



Rating
Buy

Emerging Europe
Russian Federation

Metals & Mining

Company
Alrosa

Reuters
ALRS.MM

Bloomberg
ALRS RX

Exchange
MSE
Ticker
ALRS

Date
10 August 2012

Coverage Change

Price at 9 Aug 2012 (RUB)	25.15
Price Target (RUB)	40.00
52-week range (RUB)	76.44 - 22.40

Erik Danemar

Research Analyst
(+7) 495 933 92 19
erik.danemar@db.com

George Buzhenitsa

Research Analyst
(+7) 495 933-9221
george.buzhenitsa@db.com

A diamond in the rough; initiating with a Buy

Pureplay leverage to diamond market; initiating with a Buy

We initiate coverage on Alrosa with a Buy recommendation and a RUR40/share target price, offering almost 60% upside potential. We see Alrosa trading at 0.63x our DCF estimate or 4.4x and 5.5x our 2012F EV/EBITDA and P/E, implying a 17%/40%/35% discount to diversified miners/gold/diamond companies. Alrosa boasted 47% EBITDA margin in 2011 with an improved financial position and paid a 28% dividend on its IFRS results. With an optimistic outlook on diamond prices, we believe Alrosa can deliver further improvements. While the stock may retain a meaningful liquidity discount until IPO plans are clarified, we believe there is upside for the patient investor.

Carat: the world's biggest producer (by vol) with the world's biggest reserves

With 34.5mncr or about 25% of global output in 2011, Alrosa is the world's largest diamond miner (by vol). Over 2011-21F, Alrosa plans to further expand production by 18% to 40mctpa. In 2011, Alrosa disclosed reserves at 1.2bncr, or about 33% of global reserves, to back up its current production for at least 35 years, while it spends ~3.5% of sales in exploration to maintain its resource position over the next 10 years. As the global diamond industry struggles to find new deposits and open pits mature, and Asian diamond consumption grows at multiples of GDP, we expect diamond prices to rise and Alrosa to be a prime beneficiary. Having struggled with a heavy debt burden through the crisis, net debt/EBITDA has come down from 6x to 1.5x, giving Alrosa more financial flexibility. While a heavy capex program (~20% of sales) will consume much cash flow, we still forecast FCF yield of 6% in 2013 and we believe Alrosa may continue to share yield when diamond prices are strong.

Cut: reducing non-core assets and social obligations; cutting the inclusions

Vertically integrated by legacy and (modestly) diversified by choice, Alrosa has started to transfer its social assets. On our forecasts, Alrosa's 2012F mining EBITDA margin is 5pp above its blended margin, with social expenditure diluting cash flows. In 2H12, Alrosa plans to divest its gas assets as well as its Timir iron ore project. Cash flows from these sales should further strengthen Alrosa's near-term cash flows and streamline Alrosa's asset profile.

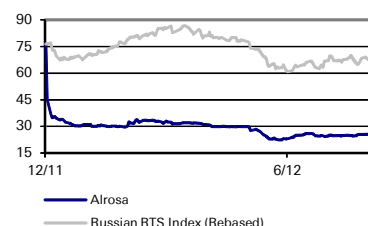
Clarity and colour: transparency at industry, company and mine may improve

Like other diamond companies, details on Alrosa's assets remain scarce. The results of a reserve audit are likely in 4Q12 and could bring details on asset quality. Alrosa has cleared the administrative hurdles, but signals on a potential IPO are mixed as a possible 7+7% sale has been put on hold. As a government company in a strategic sector, social and political utility functions could conflict with the profit objective. On the industry level, pricing and structure are unclear after De Beers' relented power, complicating forecasts.

Price: we value Alrosa on DCF with a 12.7% WACC and 2.5% TGR; risks

Our RUR40/share target price implies 6.1x/5.3x EV/EBITDA 2012/13F multiples. Risks include diamond prices, rouble appreciation, execution and taxation.

Price/price relative



Performance (%)	1m	3m	12m
Absolute	1.0	-10.9	-
Russian RTS Index	7.0	-