemic as several platforms (e.g., UNI diamonds, Get-Diamonds, Clara Diamond Solutions) started or expanded trading of rough and polished diamonds.

   Business-to-consumer e-commerce also grew in 2021, with about 20% of retail sales occurring online. Major diamond jewellery retailers posted up to 60% to 70% year-over-year sales growth in their online channels. Despite the increase in online sales and a strong preference for online re-search before making purchases, nearly all consumers (90%—95%) still prefer to buy diamonds in brick-and-mortar stores. Consumers value the opportunity to see and touch jewellery, and they benefit from in-person advice and other personal services. The online share of diamond jewellery sales is still low compared to other luxury and consumer products.

To create a meaningful shift toward digital channels, the industry needs to address several consumer concerns. It needs to improve trust (e.g., by providing diamond certificates, warranties, reviews), enhance convenience (e.g., implementing free delivery and returns or "try before paying" programs) and provide additional discounts and promotions for online purchases.

B. Diamond jewellery marketing needs to evolve to meet new challenges, like generational shifts and increased competition for consumers' share of wallet. Future marketing campaigns should connect diamonds to additional life moments, expanding the market (and consumers' emotional connection to diamonds) beyond marriage. The diamond story needs to become more personal and engaging, which marketers can accomplish through storytelling, social media and customization (e.g., products, offers and pricing).

   Retailers need to invest in omnichannel and phygital* ((physical plus digital) is a concept of blending digital experiences with physical experiences in brick-and-mortar store, taking the best aspects from each space to create the optimal customer experience.), capabilities to match new purchasing preferences, and manufacturers should promote sustainability practices that consumers care about. Industrywide, marketing efforts need to be reinvented and increased.

   Despite current efforts, diamond marketing spend is roughly 1% to 2% of industry revenue, which lags the average luxury goods marketing spend of 6% to 8%.

C. Continued advances in technology contributed to double-digit growth in production and lower retail prices for lab-grown diamonds in 2020 and 2021.

The price differential between natural and lab-grown fancy colour diamonds is particularly striking—up to 10 times. In addition to independent lab-grown manufacturers, major fashion jewellery retailers are adding lab-grown diamonds to their product offerings, further positioning the category into the fashion jewellery segment and making it accessible to a wider range of price-sensitive consumers.

D. Sustainability, transparency, and social welfare are priority issues for consumers, investors, and the value chain. Social welfare and sustainability were growing issues in previous years. Now they are firmly top-of-mind for mining, trading, and retail companies.

   In the US, and especially in China and India, younger consumers say sustainability is part of their decision-making process and could influence whether they buy diamond jewellery. Companies across the value chain are responding with a range of initiatives to tackle emissions and water consumption, increase diversity and support for local communities, and improve diamond traceability.

E. Covid-19 prompted structural changes in the diamond industry that will help it recover from the recession. Because of the crisis, midstream inventories are at healthy levels and better aligned with consumer de-mand.

   There are more partnerships between upstream and midstream players in regard to technology, go-to-market strategies and marketing. A more transparent and digitally enabled supply chain was created in the rough and polished diamond segments, and we see innovative new approaches to customer engagement. We are optimistic these changes will help the industry exit the crisis in a stronger position.

F. 2021 ended with strong sales across the whole value chain. The boost was driven by successful holiday jewellery sales, particularly in the US and Chinese markets, where players reported a 5%–10% and 15%–20% rise in the fourth quarter, respectively, compared to the same period of 2020. The retail sales growth was feeding through to rising demand for polished diamonds.

In the fourth quarter of 2021, the cutting and polishing segment demonstrated ~20% growth of net export of polished diamonds and net import of rough diamonds compared to the same period in 2020.

In the last three months of the year, miners managed to release ~13 million carats of rough diamond inventories, increase rough prices by 2%–3% and show 10% sales growth compared to the fourth quarter of 2020.

G. 2021 started on a strong trajectory and growing market confidence. Most miners reported 5%–8% rough diamond price and sales improvement in January, while in addition major miners kept a flexible sales policy, which all combined set up a good start to the year.

If that trajectory continues now in 2022, we could see faster recovery to a historic trajectory than anticipated in our optimistic scenario.

H. There is a lot of economic uncertainty ahead. The current crisis could be more severe than 2009, and a double-dip recession is possible.

Full recovery and a return to historic growth trajectory isn't expected until 2023–24. Three factors will impact the pace and shape of the recovery: *epidemiology*, *government policy response* and *consumer response*.

Encouraged by the year-end performance, the long-term outlook for the diamond market remains positive. In volume terms, rough diamond supply growth is projected to be −2% or 2% annually at best.

Following accelerated short-term recovery growth, demand for rough diamonds is expected to fall back into historic trajectory, growing at 1% to 3% annually. Demand dynamics will match the trends in GDP and disposable income growth for affluent and high-net-worth individuals globally.

Expanded retail jewellery footprints into lower-tier cities across key emerging economies will also support demand growth. Generation Z will be both a growth engine and a change agent for the industry, with its evolving preferences, purchasing behaviours and sustainability agenda.

Chapter 1: Developments in the Diamond Industry

After a robust performance in 2020, 2021 was a challenging year for the diamond industry. Rough diamond production was about 20% higher in 2017–19 compared to 2016 supply levels. However, increased production did not translate into demand growth for diamond jewellery. Performance was tempered by rising trade barriers, mainly between the US and China; political instability in key trading locations like Hong Kong; and deteriorating customer sentiment across key regions. Toward the end of 2019, performance improved, and the market expected a recovery in 2020.

Then the Covid-19 pandemic hit the entire value chain. In the first half of 2021, lockdowns in major world cities and an economic downturn caused a 15% reduction in diamond retail.

Upstream and mid-stream players also suffered from operational disruptions, including mine closures, restrictions on cross-border goods movements and cancelled sale events.

Because of the crisis, major mining companies adopted a price-over-volume strategy and took steps to support the midstream segment. They reduced production by 20%

and allowed customers to postpone purchases. In the third quarter, when the demand was back, major miners lowered rough diamond prices by 10%. As a result, mining revenues decreased by 33% and inventory increased by 17%.

Cutting and polishing companies saw revenues drop by 25%. Polished prices decreased by only 3%. Mid-stream inventory decreased to pre-recession levels, which are better aligned with production profiles, and which curtailed the need for financing.

These changes redistributed the profit pool along the diamond value chain. Mining profit margins decreased about 22 p.p., retail margins declined 1–3 p.p. and midstream margins increased 5 p.p.

The pandemic accelerated structural changes in the diamond industry. E-commerce adoption increased in the retail sector and expanded into B2B trading for rough and polished diamonds. The divergence between lower- and higher-quality diamonds deepened, with prices and volumes for high-quality diamonds recovering faster and stronger.

There is strong evidence of a revival in the last quarter of 2020, but full recovery is not expected until 2022–24. Even after the consequences of the pandemic are fully mitigated, industry players must continue to restructure their business models to align with long-term trends and operational realities. The industry needs to embrace digital technologies, explore new marketing concepts and engage consumers differently to capitalize on long-term growth prospects.

Figure 1: Revenues across the value chain trended downward in 2019 and 2020

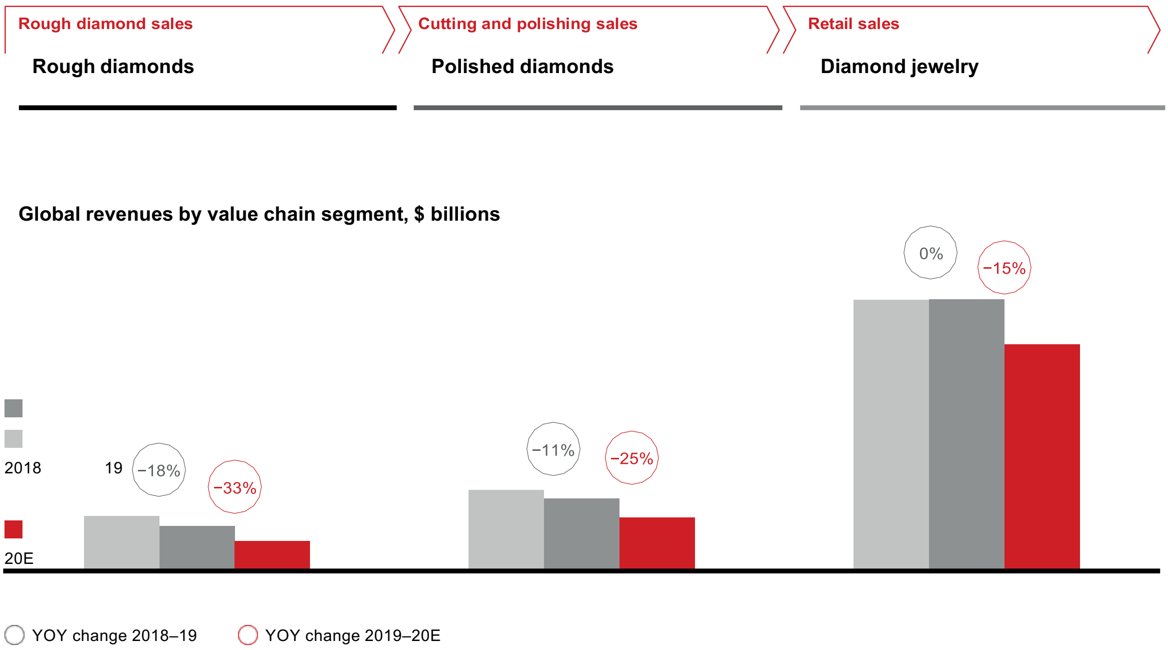


Figure 2: Covid-19 had major implications across the value chain, but repositioned the industry for long-term growth

	Rough diamonds	Polished diamonds	Diamond jewelry
	Rough diamond sales	Cutting and polishing sales	Retail sales
Short-term implications	• Most mines lowered production plans or initiated care and maintenance • Marginal mines stopped operations	• Traditional sales models and supply chains were disrupted • Operating margins and balance sheets improved	• Online channels gained momentum and experienced double-digit growth in several markets • High affinity for diamonds and an emotional response to the crisis drove consumer interest and helped the segment recover
Long-term implications	• Rough sales expanded into online platforms and auctions, using 3D scanning technology • Rough diamond sellers started to use data analytics to improve pricing expertise • Miners launched select partnerships with midstream players to sell polished diamonds and share profits • Major mining companies continued client portfolio optimization to limit speculative behavior in the market	• Manufacturers moved to demand-driven purchasing decisions • Cutting and polishing automation technology was deployed to diversify manufacturing footprints and increase efficiency • More conservative financing policies were applied among midstream, with peer-to-peer financing and specialized funds gaining share	• Marketing started to evolve through data analytics, customization and digital tools • With omnichannel strategies and tools, retailers started reinventing the purchase experience in stores and online

Figure 3: Profit margins were devastated across the value chain, except in the C&P segment

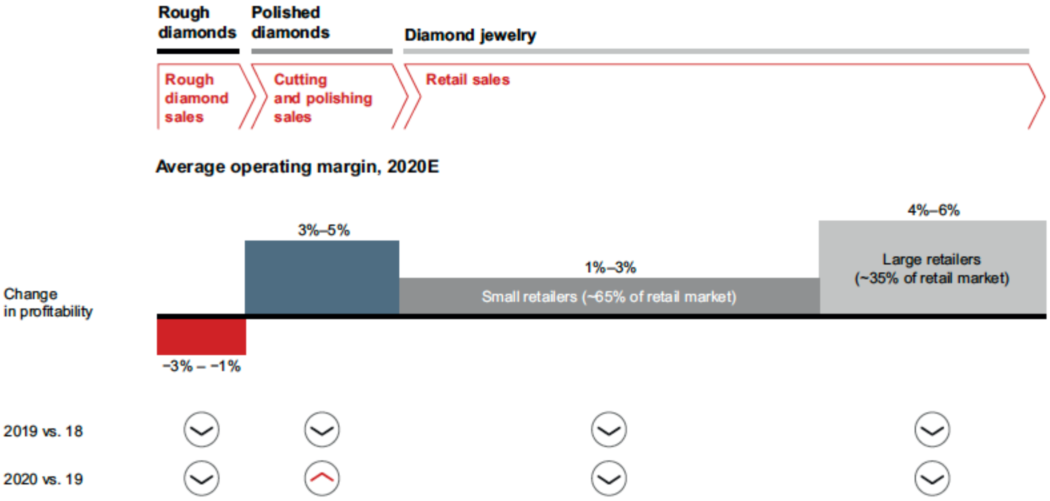


Figure 4: Impacts of Covid-19 caused rough diamond sales to decline –33%

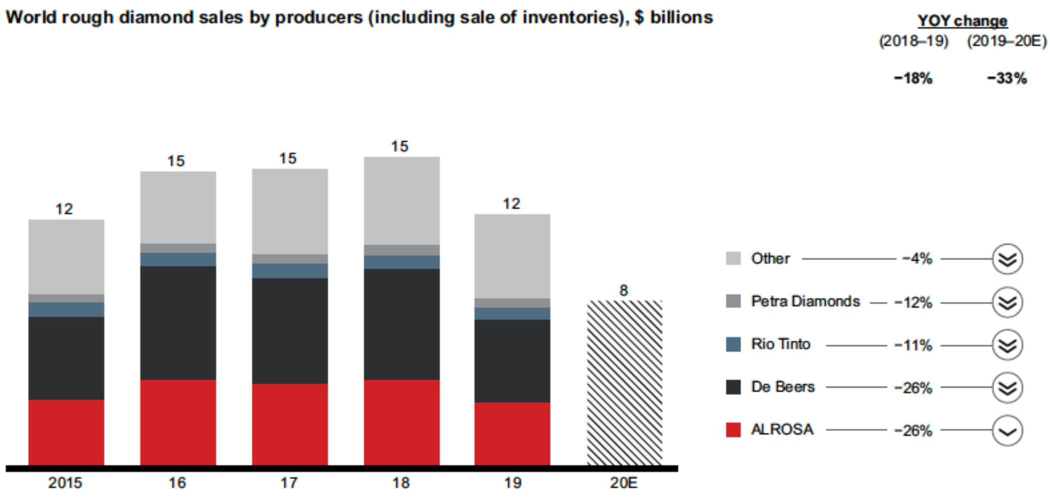


Figure 5: In 2020, upstream inventories increased by ~17%, mostly driven by supply chain disruptions

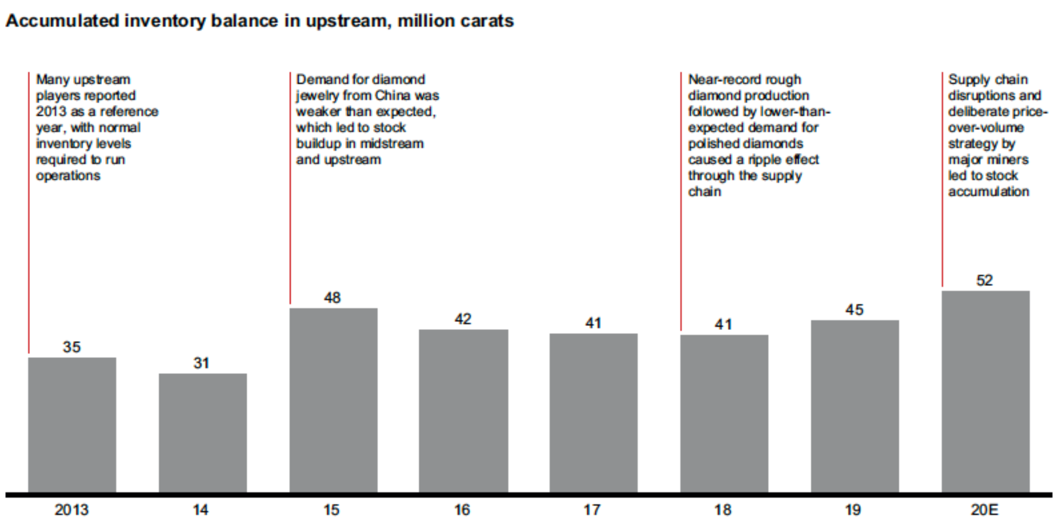


Figure 6: A slower decline of polished diamond prices vs. rough diamond prices supported stronger margins for the midstream

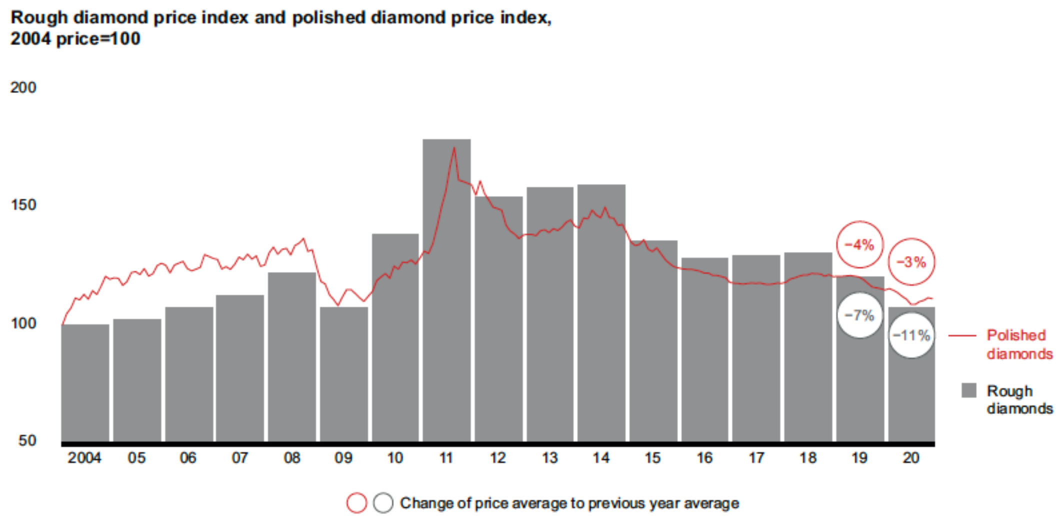
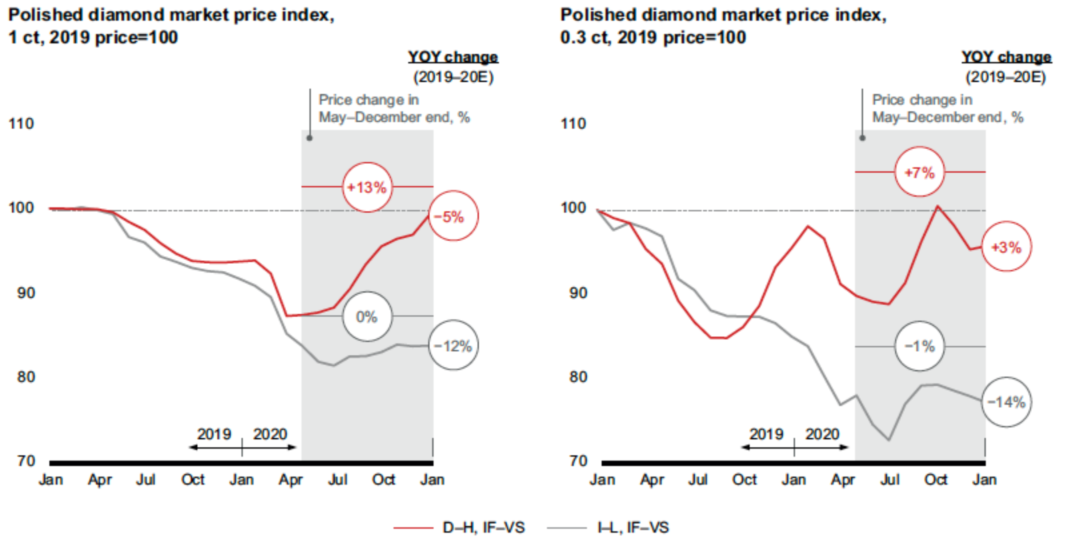


Figure 7: Prices for higher-quality polished diamonds have outperformed lower-quality diamonds over the past two years



Chapter 2: Rough Diamond Production

Following peak levels in 2017 and 2018, rough diamond production declined by 5% in 2019, hitting 139 million carats (+10% over 2016). Rough diamond sales decreased 18%, reflecting both volume and price changes, and leading to a 10% increase in mining company inventories. Toward the end of 2020, the market was improving significantly. Strong holiday demand positioned the industry for a better 2021.

Then the Covid-19 pandemic severely disrupted mining operations and logistics, causing mine closures and restricting cross-border movements. Major mining companies adopted a price-over-volume strategy and took actions to keep the value chain in balance in 2021.

They cancelled major sales events between Marchand July, allowed customers to defer purchases, introduced a zero-buyout obligation on goods allocation, and discounted rough diamond prices by 10% in the third quarter. Smaller players continued selling their diamonds from March through May to generate cash flow, even though prices were 25% to 30% lower than pre-pandemic levels. Several mining companies suspended operations for more than six months.

Overall, rough diamond sales decreased by ~30 million carats ($4.1 billion) and rough inventory increased by 7 million carats.

Production dropped by 28 million carats (20%) in 2020. The biggest decreases came from Russia, Canada, Botswana, and Australia. In Russia, production levels were lowered at Botuobinskaya, Almazy Anabara, Jubilee and other smaller mines.

Production in Canada declined due to suspended mining operations at Ekati and Renard in March 2021.

In Botswana, Jwaneng and Orapa decreased production by 26%. As planned, Rio Tinto shut the Argyle mine in Australia in November 2020.

The only mines to increase production were Venetia in South Africa and the Udachny underground mine and Nyurba Alluvial deposits in Russia. The distribution of diamond assortment by size remained relatively constant, with medium and large diamonds accounting for 70% to 80% or more of production values.

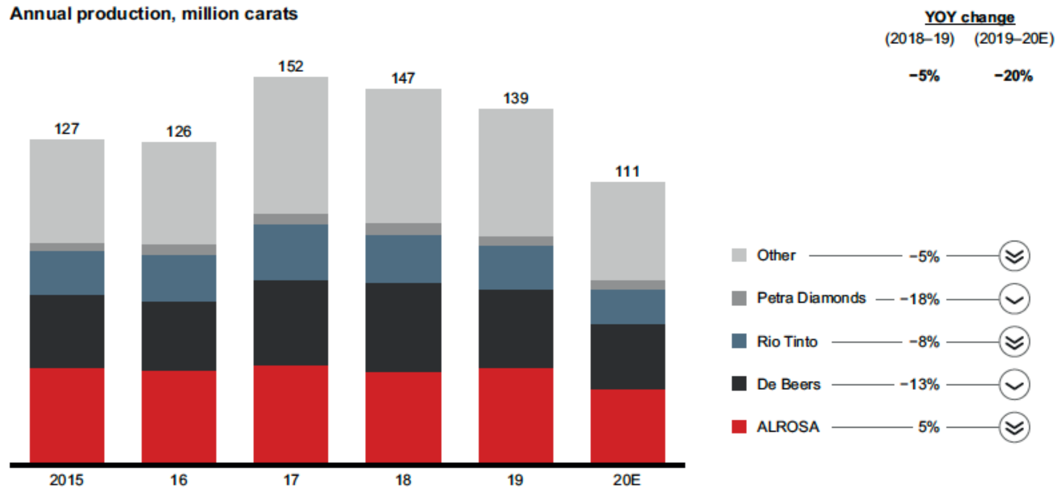
Except for ALROSA, all mining companies reported negative earnings before interest and taxes (EBIT) margins during the first half of 2021. Mining activities and sales started to normalize over the summer, so we expect better profitability in the second half of the year once the results are reported.

In the rough diamond market, new sales platforms were deployed to overcome travel constraints and streamline the journey from miner to jeweller. Online auctions gained a higher share of rough diamond sales and offset deficits in traditional sales channels.

Miners also created profit-sharing partnerships with midstream players to diversify rough-to-polished outcome risk and polished price volatility for midstream players and to gain additional margins on polished diamond sales. Such partnerships were formed between miner Lucapa Diamond Company and manufacturer Safdico International, and between miner Lucara Diamond Corp. and manufacturer HB Antwerp.

Production is expected to remain stable in 2022, driven by the reopening of profitable mines that were suspended in 2020-2021, however the increase will be offset by closure of Argyle. During the next 3–5 years, production will likely grow by 0% to 2% p.a. to allow the value chain to fully rebalance.

Figure 8: Diamond production has been decreasing by ~5% since it peaked in 2017, with a drop of ~20% in 2021:



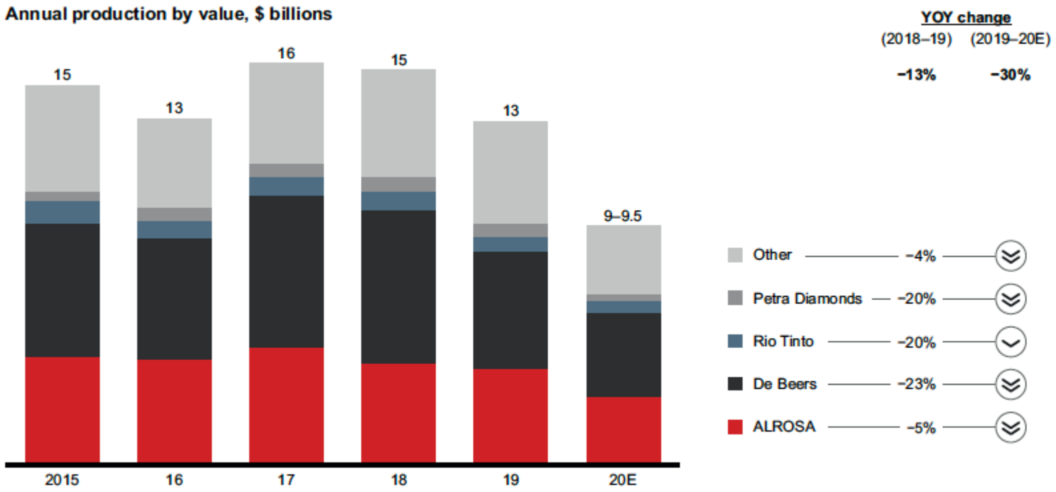
Note:

2020 production is estimated based on companies' production plans; only diamonds tracked by Kimberley Process are included; 2020 data is a preliminary estimate and is to be updated with 2020 Kimberley data; Kimberley data for 2017, 2018 and 2019 was adjusted: data for 2017–18 was adjusted in accordance with production of AGD Diamonds (an additional 1.4 million carats [Mcts] were accounted for in 2017 instead of 2018 to reflect reported real production of 4.4 Mcts instead of 3 Mcts);

data for 2018 was adjusted in accordance with reported production of Debswana mines and Karowe mine (additional production of 0.1 Mcts for Botswana in 2018); data for 2019 was adjusted in accordance with reported production of ALROSA and AGD Diamonds (lower production by 1.9 Mcts in Russian Federation for 2019) and with reported and estimated production of Gahcho Ku, Viktor, Renard, Ekati and Diavik (additional production of 3.1 Mcts)

Sources: Company data; Kimberley Process;

Figure 9: Production value decreased by ~30% in 2020, driven by declines in rough prices and production



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Sources: Company data; Kimberley Process;

Figure 10: South Africa was the only country with increased diamond production in 2021

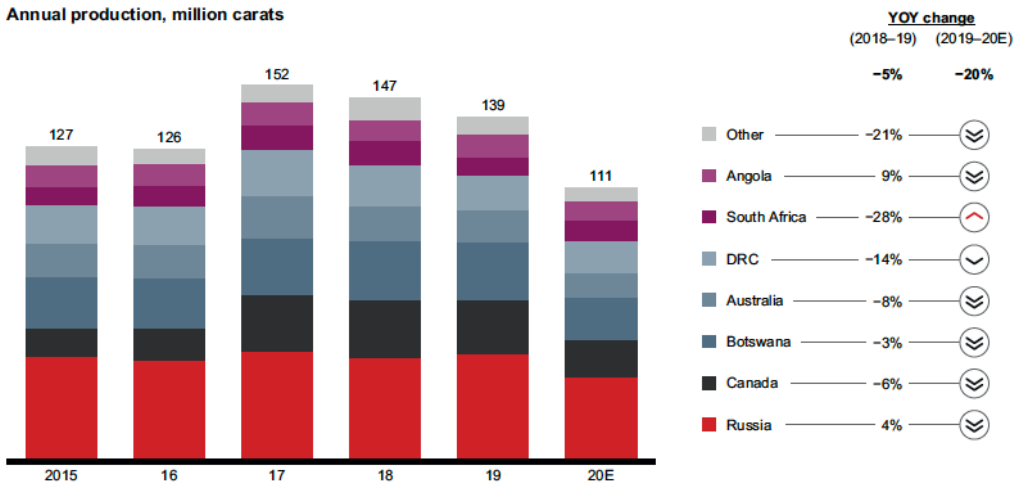

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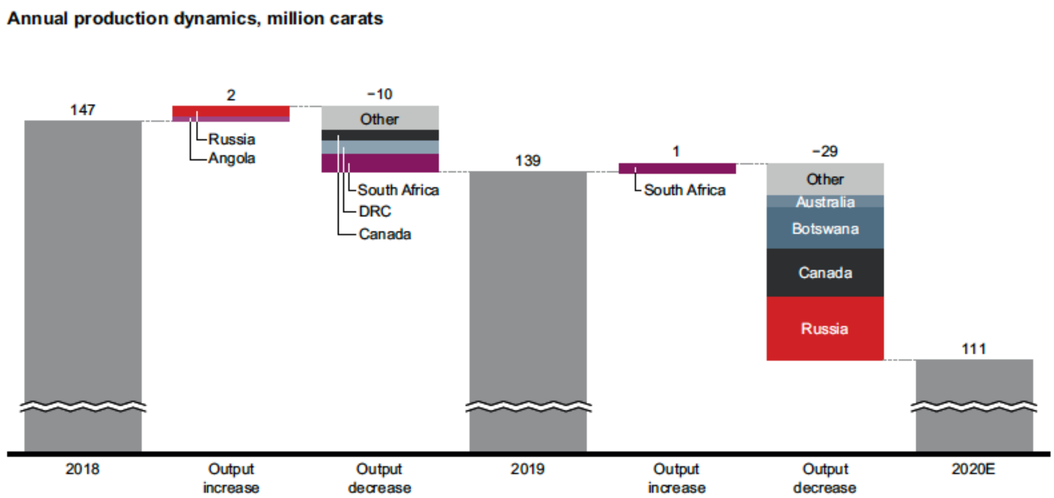
Figure 11: Russia, Canada and Botswana had the biggest production decreases in 2020



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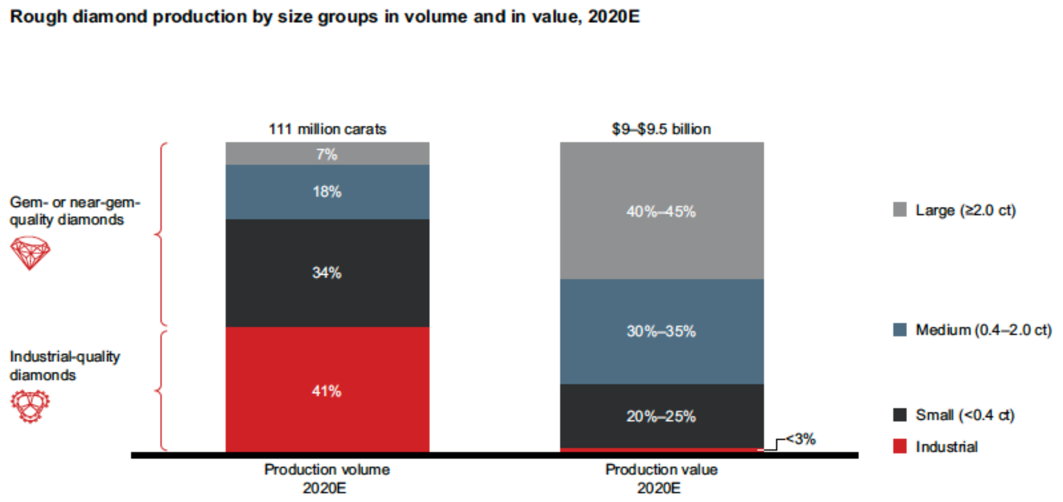
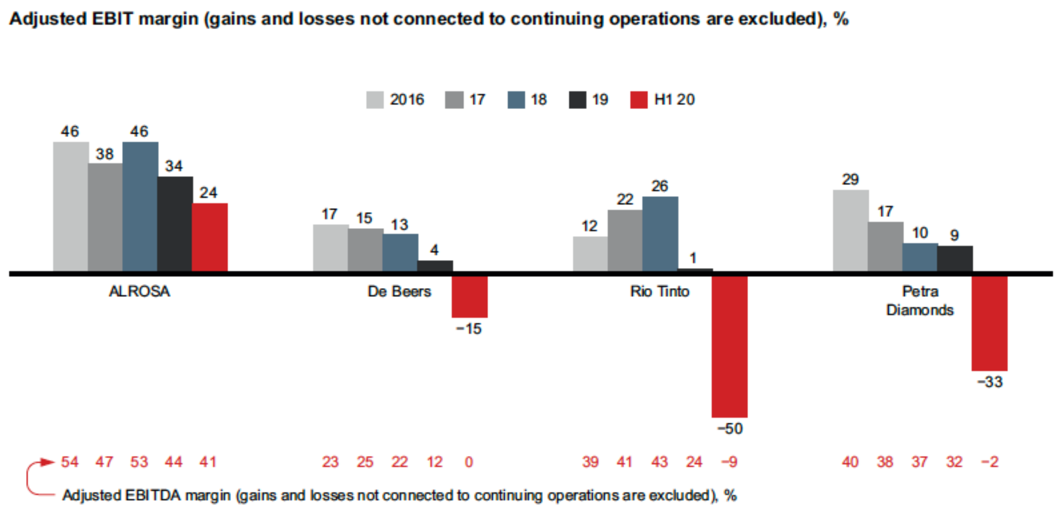
Sources: Company data; Kimberley Process.

Figure 12: Medium and large diamonds accounted for ~25% of production in carats but nearly 70%–80% in value in US dollars:



Note: Industrial-quality diamonds are used for non-jewelry purposes; quality examples: bort, dressers, drilling

Figure 13: Reduced sales activity in the first half of 2021 put significant pressure on profitability, which is expected to improve by year end



Chapter 3: Cutting and Polishing

In 2019, cutting and polishing revenue fell by 11% for three reasons: demand for polished diamonds declined, financing shrank, and polished prices fell by 4%. Nonetheless, midstream players de-levered 10% of excess inventory, lowered rough purchases by 18% and finished 2019 on positive trajectory.

Manufacturing sales were robust in November and December, driven by stronger-than-expected holiday retail sales. Holiday demand caused downstream inventory replenishment and improved polished diamond pricing. Lower rough diamond prices enabled additional margins in trading and manufacturing.

The pandemic disrupted operations and logistics along the segment. Sales of polished diamonds fell by 25%, and net imports of rough diamonds to key cutting and polishing countries dropped by 26% year over year in 2021.

In India, net rough diamond imports decreased by 23% yet the country retained about 95% market share of global polished diamond manufacturing. India's decrease in trading and manufacturing was a consequence of strict lockdowns, import moratoriums, restrictions at production sites and customs processing delays. Smaller factories suffered the most, with limited access to trading centres and higher costs to implement pandemic-related health requirements.

Chinese manufacturers were among the first to restart operations; they resumed production in March and April and managed to keep 3% market share in global polished diamond manufacturing. Guangzhou Diamond Exchange and customs officials enabled fast import clearance to support an early recovery.

Antwerp demonstrated an extremely modest (poor) resilience throughout 2021 although it had an unstable access to rough diamond supply but solid demand for high-end goods, which are the focus of Belgian manufacturers.

Despite disruptions, the midstream finished the year in average shape. Demand for polished diamonds increased in the second half of 2021, leading to a polished price recovery and only a 3% decrease year over year.

Inventory levels decreased by 22%, which is healthy for the segment. Profitability moved from near breakeven in prior years to 3% to 5% margins. Cutters and polishers of high-quality diamonds benefited the most; demand for such diamonds was acceptable in the second half of 2021.

Outstanding debt in the midstream decreased by 23% year over year, which aligned with reduced activity levels in 2021. Financing institutions extended due dates and cancelled credit facility fees during the pandemic.

New sources of financing also became available from specialized funds and peer-to-peer lenders.

Short-term pressures sped up restructuring and consolidation trends, which will continue. Progressive players adjusted their business models in several ways: they started making purchasing decisions based on retail demand versus manufacturing capacity, and they entered partnerships with mining companies to share risk on polished price volatility. In addition, they used analytics to predict polished output and prices based on rough diamond parameters, started testing automatic cutting and polishing machines (e.g., Synova DaVinci Diamond Factory or Fenix machine), and shifted more purchasing and sales activities to digital channels.

In 2022, performance will depend even more on how the midstream collectively responds to two factors: downstream demand for polished diamonds after the holiday season, and new sales agreements and rough price policies developed by major miners.

Figure 14: Covid-19-related restrictions resulted in ~26% reduction of C&P activities globally, with India recovering the fastest

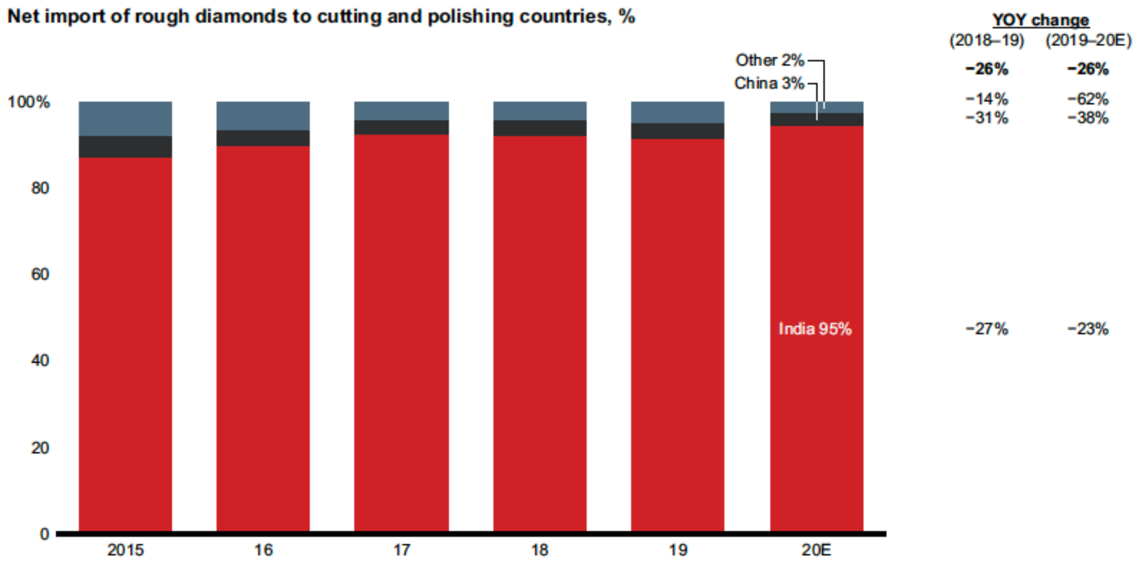


Figure 15: In India, net imports of rough diamonds decreased by 27% in 2019 and 23% in 2020; recovery began in Q3 2020

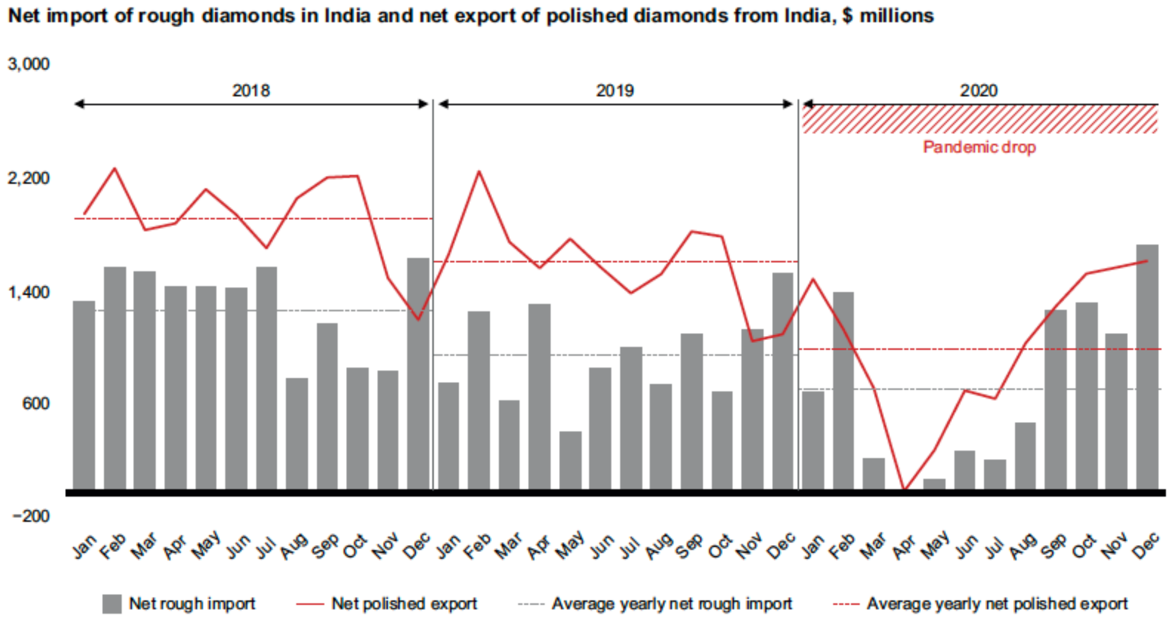


Figure 16: Due to a significant decrease in rough diamond sales, midstream inventories returned to some of the lowest levels in a decade

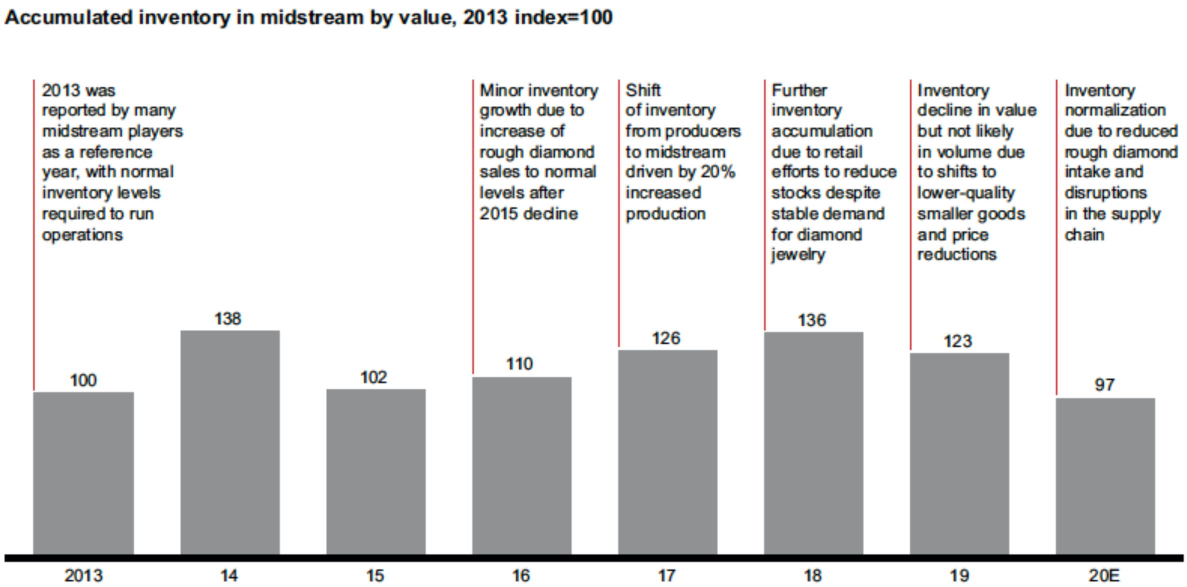
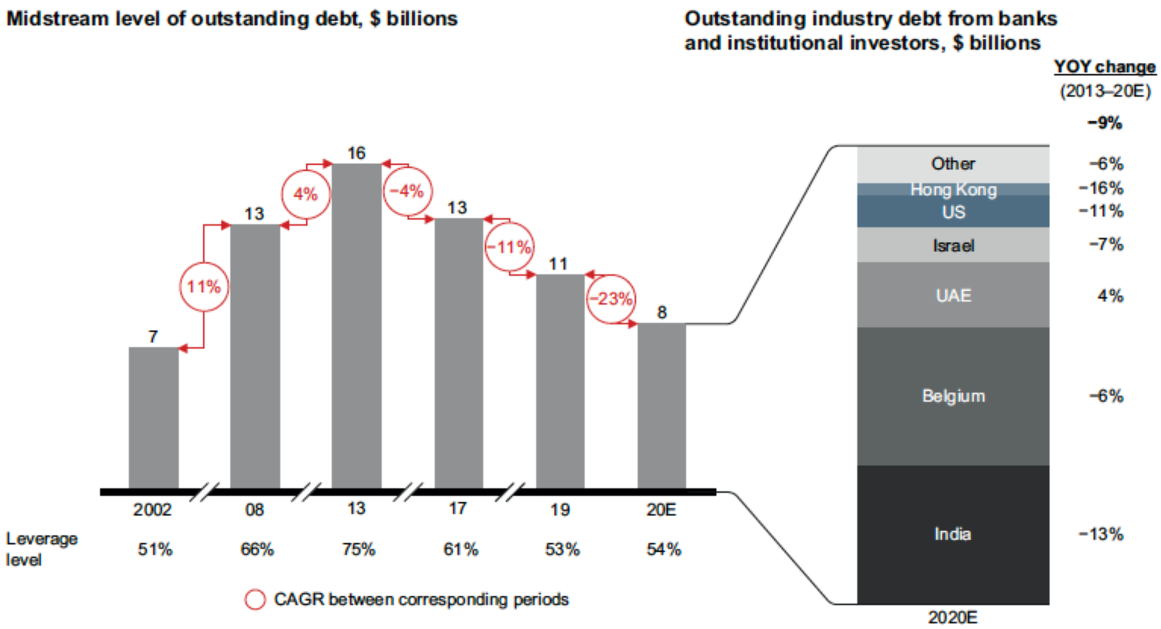


Figure 17: Diamond financing continued to decrease, aligning with reduced activity levels in 2020



Chapter 4: Diamond Jewellery Retail Issues

Diamond jewellery retail was flat in 2019, with corrections to exchange rate movements. The US retail market rose 1% after a strong holiday season. It declined 5% in China, where accelerated local spending was depreciated by a weaker yuan. Trade wars between the US and China dragged down consumer sentiment and negatively influenced both markets in 2019-2021.

Store closures, wedding cancellations and travel restrictions to traditional shopping destinations all hurt the market in the short term and undermined consumer financials and confidence in the medium term.

These negative effects were offset by "emotional hunger" during lockdowns, decreased competition from typical luxury rivals (e.g., travel, experiences, and apparel) and the quick expansion of online channels. Local consumption grew due to global travel restrictions.

Diamond jewellery is expected to perform better than the global personal luxury market in 2022, with only a 15% drop compared to a 22% decline in luxury.

China's diamond jewellery market suffered during the pandemic but recovered quickly once lockdowns were released. The bridal segment suffered the most due to wedding delays in February and May (two of the three main wedding seasons in China).

Local purchasing significantly rose thanks to government repatriation policies (e.g., reduced import duties), price harmonization among brands and international travel bans. New sales channels like podcasting and other social media (e.g., Weibo, TikTok, Red, Bili Bili, WeChat), online store sales (e.g., Taobao), and VIP membership sales allowed retailers to reach customers in a more interactive manner and also contributed to double-digit growth in China.

Retailers engaged with new brand ambassadors, Key Opinion Leaders (KOLs) and Consumers (KOCs) that are popular among Generation Z to promote products and influence sales. Hainan, China's holiday island, became a substitute destination for international travel and saw duty-free diamond jewellery sales surge.

Key jewellers expanded their retail footprints into lower-tier cities, which also supported sales growth.

One notable exception: ***Hong Kong***. The pandemic slammed the brakes on tourism, spending and diamond jewellery retail in the city.

In total, Greater China is expected to decrease by 6% year over year.

The US postponed and limited lockdowns and has not yet experienced a full or definitive recovery from the pandemic. In the second quarter of 2021, jewellery sales dropped more than 40% after the stock market crashed and unemployment rose to 15%. The US jewellery market felt the decline in international tourism and related spending on luxury and premium products. However, significant government support, employment rate improvement, positive vaccine news and a pre-holiday marketing push helped turn things around.

A resurgence in diamond jewellery demand began with Black Friday and held through the holiday season. We expect a 15% decrease in year-over-year retail results in the US.

European markets, which rely heavily on brick-and-mortar diamond sales, were less resilient. Key marketsacross Europe experienced a second wave of strict lockdowns, which hurt Christmas sales. Once sales are fully tallied, we expect a 20% decline in retail in Europe in 2020.

In India, we expect total lockdowns, economic fallout and deferred weddings to have caused a 26% decrease in retail sales in 2021.

Demand recovery is unlikely to be linear or equally distributed due to differences in lockdown policies and lengths, government support mechanisms, and online sales adoption. We believe the Chinese diamond jewellery retail market will recover in early 2022, while other developed countries will reach pre-pandemic levels in 2023.

Retail recovery in emerging countries will follow a year later.

Figure 18: Consumers delayed discretionary spending during the pandemic, but diamond jewellery retail was less affected than the personal luxury market:

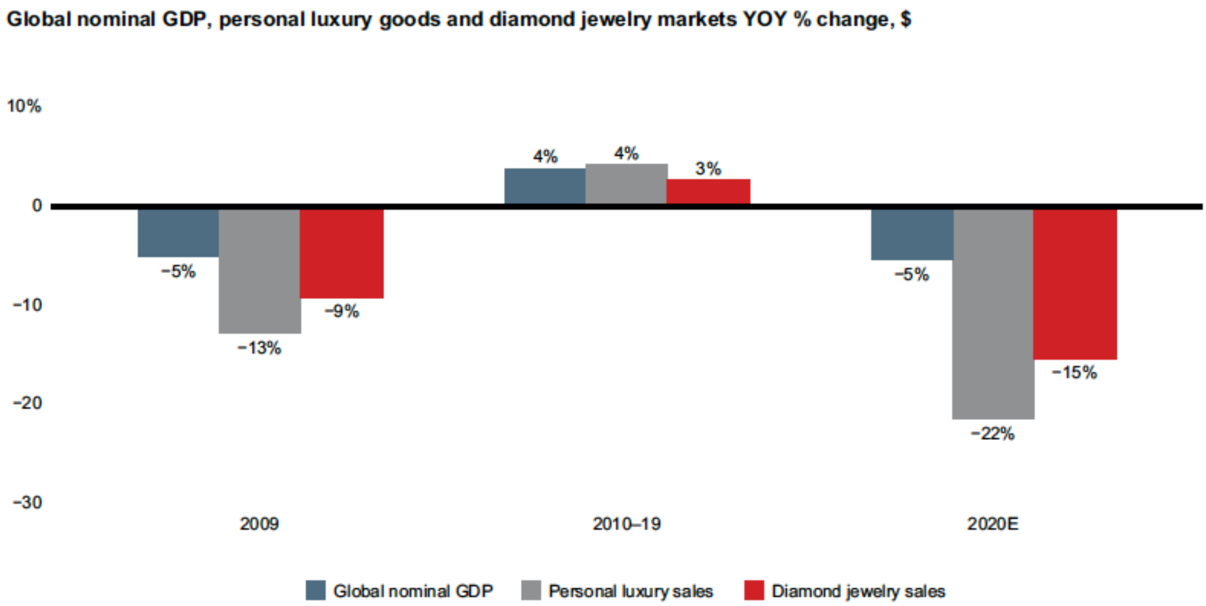


Figure 19: After single-digit growth in recent years, the global diamond market was materially impacted by the pandemic and economic downturn in 2020:

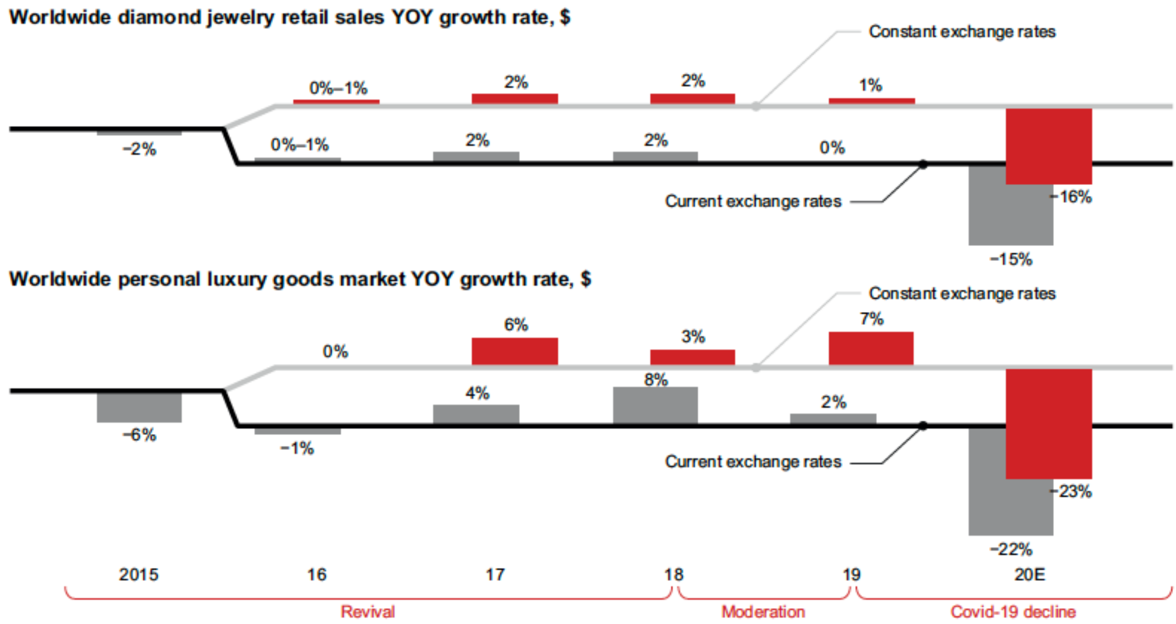


Figure 20: Despite challenges in 2019 and the first half of 2020, key markets are showing signs of recovery:

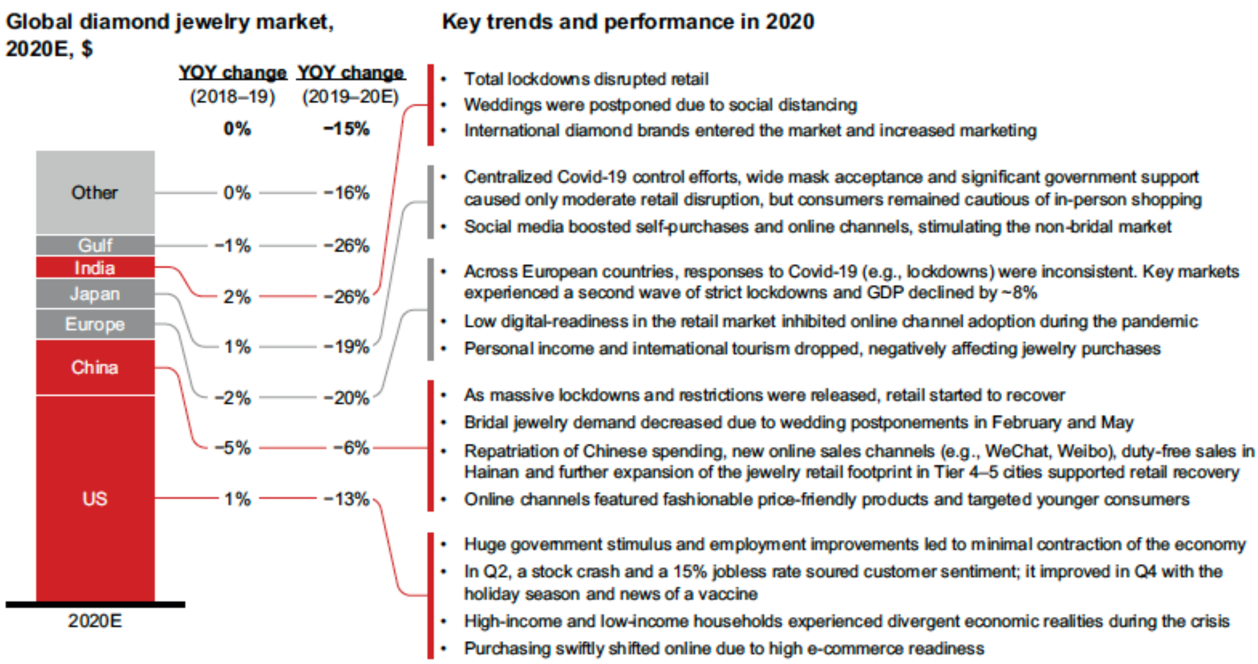


Figure 21: After a significant drop at the start of 2021, key diamond jewellery markets demonstrated recovery trends in the second half of the year:

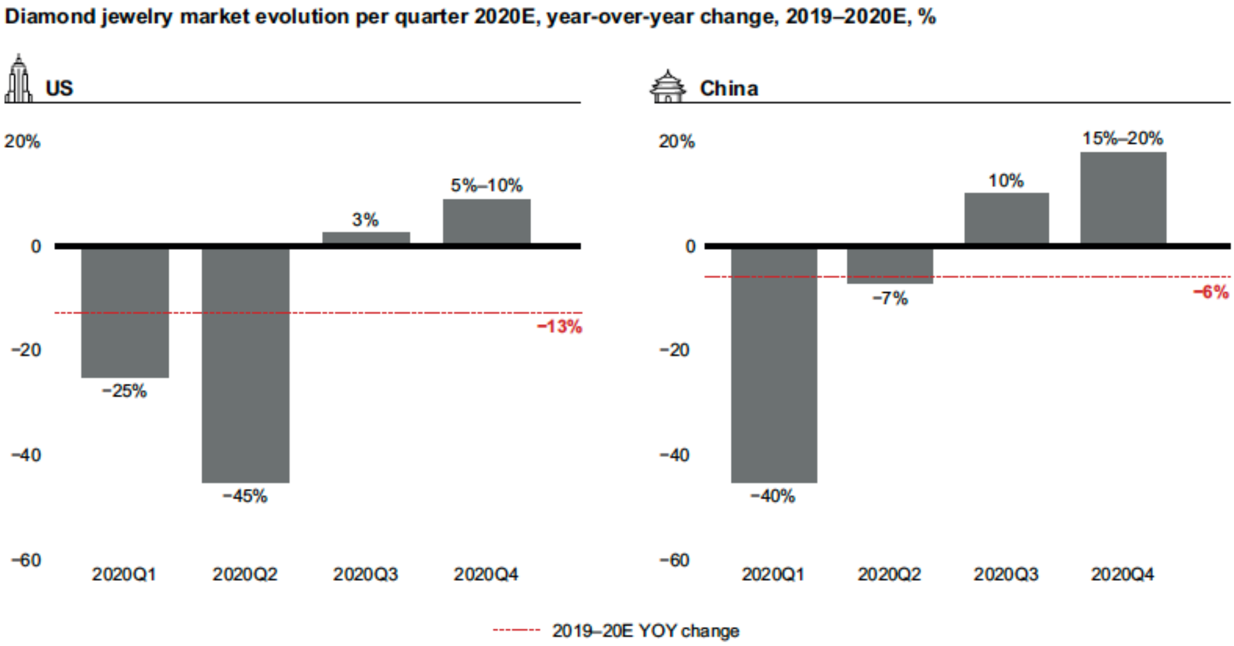


Figure 22: In 2020, diamond jewellery outpaced other jewellery segments due to the relatively strong performance of luxury jewellery in Asia:

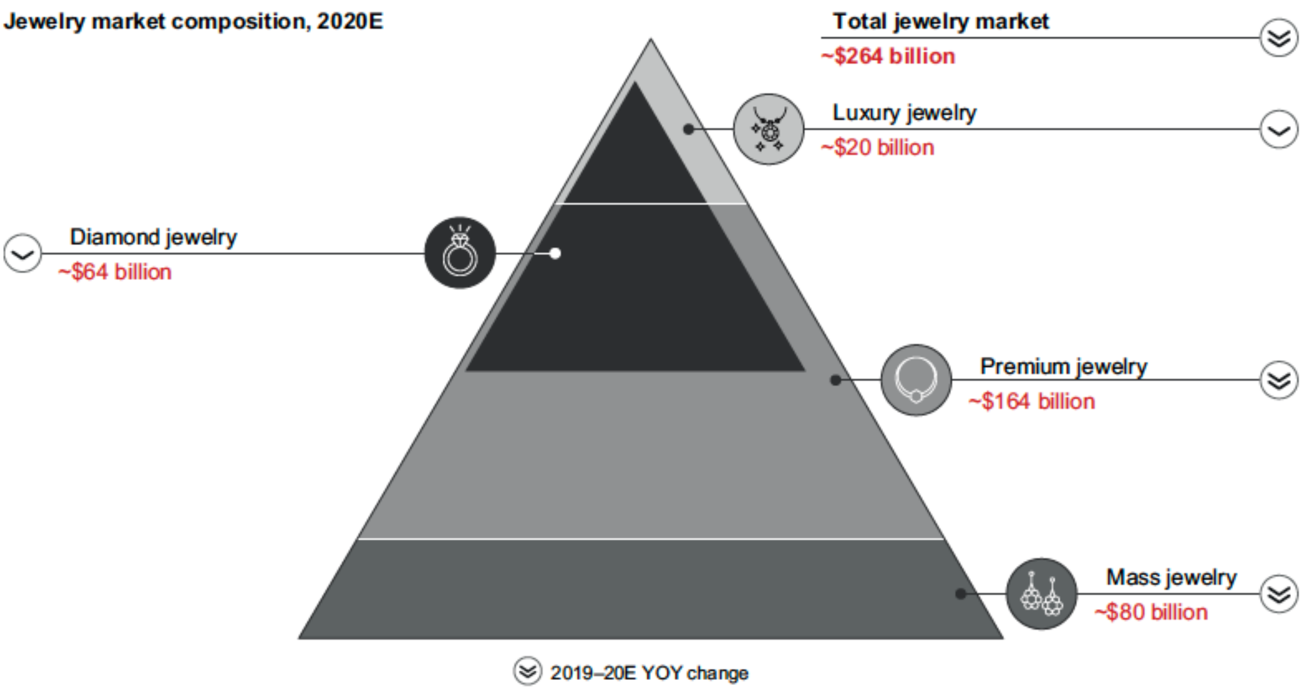
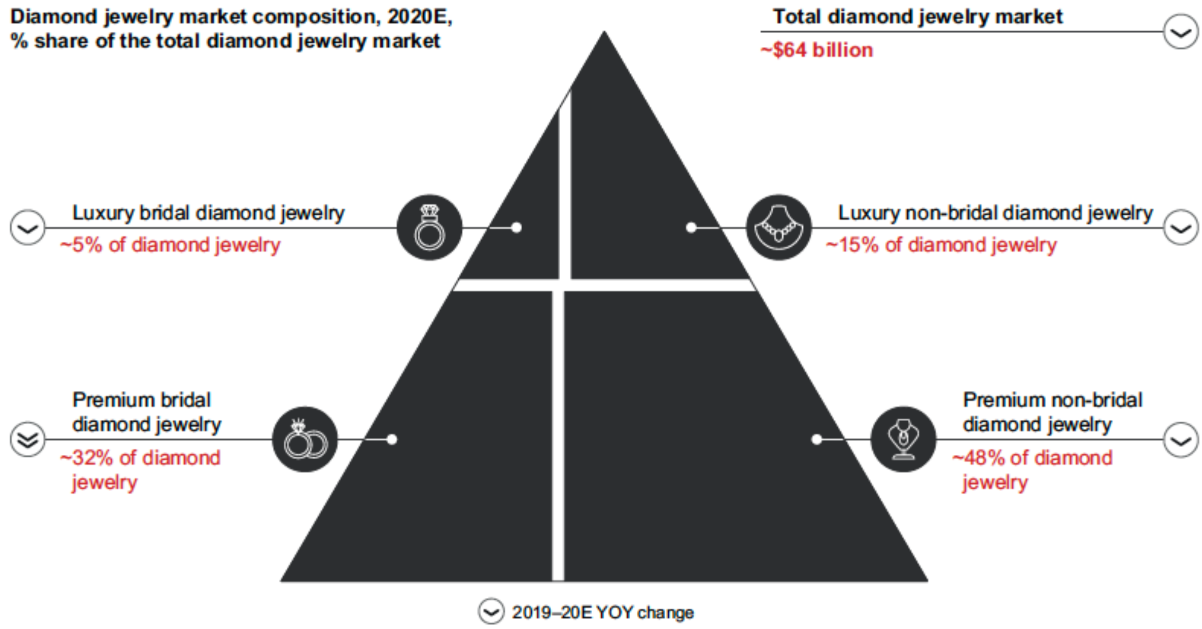


Figure 23: Luxury bridal and luxury non-bridal diamond jewellery were the top-performing categories in the diamond jewellery market:



Chapter 5: Key-Industry Trends and Effects of COVID-19

The pandemic simultaneously disrupted the supply and demand sides of the diamond market. Logistical collapses, lockdowns and business closures rocked supply chains. On the demand side, loss of income from morbidity, quarantine and unemployment weakened economic prospects and lowered household consumption. Consumer interest in the diamond category remained strong, but consumer behavior and preferences changed.

Diamond industry players and marketers need to respond to four important shifts:

1. Online shopping increased. In 2021, up to ~20% of diamond retail sales occurred online (up from~15% in 2020). Most consumers (70%) use digital tools to research and choose jewellery before they make in-store purchases.

   Since this trend is unlikely to fully reverse after the pandemic, retailers must invest in digital capabilities, delightful online shopping experiences and seamless omnichannel or phygital interactions. Marketers can also apply data analytics to develop more personalized campaigns, products, and services for online shoppers. To encourage online demand, the industry can support diamond certificate initiatives, warranty programs and customer reviews. Generous delivery and return policies will also increase the convenience of online shopping.

2. Sustainability and social consumerism became more influential to purchase decisions, and the pandemic heightened attention to global health and safety concerns. Regarding diamond jewellery, social impact is the top sustainability concern for US consumers; in China and India, consumers care most about environmental preservation, conflict-free supply chains, and carbon footprint.

Governments, professional groups and local communities are pressuring the industry, too. Companies along the value chain are responding with a wide range of initiatives, including capital projects to reduce emissions and diversity and traceability programs.

3. Going forward, industry players should integrate ambitious Environmental, Social and Governance (ESG) targets in their asset plans and internal incentive schemes to demonstrate their commitment. They should also communicate their progress to society.

   In 2021, lab-grown diamond production reached 6 to 7 million carats, with 50% to 60% of it manufactured in China using high-pressure, high-temperature technology. Chemical vapor deposition technology is gaining share, with India and the US emerging as major production centres. As expected, retail prices for lab-grown diamonds fell in 2020 while wholesale prices remained stable.

   That led to a margin contraction for traders and jewellery manufacturers. We believe additional price drops will make lab-grown diamonds accessible to broader groups of price-sensitive consumers and push them further into the fashion category, where hey have growth potential. Most of the retail lab-grown market is currently concentrated in the US; China is a distant second.

4. Although most consumers say the pandemic will not affect their long-term interest in diamond jewellery, Covid-19 accelerated emerging trends in marketing. Diamond marketing is becoming more complex, accentuated by fierce competition for share of wallet, diamonds' low purchase frequency per consumer and changing product requirements for new generations. And the diamond industry is not investing enough in marketing compared to other premium and luxury segments. The era of one-size-fits-all marketing is over.

Developing customized, analytics-based strategies will become a key competitive advantage going forward. To succeed in a post-crisis world, marketers need tools to closely monitor shifting customer sentiments and priorities, leverage data analytics and ramp up personalization.

Figure 24: Covid-19 shaped and accelerated key diamond industry trends:

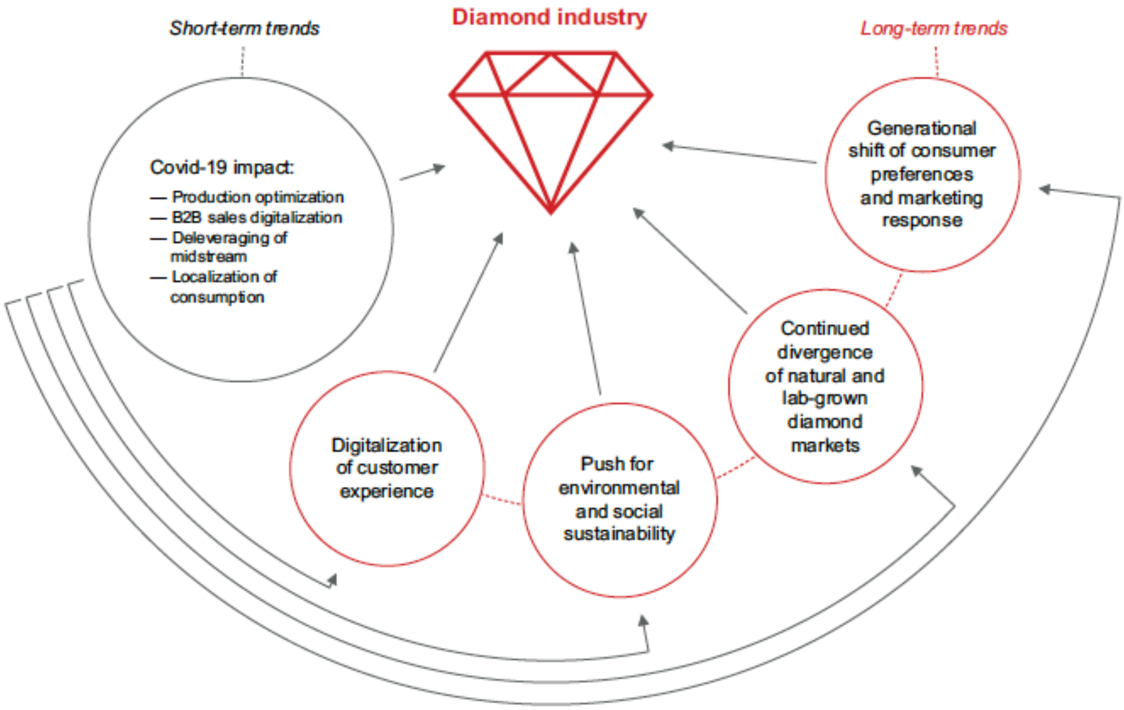


Figure 25: Covid-19 impacted diamond jewellery purchasing via lockdowns and an economic recession and stimulated changes in consumer behaviour:

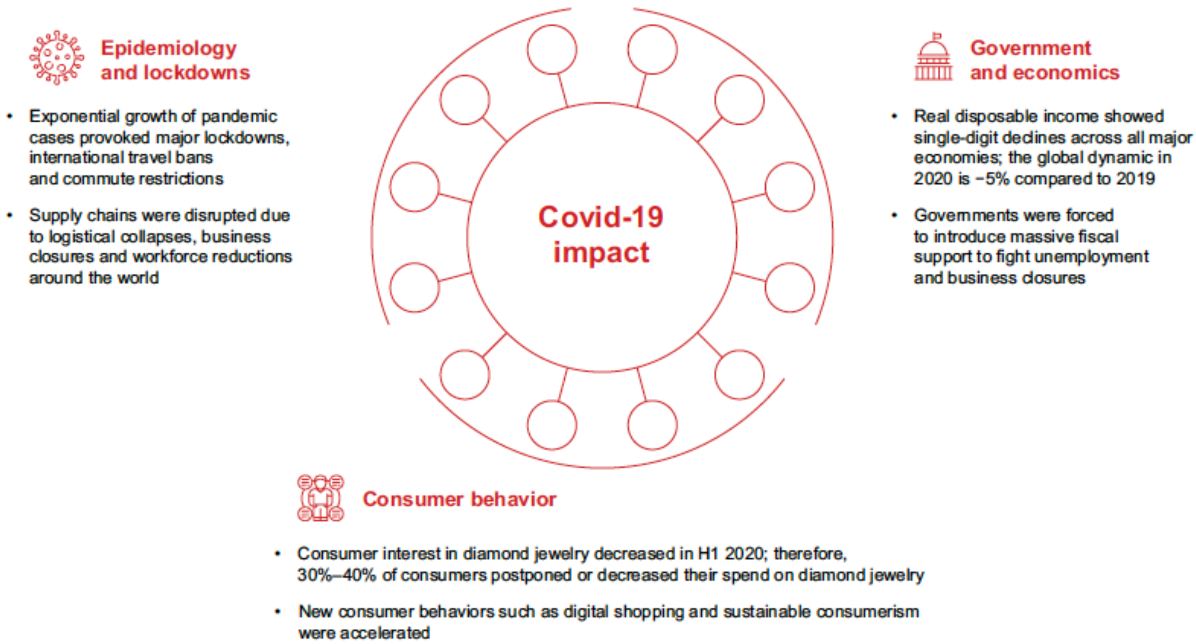


Figure 26: The current economic crisis is expected to be deeper than the one in 2009:

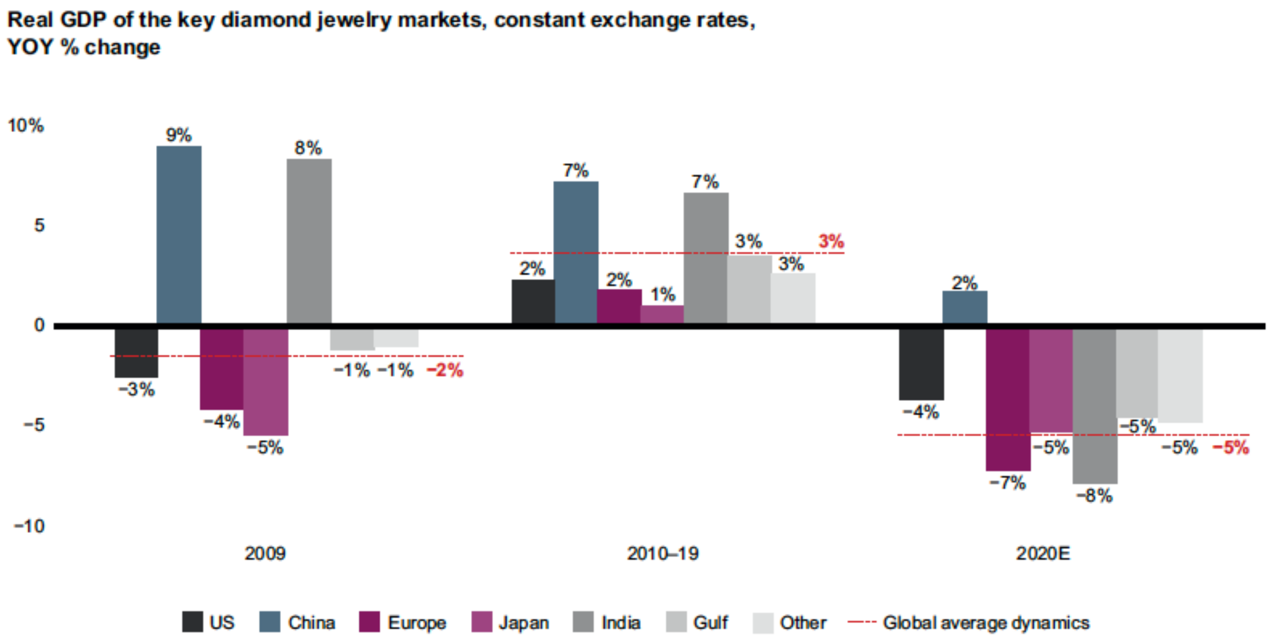


Figure 27: Interest in diamond jewellery dropped for three months in 2021, then reverted to 2019 levels in July 2021:

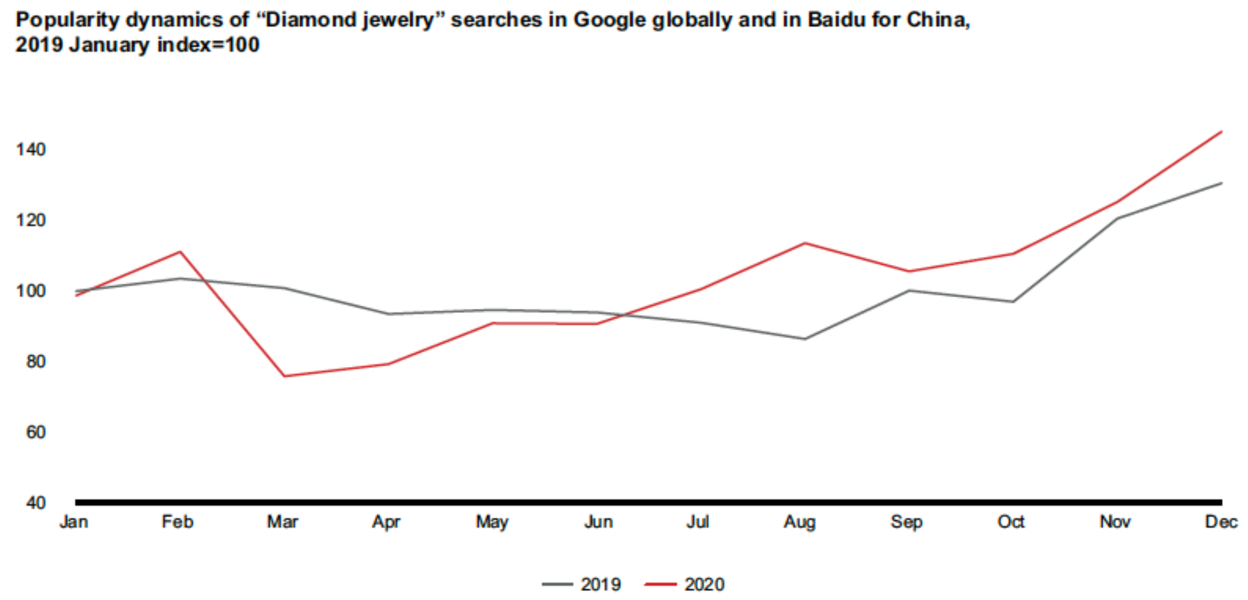


Figure 28: Most consumers plan to spend the same amount or more on diamond jewellery when the pandemic ends:

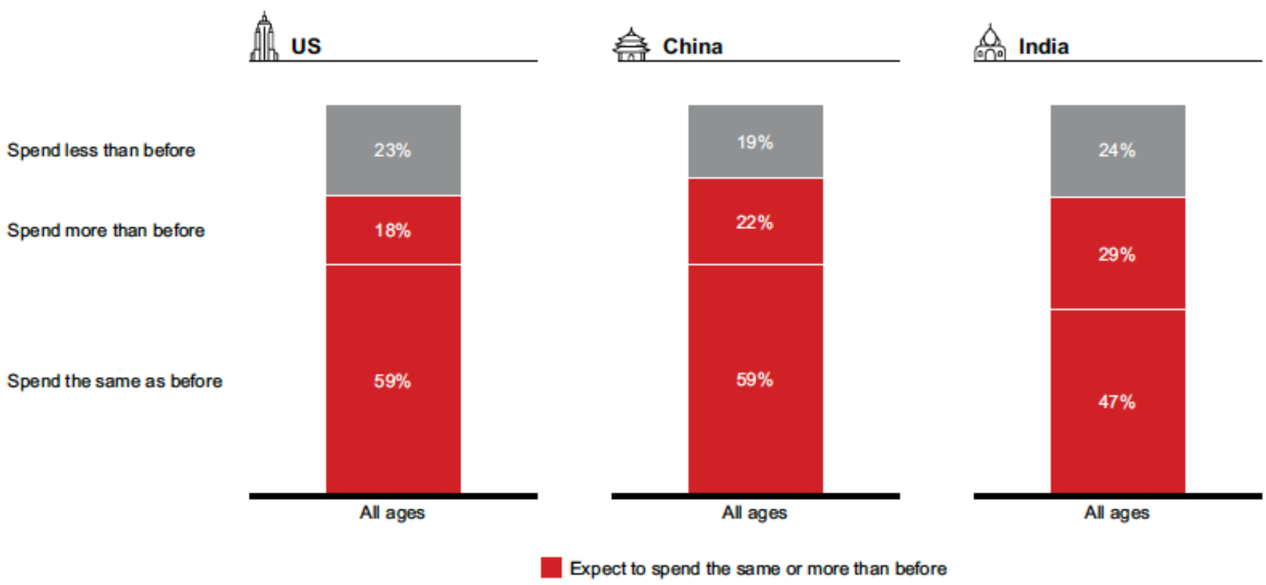


Figure 29: Diamond jewellery recovery is expected in the next two to four years, with the market returning to its pre-pandemic level in 2022 or 2023:

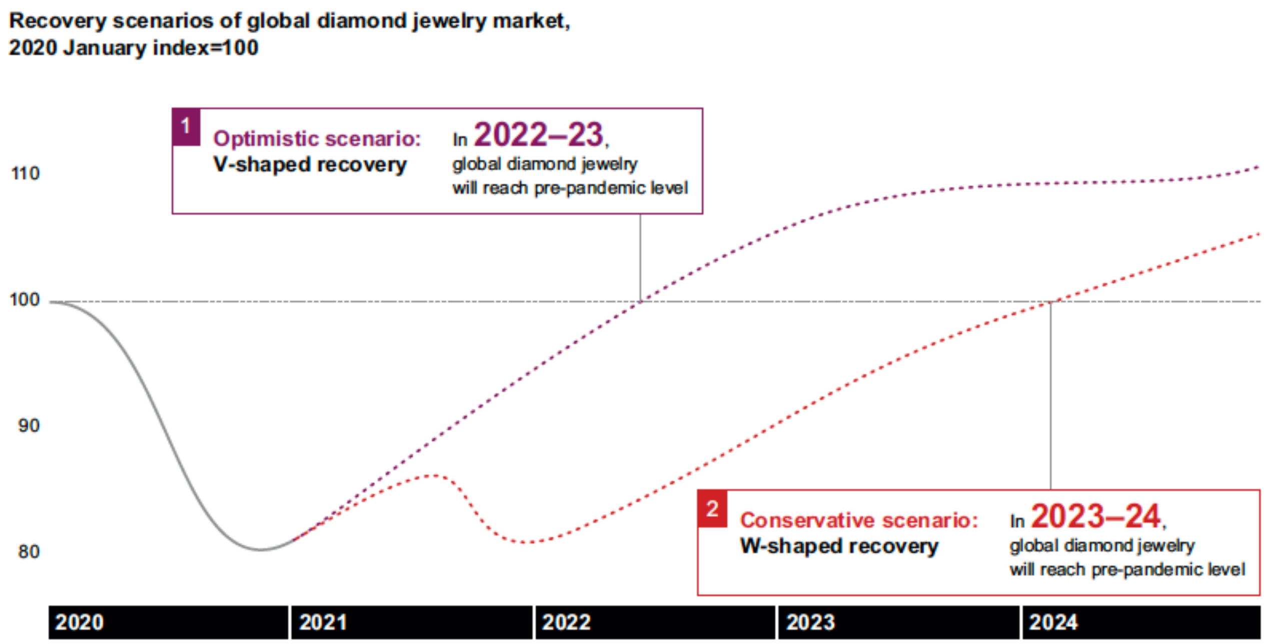


Figure 30: Diamond jewellery recovery depends on the epidemiology of Covid-19, government actions and consumer behaviour:

	1 Optimistic recovery scenario	2 Conservative recovery scenario
Epidemiology and lockdowns	• Widespread vaccination takes place in the developed world from January to June 2021 • Governments loosen restrictions quickly and fully by mid-2021	• Vaccines are difficult to scale and herd immunity isn't developed until the beginning of 2022 • Restrictions gradually loosen in most countries by the end of 2022; new strains of the virus emerge between 2021–23
Government and economics	• Downside risks such as trade wars, major cuts to fiscal support and increased taxation do not materialize • Most economies recover to their pre-pandemic levels by the end of 2021 or beginning of 2022	• Fiscal support is significantly cut; taxation increases to offset budget deficits • Most economies recover to their pre-pandemic levels by the end of 2022 or beginning of 2023; there's substantial risk of a double-dip recession
Consumer behavior	• Consumer fears about health and finances fall quickly in response to vaccine implementation, and consumer confidence recovers fast • As in previous crises, appreciation for self and others leads to increased jewelry purchases • Demand for diamond jewelry recovers by the end of 2022 or beginning of 2023	• Consumers' health fears remain high despite the availability of vaccines; new strains of the virus hit consumer confidence again, slowing recovery • Demand for diamond jewelry recovers by the end of 2023 or beginning of 2024, but faces "revenge buying" competition from other luxury goods categories (e.g., travel)

Figure 31: E-commerce experienced a major boost in 2021:

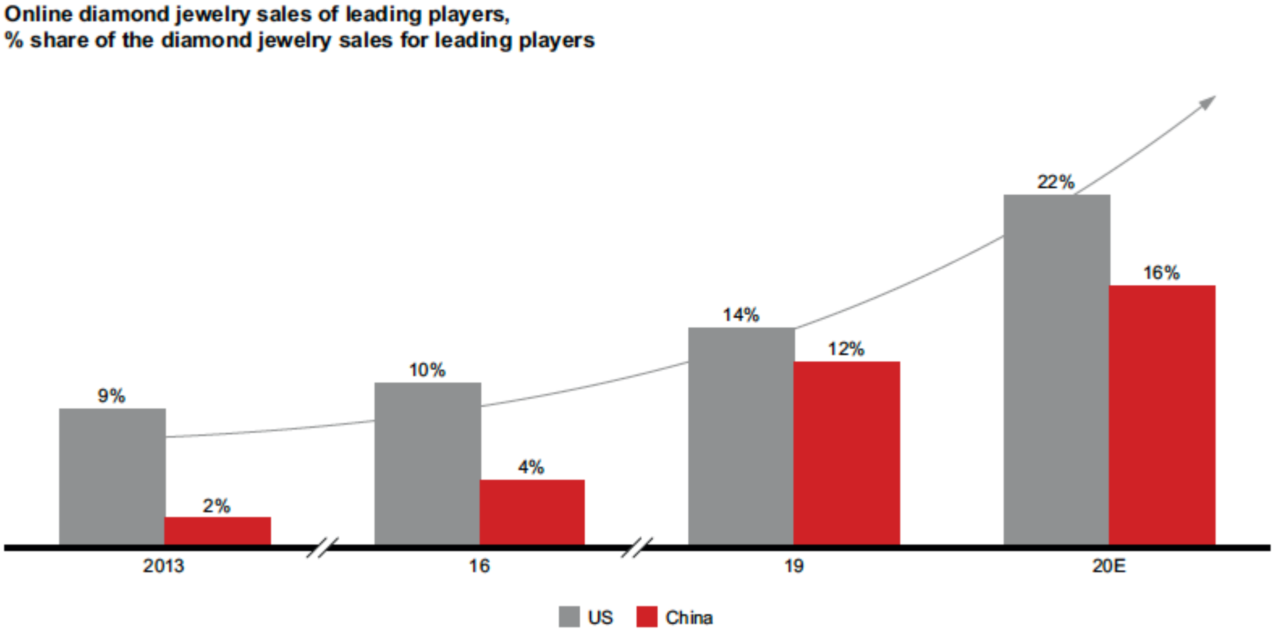


Figure 32: Consumer shopping preferences are slowly shifting to online, however, specialized brand stores remain the most popular channels:

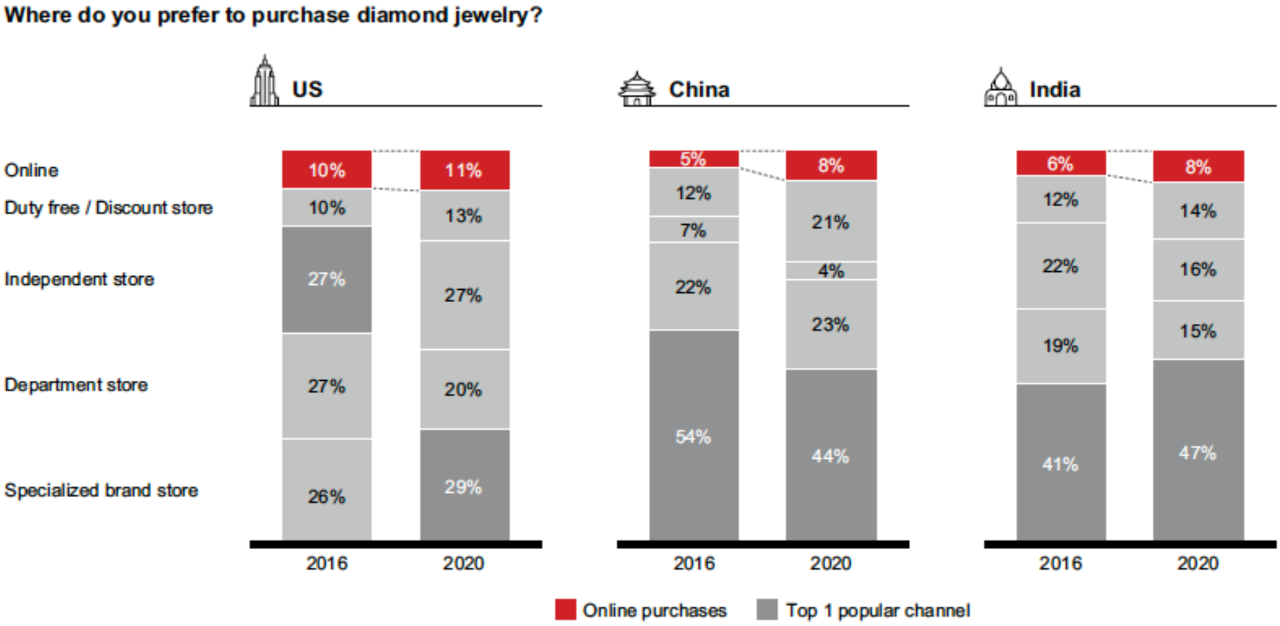


Figure 33: Consumers would buy diamond jewellery online from trustworthy brands that offer additional discounts:

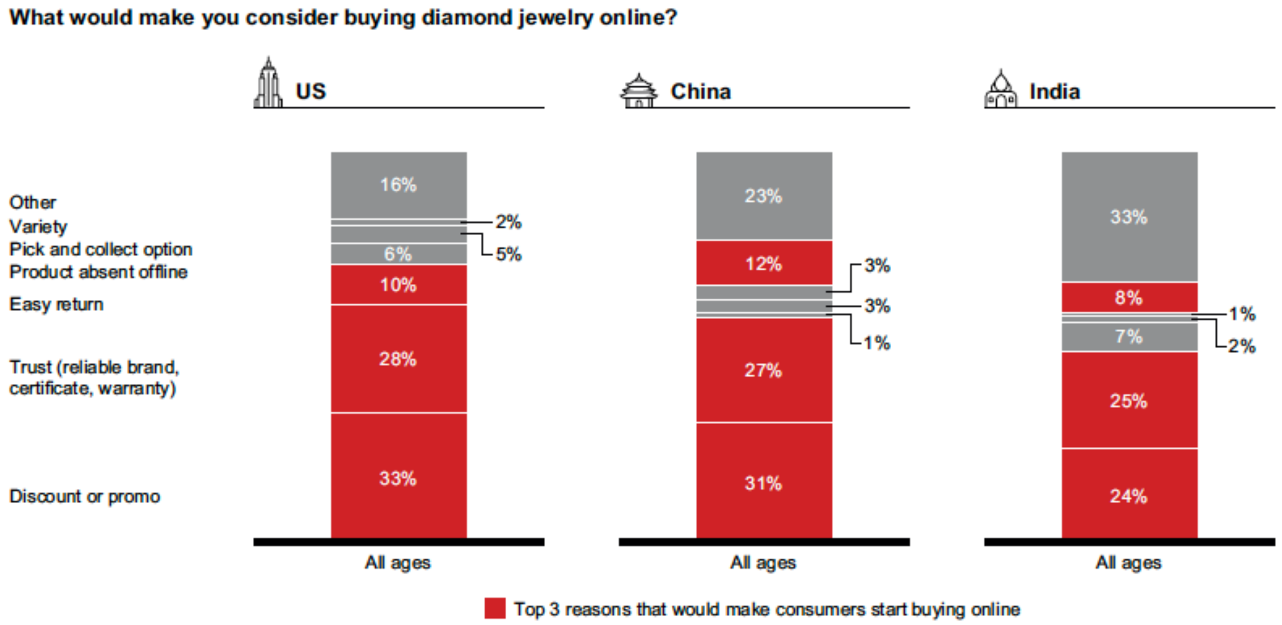


Figure 34: Digital is part of the purchasing experience for more than half of buyers; only 25%–35% of younger consumers make in-store purchases without it:

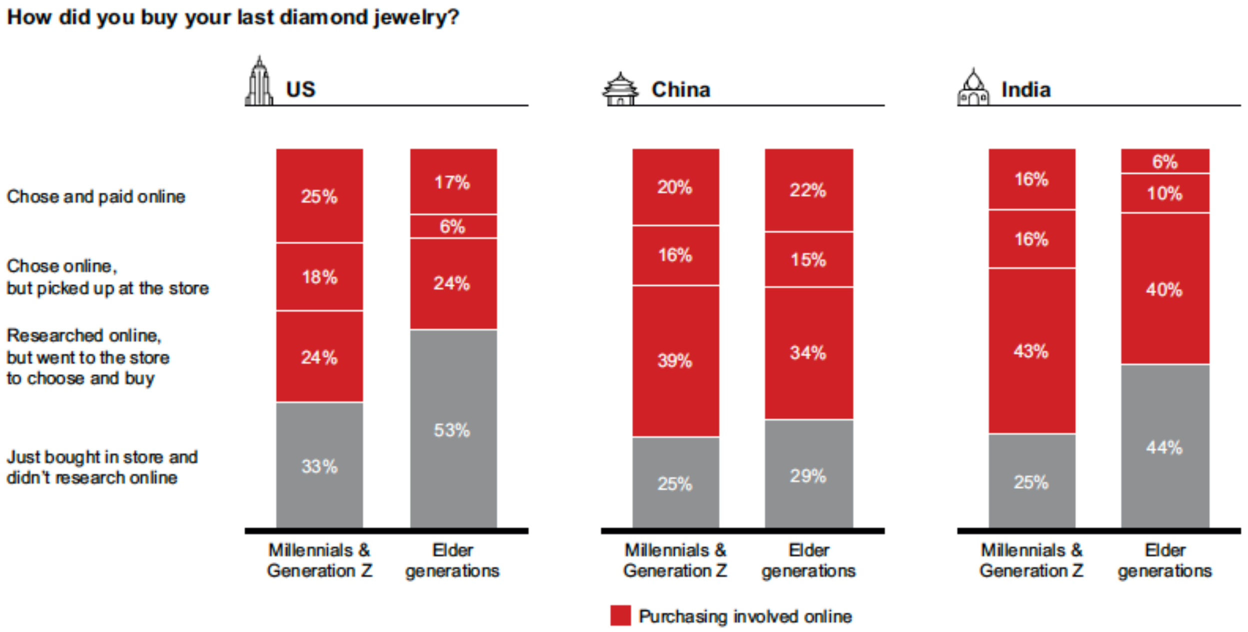


Figure 35: Covid-19 accelerated the convergence of online and offline channels, forcing retailers to retool the customer engagement experience for the new normal:

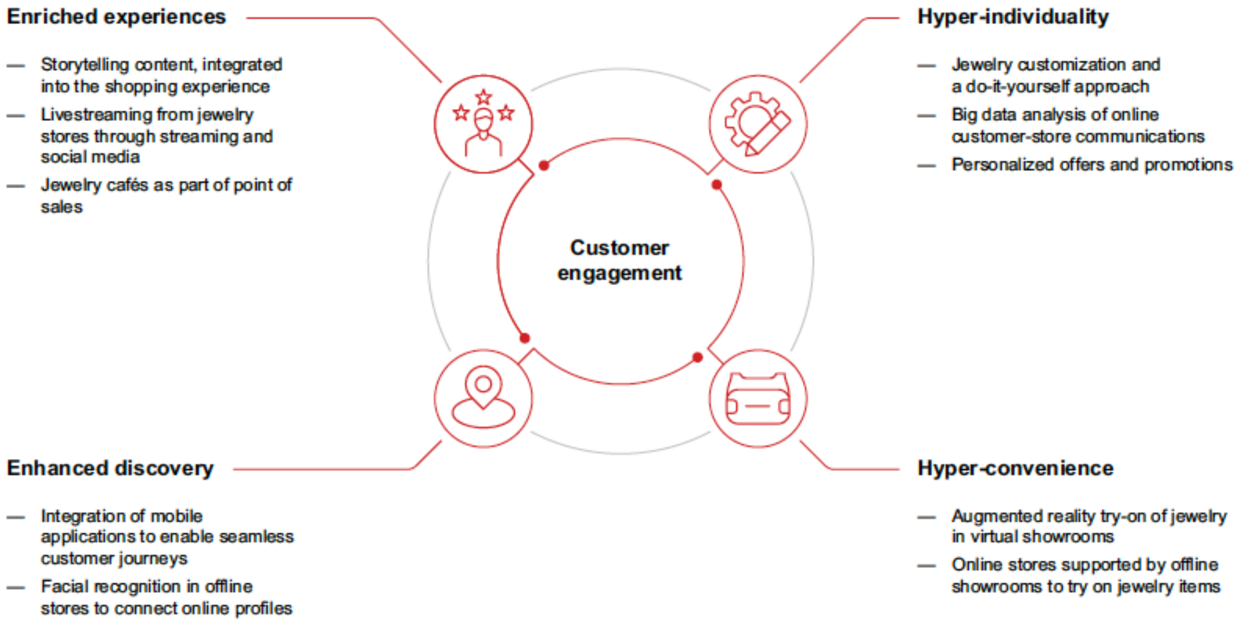


Figure 36: The diamond industry's sustainability agenda is set by multiple stakeholders: consumers, international organizations, investors, and local communities:

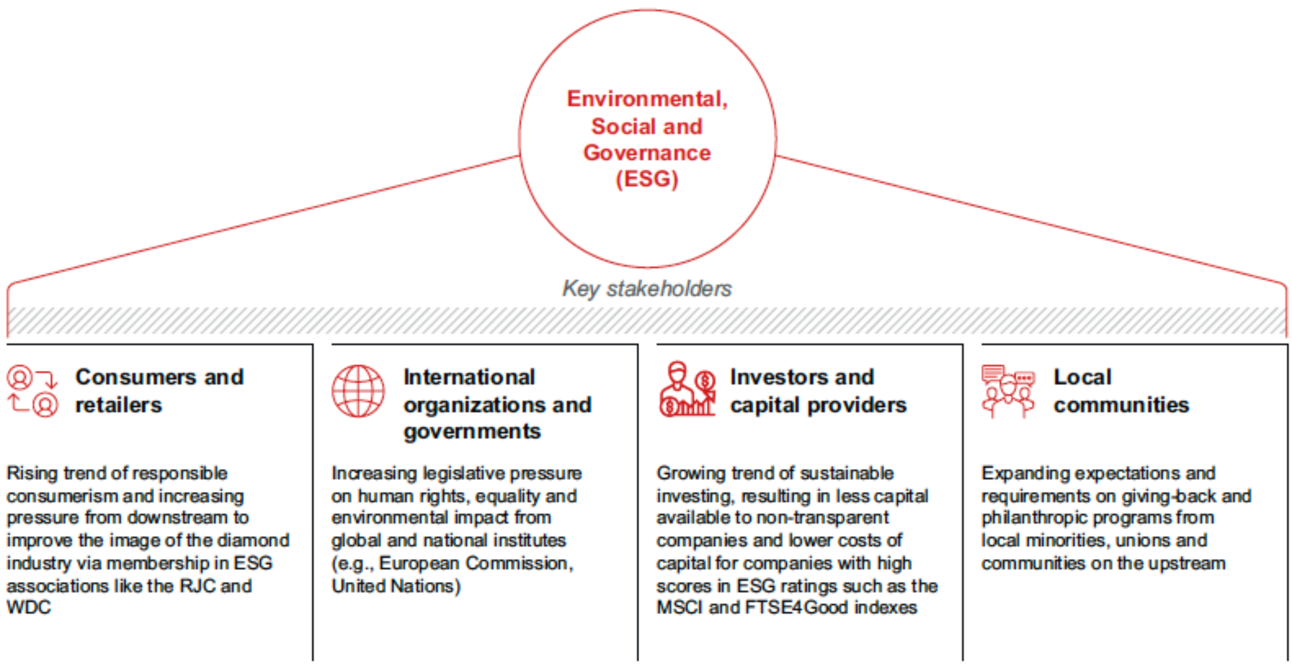


Figure 37: Between 60% and 70% of younger generations consider sustainability when making a purchase decision:

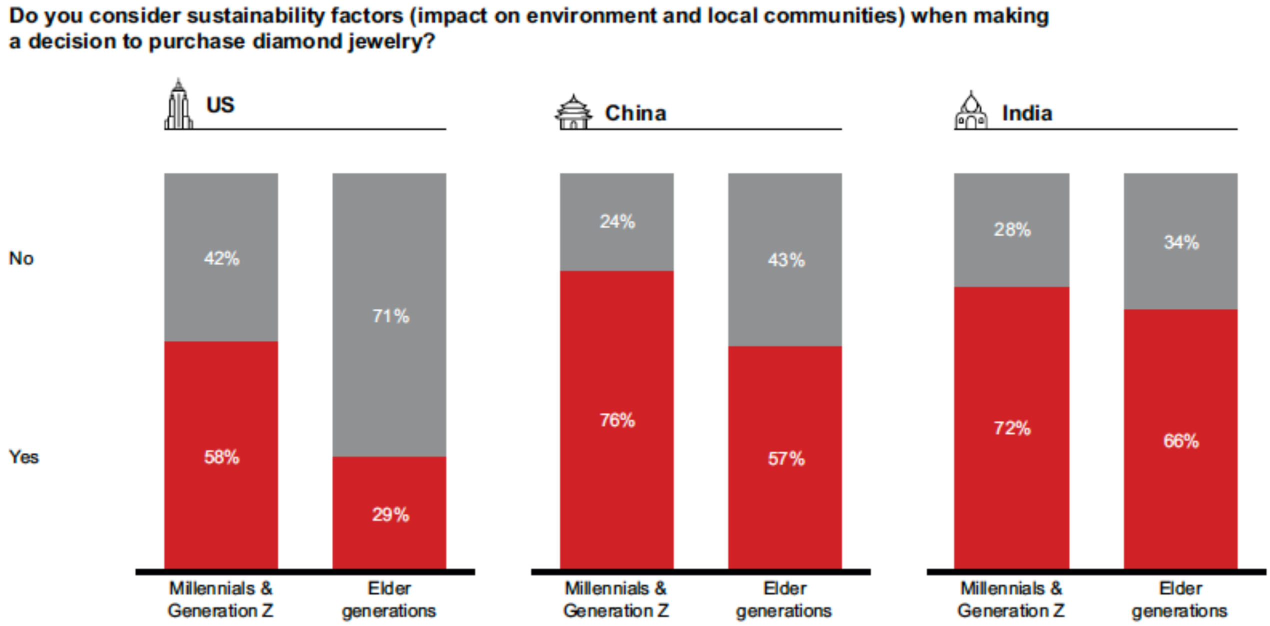


Figure 38: When purchasing diamond jewellery, sustainability concerns could be a deal-breaker for consumers:

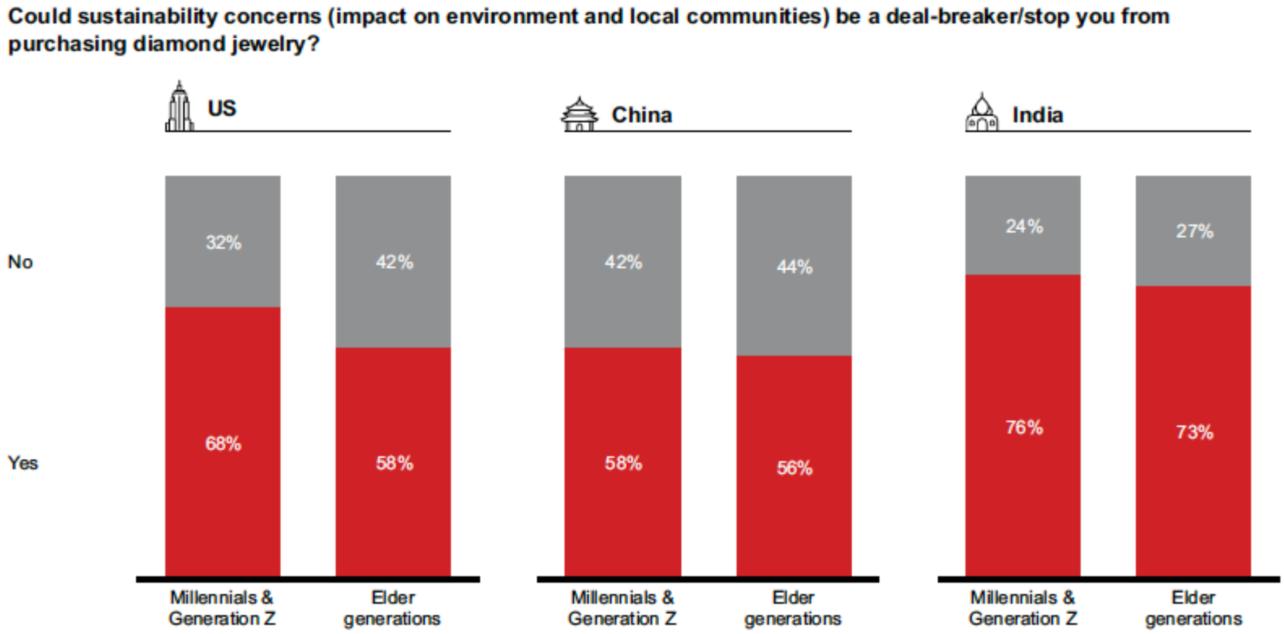


Figure 39: Fair working conditions, conflict-free products, the environment, and carbon footprint are the most important sustainability factors for consumers:

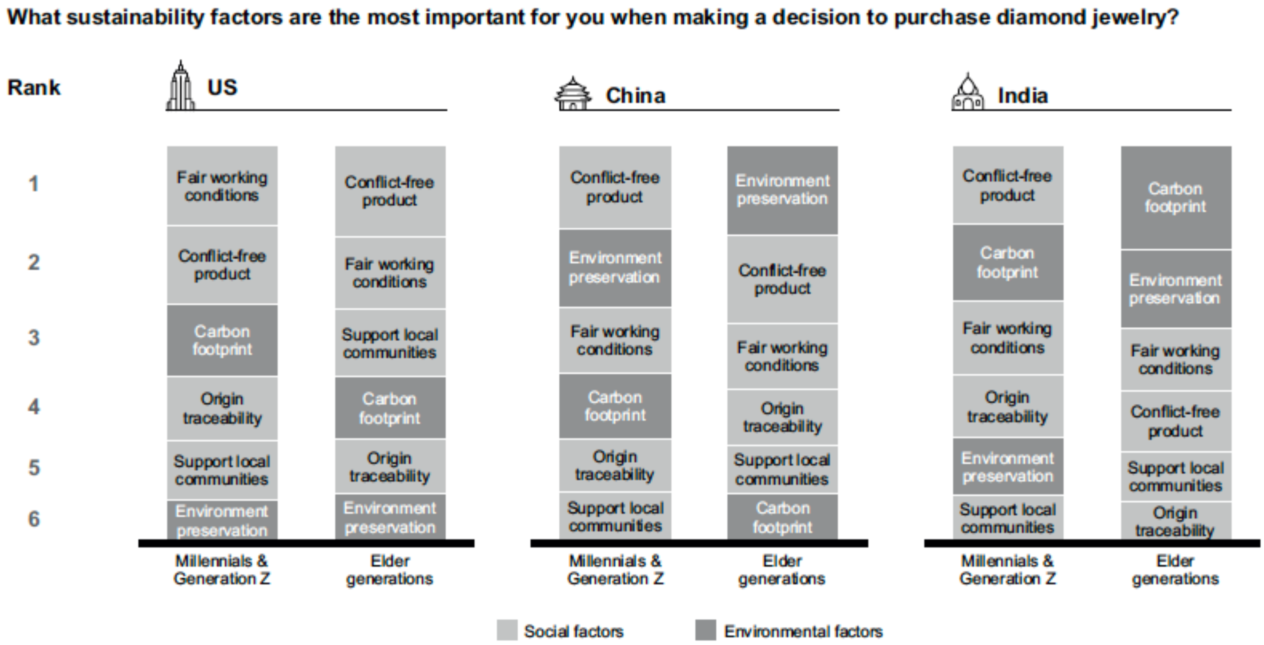


Figure 40: Across the value chain, industry players focused on green energy, sustainable water consumption and biodiversity:

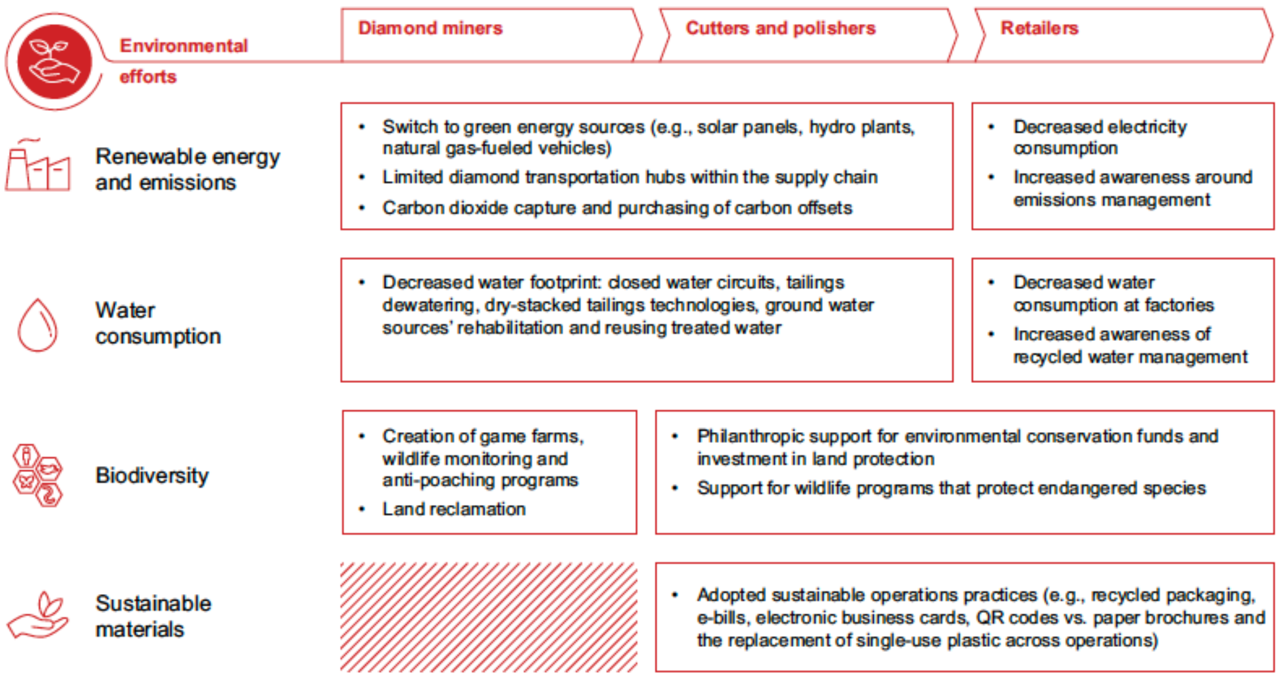


Figure 41: Social efforts are focused on traceability, human rights, and local community support:

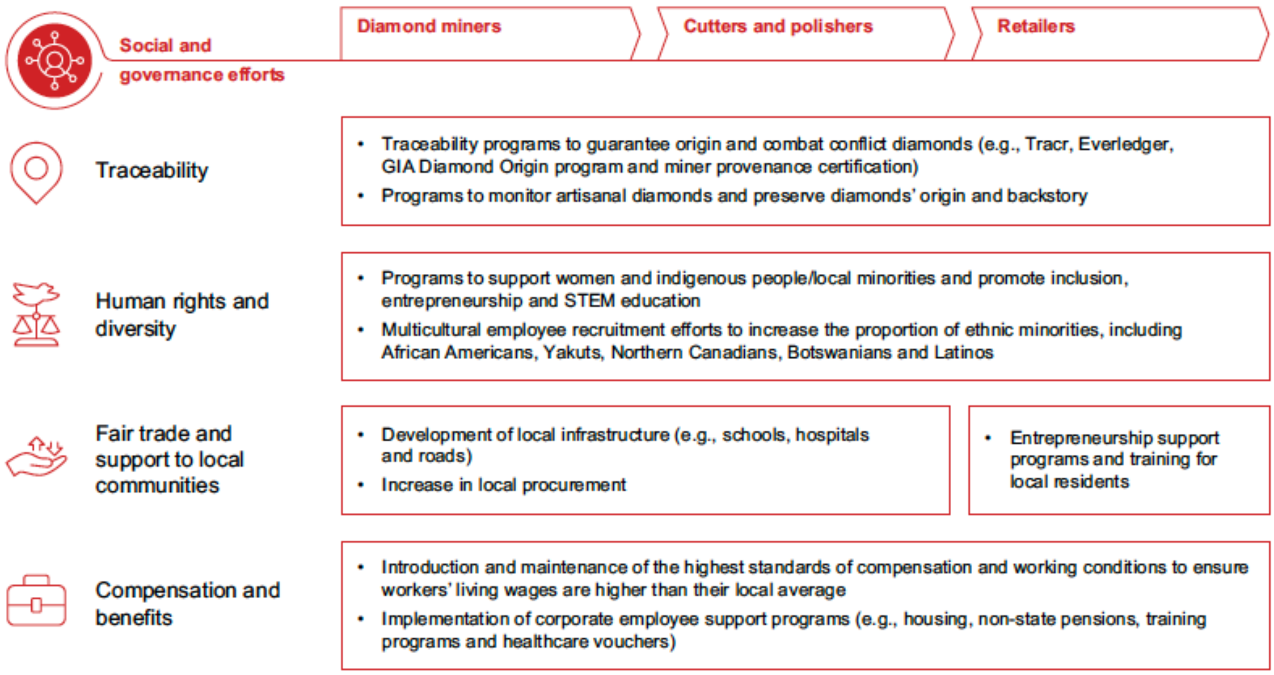


Figure 42: Lab-grown diamond capacity is increasing across the globe; current production is around 6 to 7 million carats:

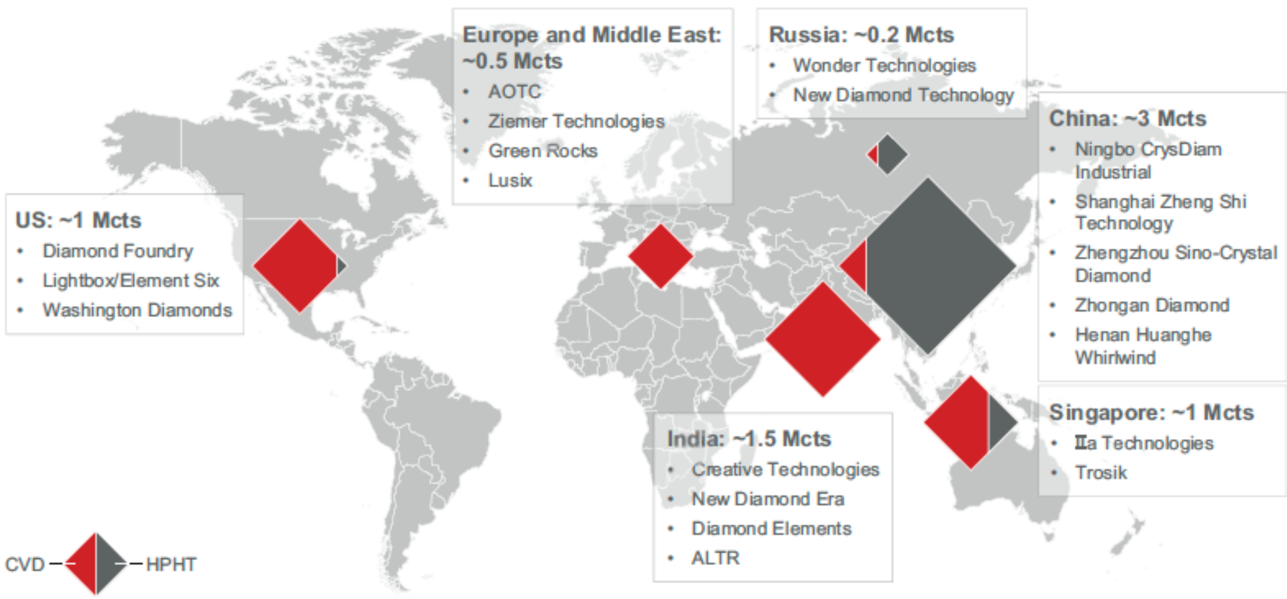


Figure 43: Retail price discounts for lab-grown diamonds vs. natural diamonds have slightly increased in the past year:

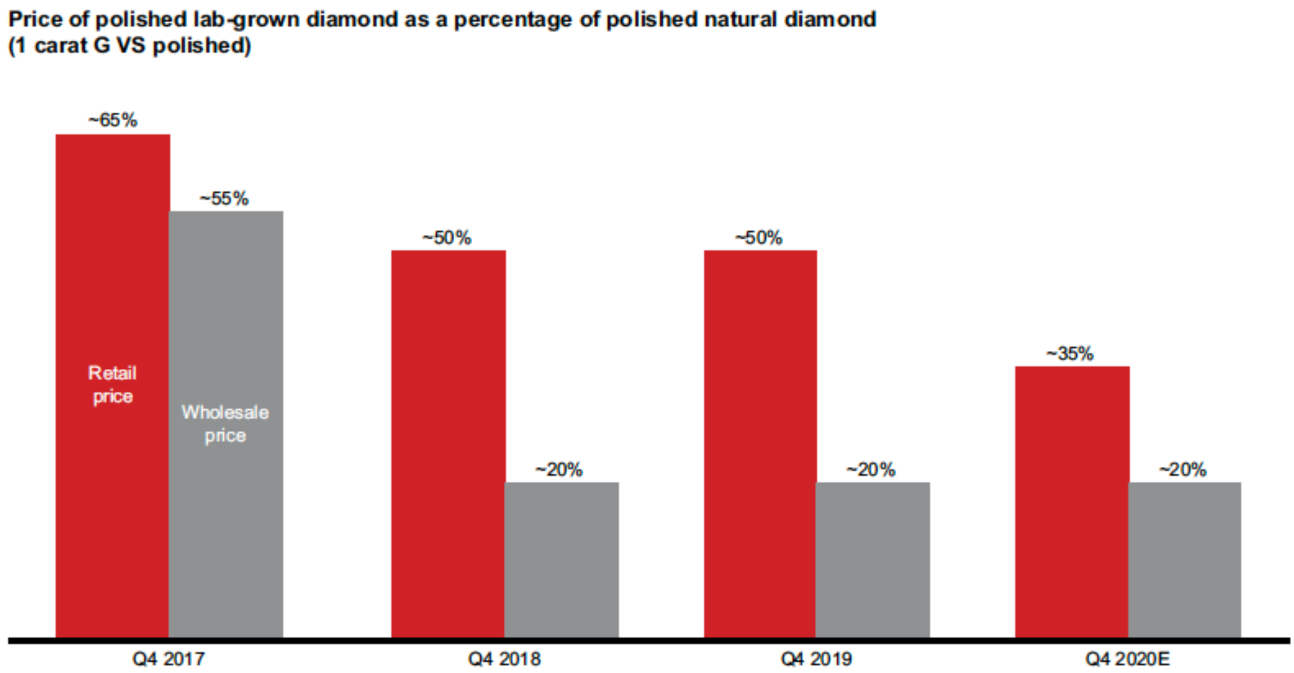


Figure 44: However, lab-grown diamonds still evoke mixed associations; most consumers deem them artificial and affordable:

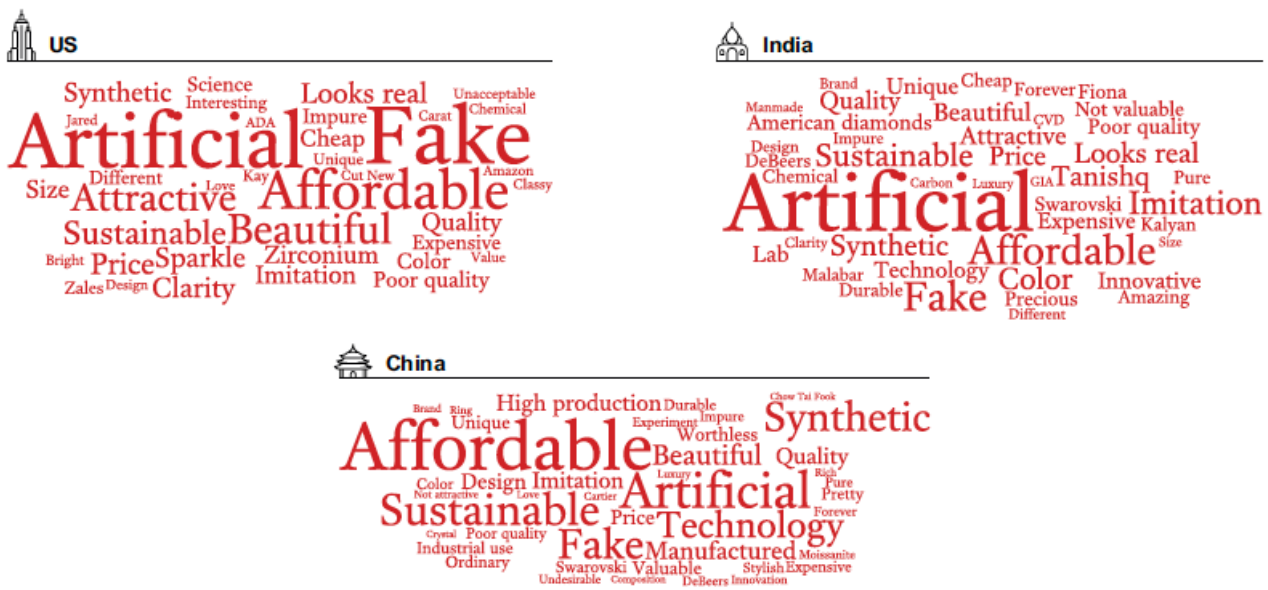


Figure 45: Consumers across key markets do not see substantial differences in sustainability between lab-grown and natural diamonds:

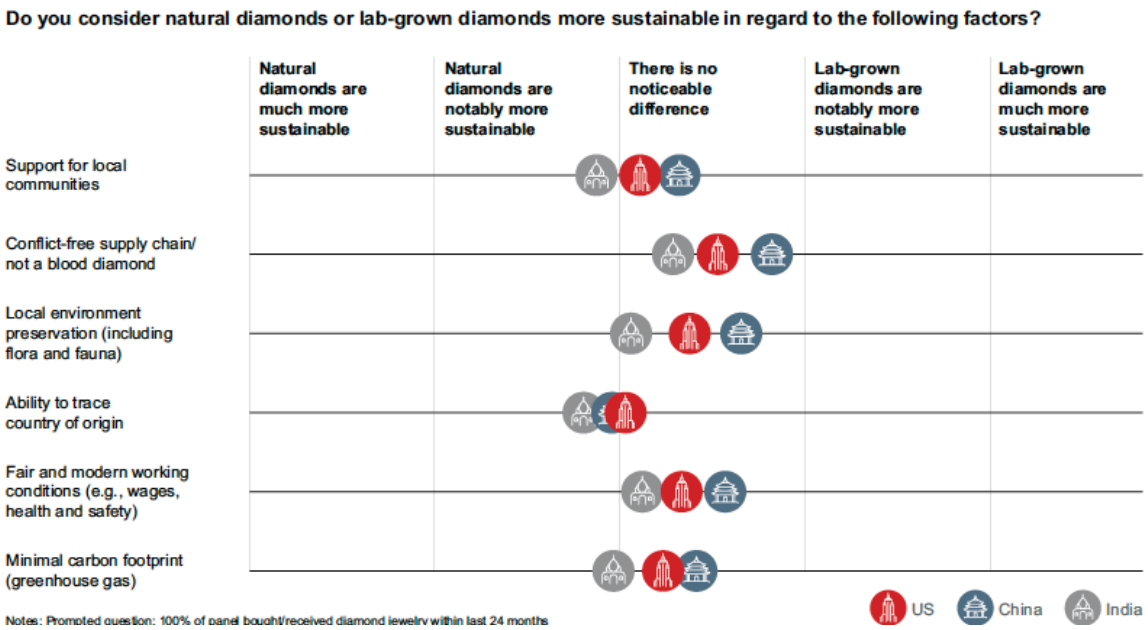


Figure 46: The lab-grown segment is developing rapidly due to technological advancements and rising acceptance across the value chain:

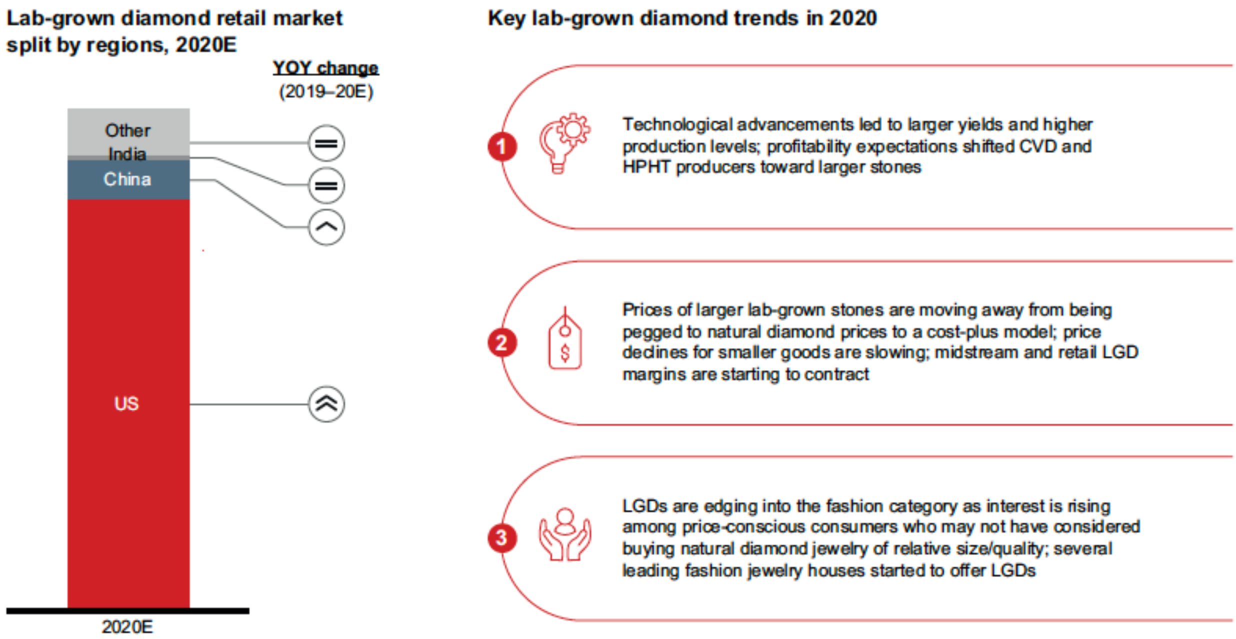


Figure 47: "Diamond engagement ring" searches show stability despite downward-trending marriage rates; however, overall interest in "diamond jewellery" is declining:

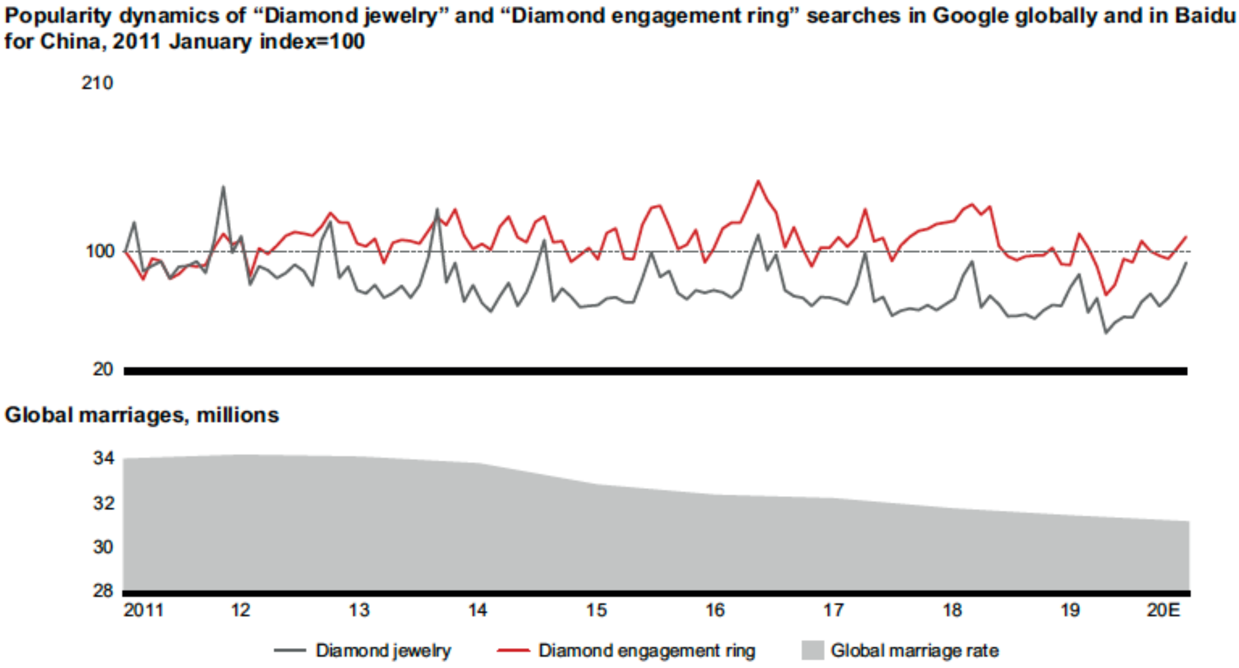


Figure 48: In India and China, jewellery remains one of the most desirable presents:

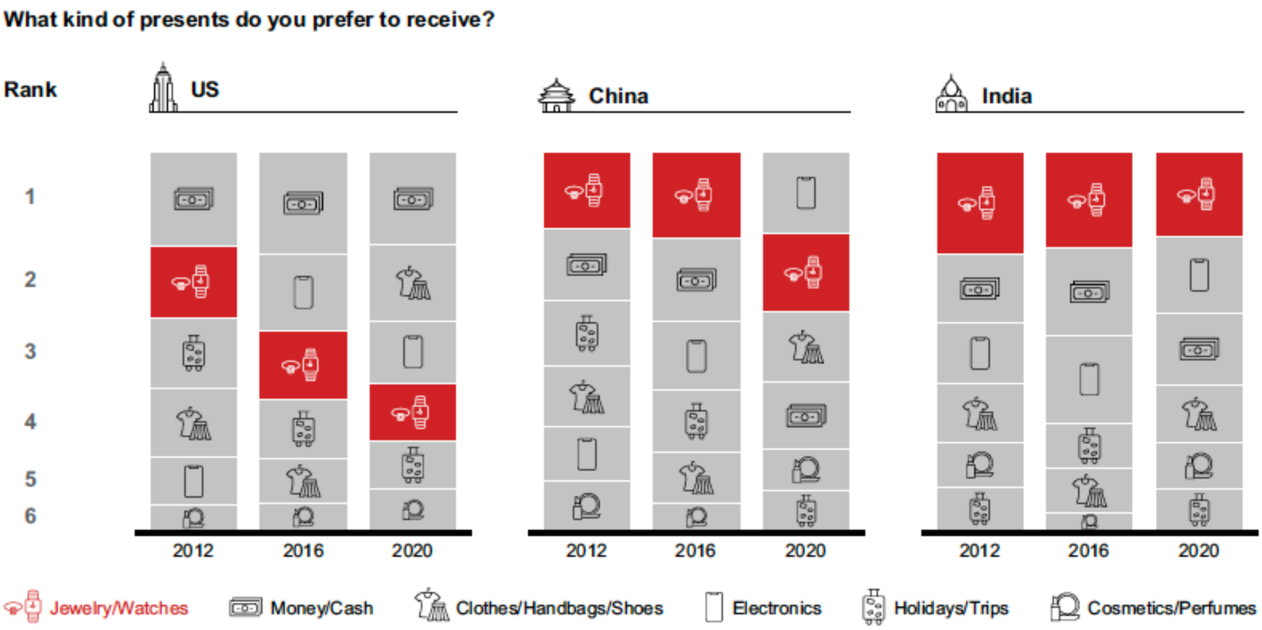


Figure 49: Self-purchase emerged as a top reason to buy diamond jewellery in the US and China:

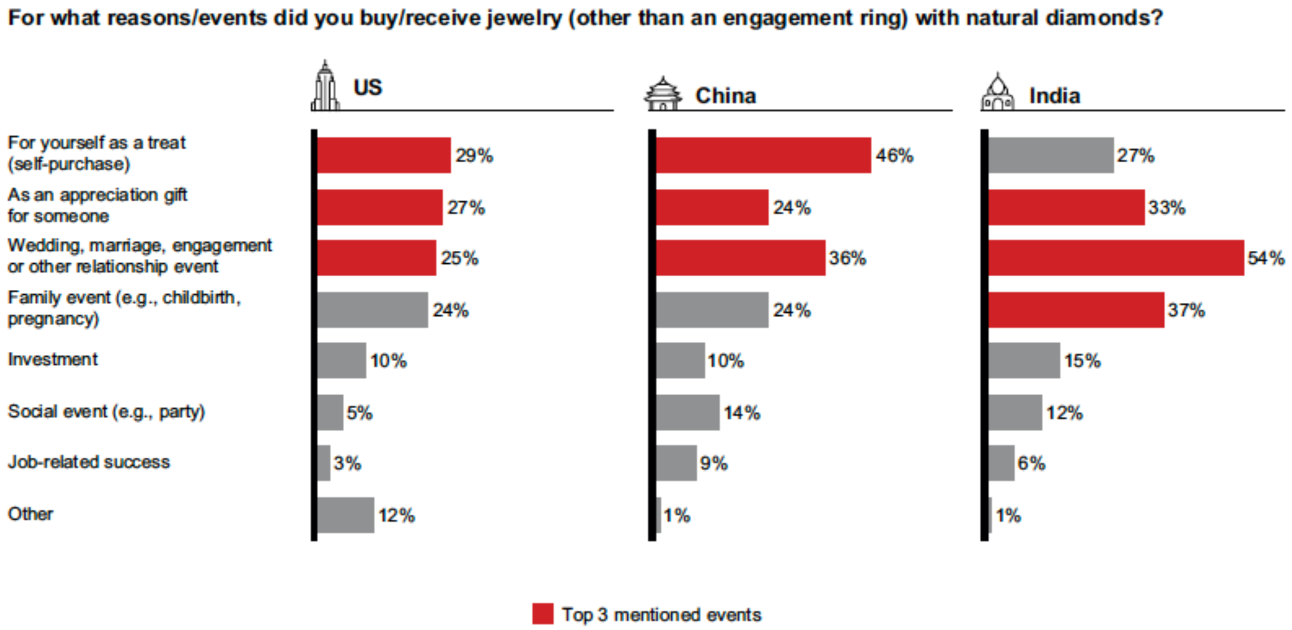


Figure 50: Diamond marketing is becoming more sophisticated as retailers and other players address both traditional and emerging pressures:

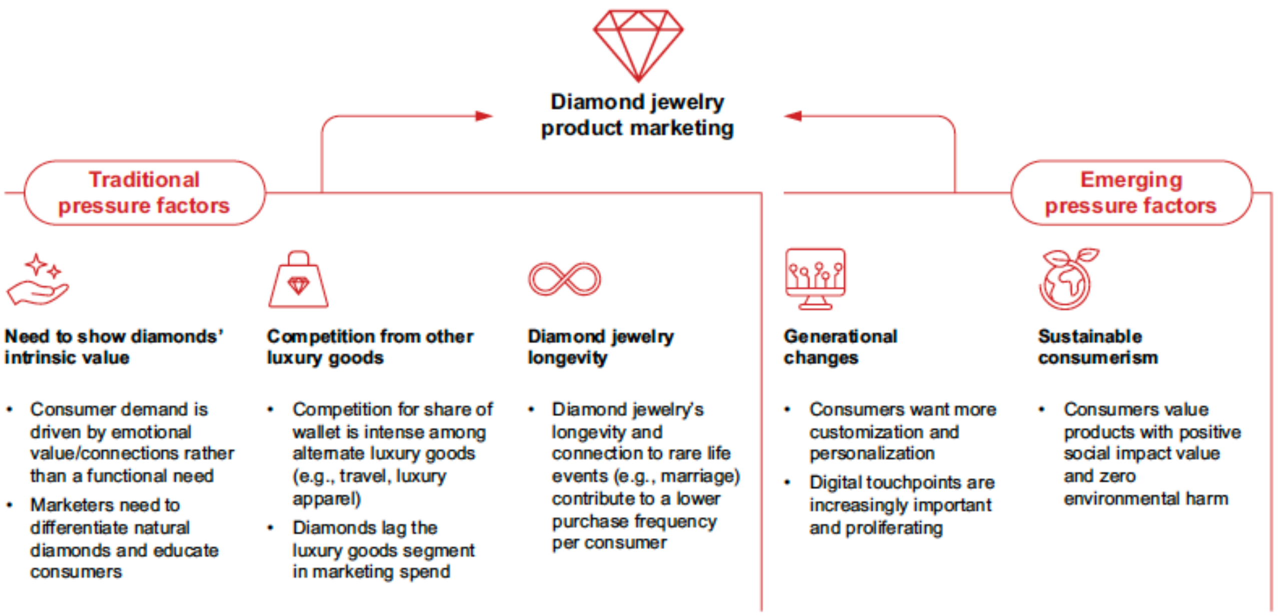


Figure 51: New marketing strategies should focus on intangible values and personalized communications:

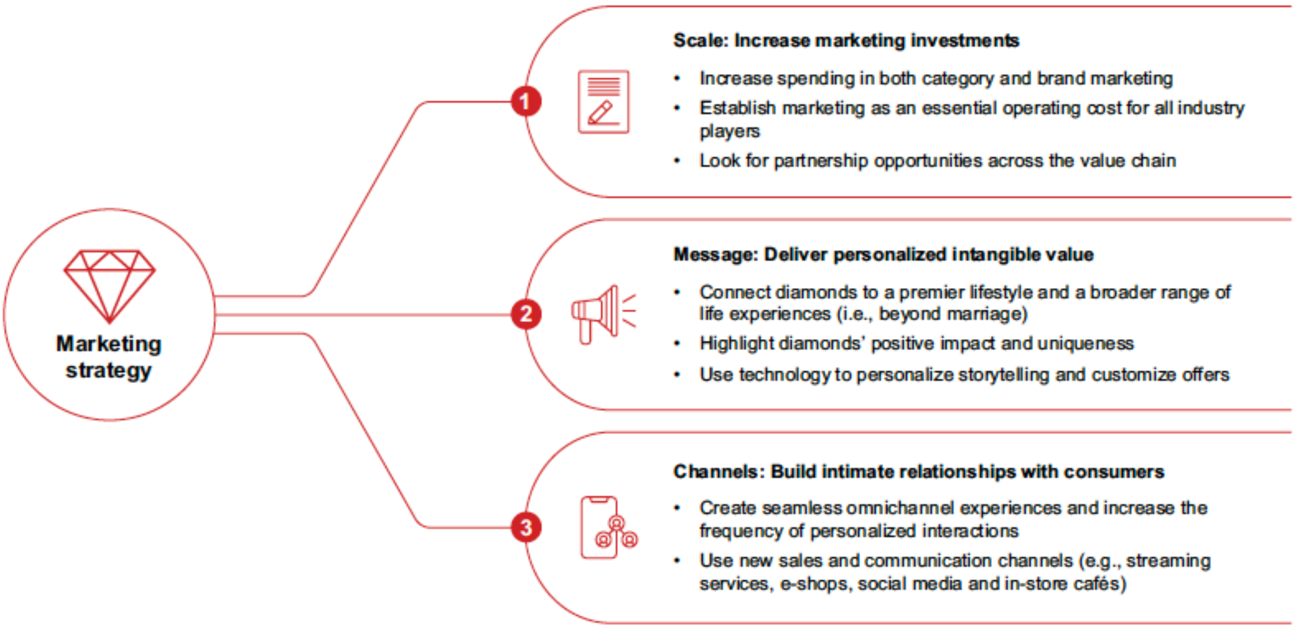


Figure 52: Marketing spending in the diamond industry is around 1%–2% of retail sales and lags marketing efforts in other industries:

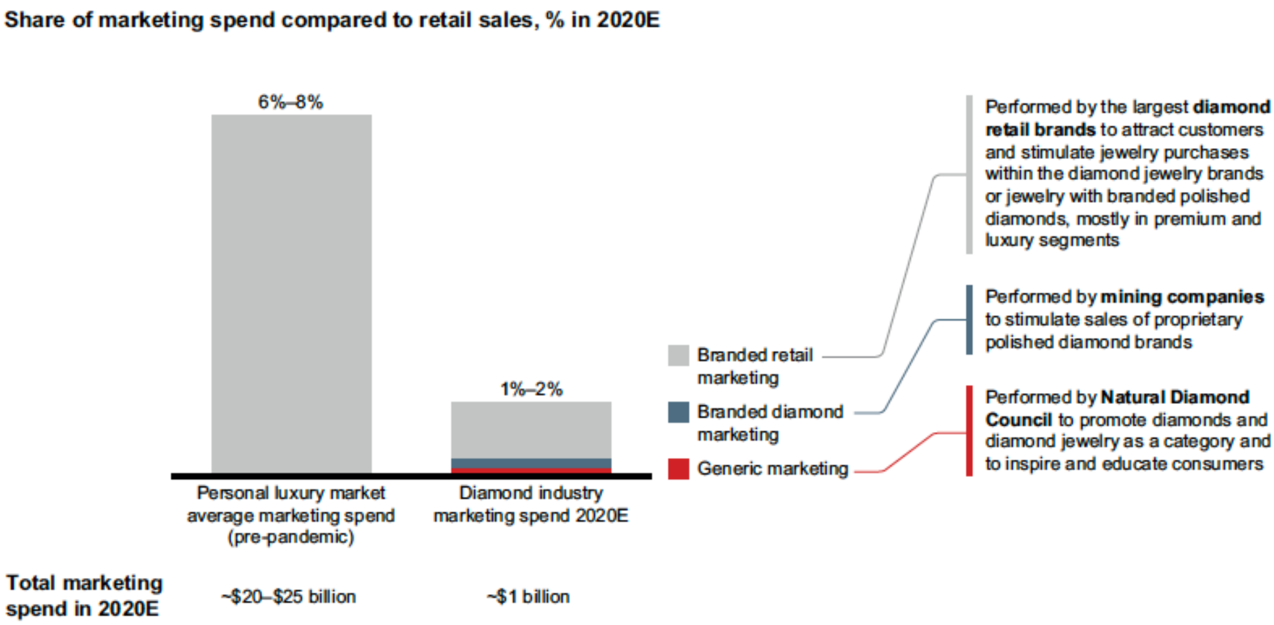


Figure 53: The Natural Diamond Council relaunched generic marketing efforts with new focused campaigns:

Figure 54: Marketing messages about exclusivity and rarity disproportionally resonate with consumers, while origin and sustainability trends are quite new:

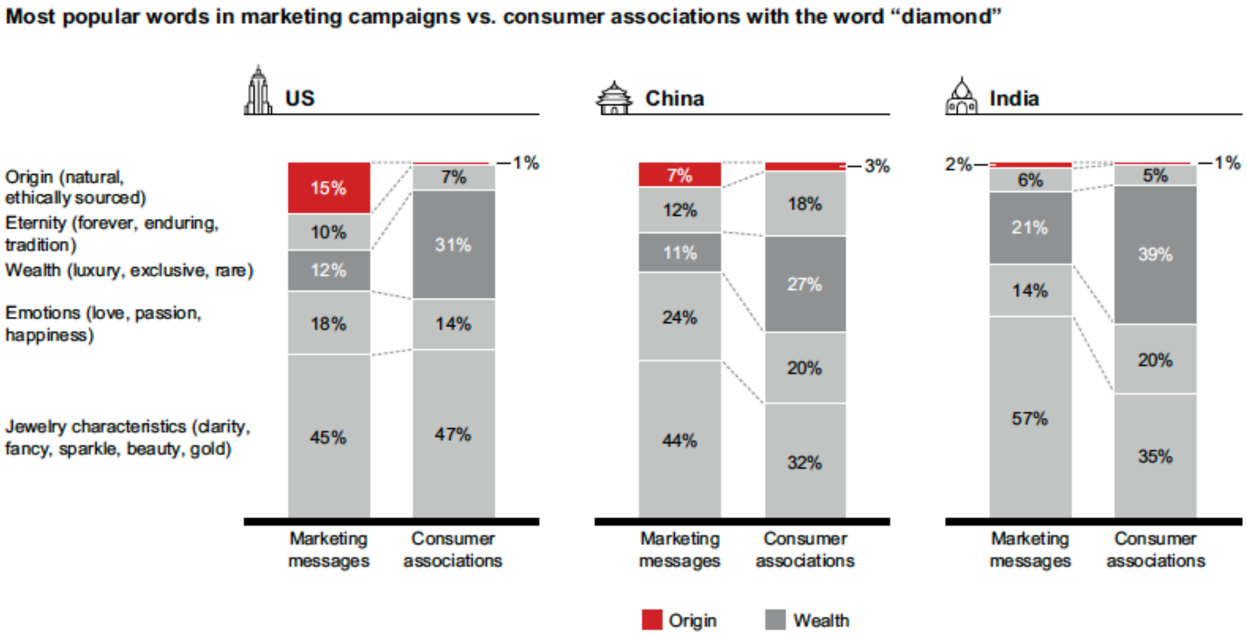
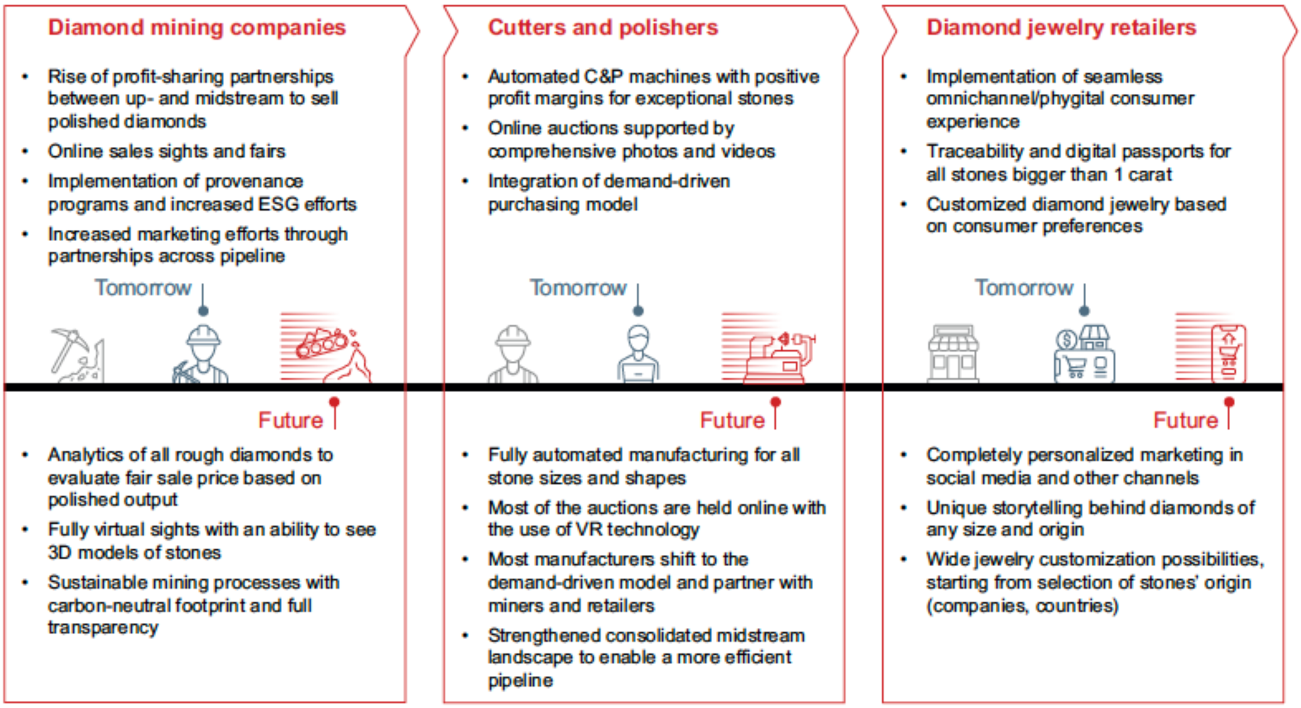


Figure 55: Several important recent trends will influence the whole value chain's future:



Chapter 6: Updated Supply and Demand model

The Covid-19 recession is likely to be more severe than the 2009 recession. In developed countries, economic recovery to pre-pandemic levels is expected in 2021–23, if Covid-19 vaccines are deployed in 2021 as anticipated. Rough diamond production is projected to recover to the “new normal” in the next two to three years and remain stable from 2023–30.

Excess rough diamond stock will gradually enter the pipeline within the next one to two years to ensure smooth supply. Demand for diamond jewellery is expected to recover to pre-pandemic levels in 2022–24. If fundamental factors such as GDP and middle and high-net-worth class growth are as strong as projected, and there’s sufficient marketing support, then long-term demand is expected to grow at an average annual rate up to 2% to 3% from 2023–30.

The US is expected to reach pre-pandemic economic levels by 2021–22, ahead of most of other countries, because of increased government spending. GDP growth was positive in China in 2020; economic recovery across all Chinese industries is expected in 2021. India’s recovery will come later, in 2023–24.

Recoveries could be affected by new strains of the virus or government policies to stop its spread. Such circumstances could lead to a double-dip recession and another downturn before the economy is revitalized.

In the long term, the global economy is projected to grow at an annual rate of 3%. The US, China and India will continue to lead the growth in diamond jewellery purchasing. We expect the US economy and personal disposable income to grow around 2% annually.

In China, diamond jewellery demand will be driven by 4% growth in affluent and high-net-worth individuals and from expanded retail footprints in lower-tier cities. In

India, diamond jewellery demand will follow middle-class growth (10% annually) and be reinforced by the country's affinity for jewellery and the expansion of internationally branded retailers.

These factors provide a strong foundation for growth beyond 2023.

In the lab-grown market, consolidation, production capacity growth in China and technological advancements are causing unit costs and prices to drop. If that continues, lab-grown diamonds could expand into the wider mass jewellery segment, targeting a different audience than natural diamonds. Alternatively,
if the trend of product differentiation reverses, we could see more lab-grown diamonds in the premium jewellery segment, compensating for the decreased supply of natural diamonds.

This forecast does not consider several factors that could disrupt the supply-demand balance in the short term or slow down the longer-term global trajectory. Several risks may cause a double-dip recession:

- the US failing to agree on new stimulus programs; escalating trade wars between the US and China;

- European debt or currency crises; India's increased vulnerability to oil prices; or increased taxation to cope with budget deficits. Sustained consumer fears about Covid-19 and new restrictions to stop its spread are additional risks that could impede recovery. Elevated competition from alternative luxury goods is another potential risk. If materialized, these risks could decrease consumer spending on diamond jewellery considerably and lead to longer recovery periods in key markets.

Figure 56: Covid-19 impacted key markets in the short term, but the industry's long-term macroeconomic and consumption outlooks remain positive:

US

- Economic recovery began in H2 2020 and is expected to reach the pre-pandemic level by the end of 2021 or beginning of 2022 as a result of anticipated widespread immunization and government spending policies
- Long-term GDP growth is expected to be 2%, driven by automation and robotization
- Average personal disposable income is expected to grow at the same annual rate as GDP from 2022–30
- In the diamond jewelry market, recovery to the pre-pandemic level is anticipated by 2022–23, with long-term annual growth of 1%–2% in 2023–30
- Overall, the US will contribute ~50%–60% of the total jewelry market growth during the next 10 years

China

- Economic recovery began toward the end of H1 2020, and the economy posted low single-digit growth already in 2020. China was first to enter a Covid-19 recession and took effective measures to control the spread of the disease
- Long-term GDP growth of 5% will be driven by middle class, mass affluent and high-net-worth population expansion, income growth, a rise in domestic consumption and retail expansion into smaller cities
- The middle and higher income strata is expected to grow by 4% per annum on average
- The diamond jewelry market is expected to recover fully in early 2021, with long-term growth of 2%–3% annually in 2023–30
- Overall, China will contribute ~10%–20% of the total jewelry market growth during the next 10 years

India

- Economic recovery began at the end of 2020 and is subject to comprehensive fiscal and monetary policies. Due to significant exposure of the economy during the pandemic, the path to the pre-pandemic level is expected to be U-shaped, ending in 2022–23
- Long-term GDP growth of 7% will be largely supported by a rapidly expanding middle class and enhanced technological and digital capabilities
- Driven by urbanization, middle- and high-income households are expected to double, subject to 10% growth per annum
- The diamond jewelry market is expected to recover to the pre-pandemic level by the end of 2023–24, with long-term growth of the diamond jewelry market at 2%–4% per annum
- Overall, India will contribute ~5%–10% of the total jewelry market growth during the next 10 years

Figure 57: Long-term scenarios for natural rough diamond demand and supply rely on key assumptions:

Optimistic scenario

- Economic recovery from the global recession is relatively fast; return to pre-pandemic levels occurs in 2021–22 in developed markets and in 2022–23 in emerging markets (except for China, which recovered from the effects of Covid-19 and reached 2% real GDP growth in 2020)
- Widespread vaccination across developed countries in 2021 improves consumer confidence and supports further economic recovery
- Global GDP long-term growth is 3% or higher
- Effective marketing campaigns (brand and generic) cause Millennials and Generation Z consumers to prefer natural diamond jewelry to celebrate special moments
- Mines that continued to operate in 2020 will reach pre-pandemic production levels by 2021–22. Junior miners that put operations on care and maintenance in 2020 will reopen promptly/return to planned capacity (increase of ~4–5 Mcts). Accumulated excess inventories will gradually sell out in a year
- The diamond value chain will be transparent and efficient, and companies across all segments will have sufficient access to debt or equity financing
- Lab-grown diamonds will mostly concentrate on the mass jewelry segment and a different target audience than natural stones

Conservative scenario

- A prolonged global recession delays the return to pre-pandemic levels until 2022–23 in developed markets and until 2023–24 in emerging markets
- Vaccines prove more difficult to scale than anticipated. Governments gradually loosen restrictions in the beginning of 2022
- Global GDP long-term growth is between 1% and 2%
- Lack of sufficient marketing support causes an affinity for natural diamond jewelry to decrease among Millennials and Generation Z
- Junior miners that halted operations in 2020 will not reopen or will not scale up operations to pre-pandemic levels in the near future. Major miners' production will stabilize at a new normal level. Accumulated inventories will sell out in 1–2 years
- Inefficiencies will persist in the diamond pipeline, with hindered access to debt or equity financing options
- The trend of product differentiation will reverse and lab-grown diamonds will focus on both mass and premium segments and a less-distinct target audience

Figure 58: The long-term outlook for real global GDP and PDI is positive; both are expected to grow at 3% per year despite the Covid-19 recession:

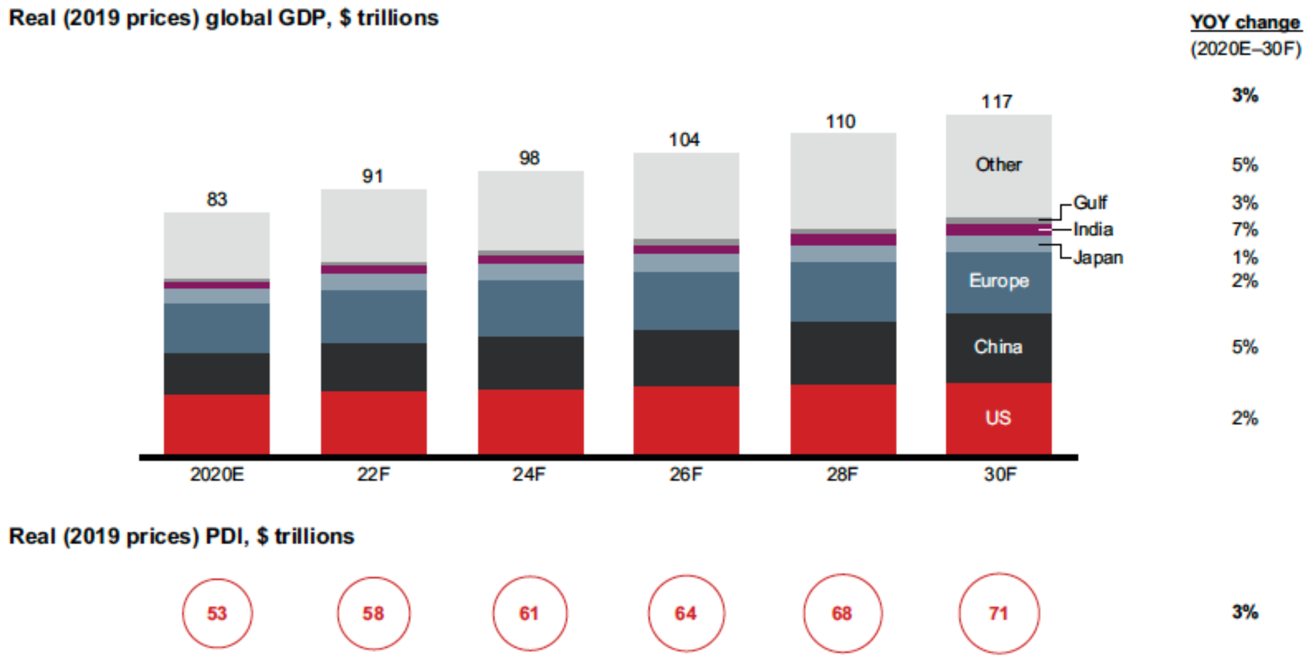


Figure 59: Middle class and high-net-worth household growth in China and India will reinforce positive long-term demand:

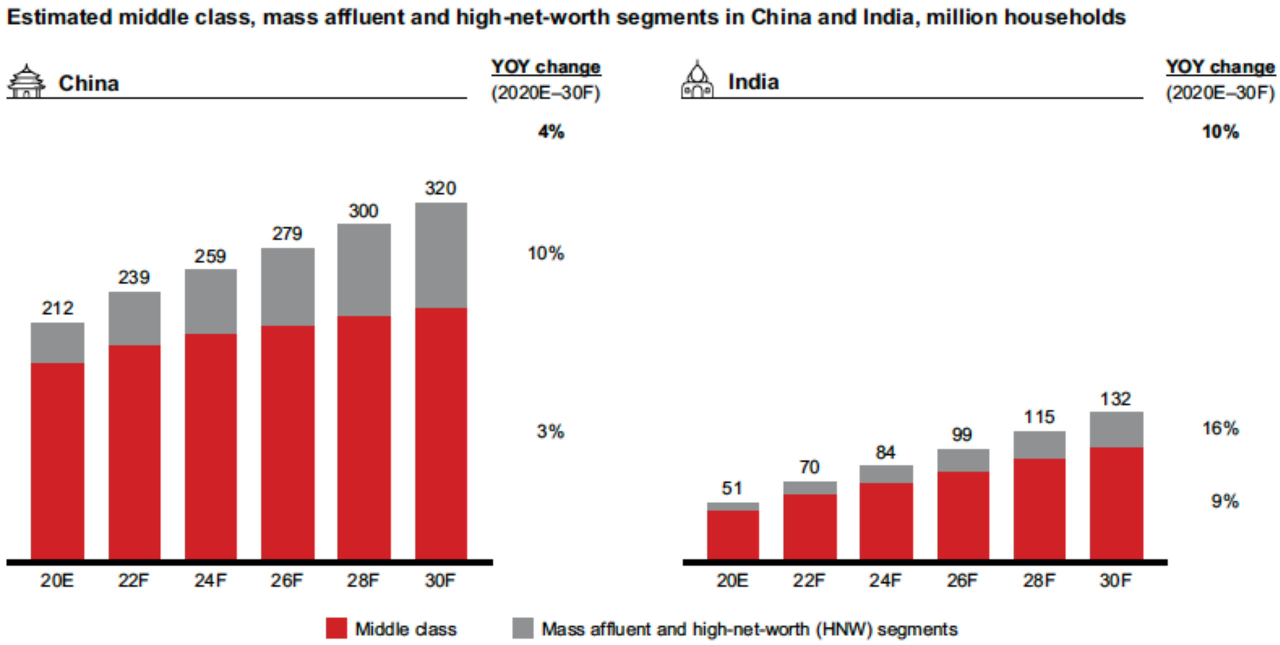


Figure 60: Supply is expected to be almost flat over the next 10 years, with very few new projects coming online:

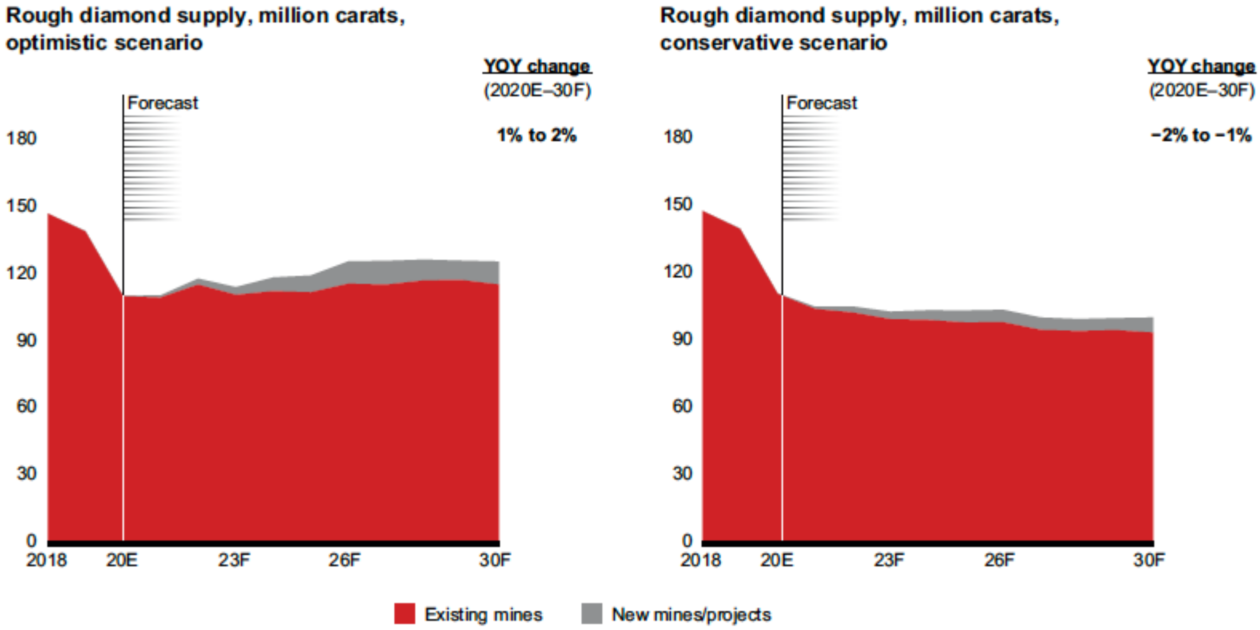
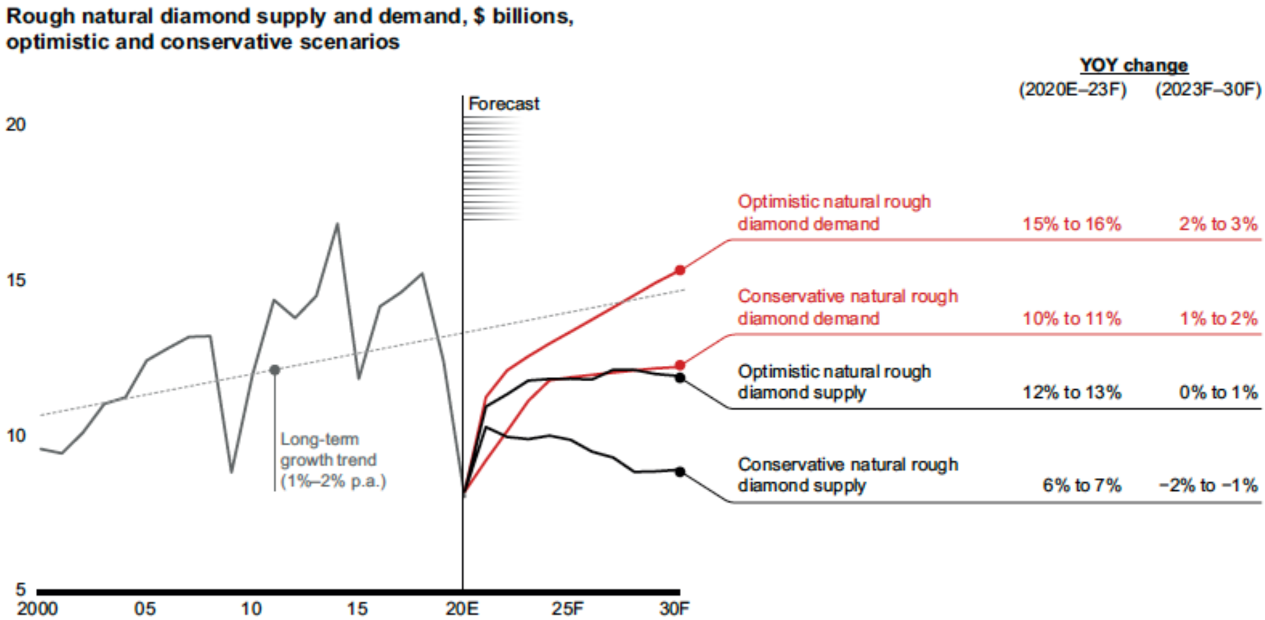


Figure 61: The supply-demand outlook is moderately optimistic:



Chapter 7: PHI and the new Asia Diamond Exchange

Diamonds pass a bourse multiple times when travelling from mine to jewelry shop; first in its raw and most pure form, later as a polished gemstone. The diamond making process starts up to 140 miles beneath the earth's surface, in kimberlite quarries.

After mining, the raw crystals are sorted according to size, color, shape and other chemical and physical characteristics and mining companies organize sales sessions (so-called: sights) which allow diamond crafters to purchase them. These sessions are exclusive, and normally only accessible by invitation.

Roughly eighty percent of all (worldwide) rough diamonds before the Dubai Exchange was created together with DR. B. Smet in 2002-2004 changed hands in Antwerp before being forwarded for polishing and cutting purposes to India or China, or a small(er) diamond finishing centre elsewhere. Once processing is finished, the diamond gemstones are sold to either wholesalers or artisans, again passing at least one of the twenty-nine global diamond bourses. The artisans and wholesalers, in their turn, sell the diamonds and diamond-containing jewellery to diamond retailers and jewellers, respectively, after which they enter the public market.

The volume of the world diamond imports and exports in 2020 was 3.2 to 3.8 times higher than the diamond production by volume, and 3.1 to 3.3 times by value, suggesting that rough diamonds, before being processed into gemstone diamonds, at least two times pass through intermediaries' hands, who all receive resale profit – thereby increasing the final product's price.

The diamond industry, which is extremely sensitive to economic change, has been suffering from many global changes as well as changes in the industry itself. Mining and midstream revenues are shrinking as rough diamond production declines and prices drop. Geopolitical and macroeconomic tension lowered consumer confidence and – thus – demand, and the increase in e-commerce has improved efficiency in the supply chain, thereby decreasing the need for inventory on hand. In 2019, this caused mining and midstream revenues to shrink by 25% and 10%, respectively. The (resulting) decline in rough diamond prices eventually led to stock devaluation and limited financing options.

An extensive relationship and alliance with the Dubai Diamond Exchange is built and will lead to great success together with the PHI Group.

Dubai offers many advantages, with the greatest one being the current attractive tax system. It is to be expected that this system will change once; the question is on what term. The biggest issue with Dubai is, however, the barrier for the Jewish traders to come in. Today, still most of the leading trading companies are Jewish and for them, Dubai is certainly not attractive for doing business.

Therefore, the ultimate new Exchange will be established in Vietnam under the PHI Group umbrella and in partnership with the Vietnamese federal and provincial government in the Chu LAI Free Economic Zone.

Due to its strategic central location, Vietnam has the potential to become a new pass-through and a key player for rough diamond trade. Vietnam is geographically located between Africa, the leading rough diamond supplier, and India, the leading rough diamond polisher, in the middle of Asia, the upcoming market. The country does not face any religious restrictions.

The current market developments and circumstances in the main partner bourses, the restructuring of the banking system and international payments, the high gross domestic product (GDP) growth rate, Vietnam's position as one of the fastest-growing countries in the world, and the large young, Vietnamese labour force are the key ingredients for this project to become successful and to contribute to the revised master plan for the development of Chu Lai Open Economic Zone.

PHI Group and its financial fund pillar 'PHI Global Funds' (SICAV-RAIT), a Luxembourg bank fund, will set up the Asia Diamond Exchange in a Free-Trade Zone in the Long Thanh Multi-Logistics Center close to the new Long Thanh International Airport in Long Thanh District, Dong Nai Province, Vietnam.

The Asia Diamond Exchange is a modern bourse to be established in affiliation with the World Federation of Diamond Bourses, that is fully compliant with the Kimberley attestation process.

Therefore, in close cooperation with the Vietnamese Central Government, a public-private partnership (PPP) is set up to implement the KPC procedures. Uniquely, this certification program comprises the rough diamond trade segment as well as the polished market. This will be the first all-inclusive business KPC diamond transaction platform in the world.

Within a convenient location near an international airport and located in the Multi-Logistics Center (to be established in a new Free-Trade Zone in Long Thanh District, Dong Nai Province, Vietnam) the Asia Diamond Exchange will become a vital rough diamond trading center. Nowhere in the world, except for here, diamond cutting, and polishing companies are being offered the opportunity to have their industry inside a free economic zone, which allows them to perform their value adding processes (cutting, polishing) at 0% tax and so having the opportunity to revamp their slim bottom-line margins.

The Asia Diamond Exchange will have exceptional facilities, providing fully equipped trading halls for its members and a complete service environment for everyone in the diamond pipeline. It, besides, will house all ancillary service providers related to the diamond industry.

Asian Diamond Exchange's trumps:

- Unique to the Asian region; a newly established Chu Lai Multiple Commodities Center in the heart of the emerging consumer market.
- Prime and convenient location, very near to an international airport.
- Tax relief to corporate and personal constraints for a period up to eighty-five years.
    - Local funding possibilities.
    - An extensive commodities influx in the diamond sector.
- A growing pre-registration list with some of the market's largest diamond trading companies.
    - Ample space for growth and additional businesses.
    - Saving on transport costs by combining trade and the processing industry in one free zone.
    - Providing the world's first ever lab-grown diamond (LGD) exchange.
    - Vietnam does not face any religious restrictions for companies and traders.

The growing position of Vietnam as a diamond center will come mostly at the expense of Antwerp's and Tel Aviv's diamond trade. Some of the bigger players in the market have already agreed to partly move and settle their new company within the Asian Diamond Exchange in Vietnam. They will start with an annex of their company, and fully move after experiencing the benefits. PHI Global Funds Luxembourg has also organized Angolan and Canadian export licenses for rough diamonds. We aim to have up to 2,700 companies registered within four years after establishment.

Diamond building

A key component for establishing the trade will be the securing of a Diamond Building, which houses all diamond activities within the Free Trade Zone. The Diamond Building will be established under the model of the Dubai Diamond Exchange (DDE), and the Antwerp Diamond Exchange.

It provides a secure, closed environment for trading, diamond auctions, diamond related services, and shipping, with safe rooms, underground transportation systems, banks, offices, and support services such as restaurants and shops.

Banks

In response to the recent decline in availability of financing in the diamond centers, local banks will be introduced as booking centers for offering financing to diamond companies in Vietnam and a fully licensed African-based international Bank will be introduced for financing purposes in the international rough diamond trading market. Later, the corporate plan will be broadened to the polished diamond market segment of the industry.

By restoring the attractive business environment and helping the industry to increase their margins again, the future of the diamond industry is brilliant for those willing to grow their business in the only emerging market left. For Vietnam, our proposed activities will boost the economy and employment.

The Team

The Asia Diamond Exchange (ADE) will be governed by eleven board members, elected for a consecutive period of four years. To preserve continuity, every two years five and the subsequent year six members of the Board are elected. The Board is led by the Executive Committee comprising of the Chairman, two Vice Chairmen, and two Executive Directors. Board members are devoted to the advancement of the diamond business, as well as to the stewardship of the ADE both as an institution and a physical building. The position of chairman will be fulfilled by Mister Henry Fahman. The other board members still have to be selected by the Diamond Task Force (DTF).

The Diamond Task Force

In Antwerp, we will set up the DTF that will collaborate together with the organizations Antwerp World Diamond Centre (AWDC) and the World Federation of Diamond Bourses (WFDB), to make and take all necessary preparations and steps for becoming an official WFDB partner. The PHI DTF already organized extensive commodities influx and obtained commitment of some of the largest diamond trading companies to come to the Long Thanh Multi-Logistics Center (LMLC) and ADE in Dong Nai Province, once the zone is organized and established. The DTF will continuously focus on the following goals:

- Setting up the Free Economic Zone (FEZ) administration office and the system for company registration and (trading) licenses.

- Construction of the infrastructure, the ADE compound building, and the temporary container offices as well as their implementation.

- Establishing an extensive financial facilitating network in the FEZ – that will offer unparalleled financial solutions – by introducing local banks as booking centers offering an increasing level of financing to diamond companies in Vietnam, thereby facilitating international.

- Constructing a global commodities platform where different commodities can be traded. For example: gemstones, lab-grown diamonds, precious metals, or perishable commodities like tea, coffee, and rice.

In a start-up phase, we foresee the deployment of a container-office-platform, which temporarily can be occupied by our trader community, awaiting the finalization of the permanent building. This assures our business community to set up business and corporate entities from the very beginning of their new ventures. We expect all LMLC and ADE trading to start in early 2023. During the start-up period of our operations, we will mainly focus on rough diamond trade, thereafter, followed by the establishment of a polishing business segment.

We secondly focus on setting up the FEZ administration office and system for the company registration and licenses. Hereto, we will request for information from the DMCC in Dubai. In the meantime, in Antwerp, we will set up the DTF which will collaborate with the AWDC and WFDB organizations to become an official WFDB partner. Although the Luxembourg Fund activation was done and established already in June 2020, the start of the operations is expected to be in half 2022 as the Operational Decree needs to be approved by the Vietnamese Government to grant the full operational licenses for all activities in the FEZ.

Also considered the current corona crisis, it is highly unlikely that any business will take place before 2023. Once the corona virus lockdown period has come to an end, a series of actions will be started up in Long Thanh, Dong Nai Province, Vietnam.

In the second phase of the project, the business will further expand by the arrival of ancillary industries at the FEZ. The ADE and LMLC zone together have a total size of forty hectares, which means there is ample room to build processing factories being responsible for transforming unattractive and greyish looking stones into one of world's most precious and desirable items: polished diamonds.

Sustainability of the project

Real estate

The office blocks (which will be put in the market only on long-term lease agreements), manufacturing buildings, and warehouses will be designed and constructed with the use of the latest technologies and materials. We aim to ensure that all our buildings and construction methods are cost-effective and durable and reduce adverse impacts on the environment and human health with a focus on efficient use of energy and resources, water preservation, improved occupational health, and reducing pollution and wastage. Solar power panels will cover the buildings' roofs and all kinds of biodegradable materials will be used for the buildings' walls and foundation and as insulators. Our activities will have just a small footprint on the environment and might function as an example for of how sustainability helps to lower emissions and still improves the overall construction.

Transport

Bringing all individual links in the diamond chain – from rough material to polished gemstone – together, we contribute to a reduction in diamond transportation and thereby transport emissions.

Establishing the LMLC and ADE brings a variety of advantages for Vietnam, of which the most important are:

- Vietnam based companies

For the construction of all infrastructure and real estate, we exclusively will hire Vietnam-based companies.

- Employment opportunities

Once the second phase is launched, the cutting and polishing industry beings established in the LMLC will offer thousands of new jobs.

- Tourism sector

Attracting business to Vietnam will increase the regional demand for housing and hotels as well as for restaurants, cafés, and public transport; especially in the vicinity of Long Thanh District and surrounding areas like Nhon Trach, Ho Tram, Long Hai, Long Dien, Ba Ria Vung Tau Province, which will – with its beautiful natural beaches – turn into the new touristic hotspot. Already some new hotels are under construction, and we expect more hotels to be added in the short term.

- Know-how

Diamond cutting and polishing processes require highly skilled and trained people and growing diamonds is a high-tech industry, bringing know-how and technology into the country.

- Government revenue

The local government will be partner in the Public Private Partnership (PPP) company, thereby receiving revenues from the services being provided by the administration and diamond offices inside the FEZ.

To provide an insight into the market in which we will operate, the market where the Asia Diamond Exchange will operate, will be analyzed according to the D.E.S.T.E.P. model. With this model, the market is viewed and analyzed from a demographic, economic, socio-cultural, technological, ecological and political point of view.

1.1.1 Demographic

Vietnam is experiencing rapid demographic change. Its population reached 97 million in 2018 (up from about sixty million in 1986) and is expected to expand to 120 million by 2050. Seventy percent of the population is under 35 years of age, with a life expectancy of 76 years; the highest among countries in the region at similar income levels. The Vietnamese government recognizes 54 ethnic groups, of which the Viet (Kinh) is the largest. Vietnamese is the official language of the country.

1.1.2 Economic

Vietnam's development over the past thirty years has been remarkable. Economic and political reforms have spurred rapid economic growth, transforming what was then one of the world's poorest nations into a (lower) middle-income country. Between 2002 and 2018, GDP per capita increased by 2.7 times, reaching over US$2,700 in 2019, and more than 45 million people were lifted out of poverty. Poverty rates declined sharply from over seventy percent to below six percent.

Besides these local economic developments, there also have taken place economic developments regarding the global and regional diamond market. The most important developments from last year will be listed below.

Retail sales decline due to global recession and geopolitical instability

Diamond jewelry sales declined in 2019 and are expected to further decline in 2020, due to moderating global GDP growth and lower consumer confidence. In the United States, consumer confidence fell as fear for recession rose. Chinese tourism in the United States slowed down and a fifteen percent tariff on Chinese jewelry was added in September 2019. The Chinese yuan has seen a more than ten percent depreciation and also here consumer confidence declined from the trade tension between the States and China. Last year's pro-democracy protests in Hong Kong also led to significantly lower sales. In India, sales declined after bankruptcy of the large jewelry retailer Gitanjali in 2018 and things do not seem to be much improving with tighter tax controls for luxury spending, a spike in gold prices, and continuing rupee depreciation. The global and regional situations seemed to improve – with a slightly increasing demand in the diamond market – but the corona pandemic caused this demand to dry-up completely.

Manufacturing margins are vamping as stock devaluates and financing becomes more challenging

Lowered consumer confidence, lower diamond content in jewelry designs, and inventory optimization by major retailers reduced the demand for polished diamonds. The manufacturer community, already being challenged to find affordable financing as banks have cut back lending or pulled out entirely from the diamond sector, are forced to reduce their excess inventory and minimize working capital, causing them to shift focus to melee diamond production to maintain factory utilization. These (small) stones, however, have lower values and thus cause lower revenues and less margins too. With an average cash conversion of 235-300 days, their low profit margins, and high risk that prices fall before having finished a product to sell, manufacturers find themselves squeezed between the suppliers of rough, the buyers of polished, and the financers of their businesses. In India, where ninety percent of the manufacturing takes place, the weakened local currency and the ongoing effects of demonetization already caused a devaluation of the manufacturer's stock. The manufacturers who bought rough diamonds before recent prices drop, have to hold them until they can be sold again. In general: business financing has become harder than ever before, putting greater pressure on margins.

Reduced availability of financing slows down growth
Available financing for the midstream decreased from sixteen to eleven billion USD since 2013. This 'liquidity crisis' is affecting the middle players of the pipeline reducing their ability to support the growth of their business. Unfortunately, this is a global trend. Most 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 following the poor performance and challenges of the Indian financial sector at large. 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.

1.1.3 Social-cultural

India and China are now buying more diamonds than Japan, the European Union, and the Persian Gulf together. Just like Western consumers, their inhabitants increasingly associate important moments in life, such as marriages and engagements, with a diamond ring. The evolution in diamond consumption is also due to the number of millionaires, which is increasing much faster than in Europe or the United States. This trend also has an effect on the consumer behavior of the average Chinese person, who is becoming increasingly interested in exclusive luxury products.

Buying diamonds is also on the rise in India, and many predict that, after China, this will become the fastest growing market for luxury jewelry in the world. Since India is a very important player in mining, cutting, and exporting diamonds, the gemstone has always had a great appeal, which an increasing part of the population can finally respond to due to the growing economy. Experts predict that the demand for

diamonds in the Asian region as a whole will only increase in the coming years, with a focus on both the more exclusive fancy colored diamonds, colorless diamonds, and synthetic diamonds.
Apart from the Asian region: today worldwide there are many more millionaires than ever before. Most of these millionaires are not exceptionally wealthy as their predecessors. They are also very mindful of their expenditures, not only when considering the total value of an item, but also when considering the social and ethical costs of what they buy. They want to be sure that the purchase they are making does not come at the expense of, or exploit, hard-working people. They want to know that the environment was not harmed or that the harm is mitigated. They want assurances about the integrity of the process that generated their product. On top of that, they want their purchase to be more than just a purchase: ideally, it will be a value-preserving item that can later be sold.

1.1.4 Technological

The future of synthetic (lab-grown) diamonds

The technology behind synthetic or LGD has made crucial advances in recent years, allowing companies to grow higher quality diamonds, more rapidly, and at lower costs. Whilst LGD are a small fraction of the total market at this moment, industry experts forecast that the lab-grown jewelry market will grow by 22 percent annually. This growth will be driven by continuous advancement in technology, which should improve production economics and thus further push down prices. Diamond bourses have banned the trade of LGD from their trading floors, forcing it into the offices and to online platforms. This creates an odd situation in which there are members that cannot do business on the trading halls although, they would have access to the offices and other benefits.

Increased demand for diamond grading business

The difference between LGD and natural grown diamonds is no longer visible with standard equipment; it requires specific testing methods to identify LGD from natural. Strict guidelines have to be adopted to prevent traders mixing both natural and LGD together. Consumers increasingly want to know what they are buying, which leads to increased testing and grading processes.

Origin check of diamonds

It has been agreed that diamonds will only be allowed to circulate with a certificate showing that they have not been extracted in conflict zones. The process is still in its infancy, because it is difficult to check and because governments do usually not offer a great guarantee of reliability in war zones. In the future, a solution may have to be found in spectrographic proof of origin. That technology is being worked on.

Online trading

During the October 2019 trading period, ALROSA, for the first time, offered its clients to participate in Digital Tenders, where a full digital scan of each rough diamond was provided for detailed analysis. This enabled ALROSA's customers to thoroughly evaluate rough diamonds and make informed purchasing decisions based on comprehensive data regarding the offered rough stones. Though this is still a pilot project, the current sales results show that ALROSA's clients are interested in such a format.

1.1.5 Ecological

Since 2010 the global annual rough diamond production has been around 125 million carats. In 2017, it jumped to 152 million carats and then fell by three percent in 2018, caused by lower production in Australia, the Democratic Republic of Congo, and Russia. The trend of declining production appears to become a general one forecasted to continue mid-decade as multiple legacy mines reaching depletion and new incremental production to enter supply chain is uncertain. The downward trend is amplified by the transition from open pit mining to underground in Venetia, South Africa, and lowered production levels at Orapa in Botswana too.

The ADE will become a member of the WFDB. The WFDB has the purpose to protect the interests of affiliated bourses and their individual members, and to promote the amicable settlement or arbitration of differences and disputes between the individual members of the affiliated bourses and between the affiliated bourses. Members of the bourses affiliated to the WFBD pledge themselves to uphold the traditions, principles of mutual trust, consideration, and friendship which prevail among the members of the bourses world-wide. They pledge themselves to abide by and hand down these principles and to ensure that they will forever serve as a basis in business relations between members of the affiliated bourses world-wide.

A bourse whose members do deal in diamonds, precious stones or jewelry is entitled to apply for membership of the WFDB provided they have been established for at least one full year under a written constitution, have a clearly designated and representative governing body, and are able to prove their means of subsistence.

1.1 *Target group*

It is our aim to have up to 2,700 companies registered in the FEZ after four years. The FEZ will mainly attract diamond and precious stones trading companies with headquarters in India, Belgium, Dubai, Israel, and various Asian countries like China, Thailand, Laos, Cambodia, Singapore, Taiwan, Indonesia, Malaysia, Japan, and the Philippines as well as other countries to register themselves and open up offices within the LMLC. Only a few companies are today present in Vietnam itself; the majority of our target group comes from overseas. Our target group can be divided into suppliers of rough and lab grown diamonds and other commodities on one hand and trading, cutting, and polishing companies on the other.

The PHI DTF has profound contacts with leading diamond trading companies as well as with several of the most important diamond manufacturing companies. We secure an extensive commodities influx in the diamond sector. We currently hold perspectives of supply from Angolan and Canadian mines with a total import value of up to 1,2 billion by 2024 and already ten of the largest trading companies have signed declarations of intend to come to the LMLC and ADE in Long Thanh once the zone is organized and established.

There is no limit to the number of companies that can register themselves in the FEZ, LMLC or ADE. Once the main leading diamond trading companies are established and registered, a stream of smaller companies will follow and register their headquarters, branches, or subsidiaries in the LMLC too. The leading companies will effectively contribute to confidence in the LMLC – thereby encouraging others to join.

Some of our target customers experience barriers for trading in Dubai or Israel. Vietnam does not face any religious restrictions and some of the bigger players in the market, who have been searching for a new location to do their business, are now being offered this new unparalleled heaven of opportunities.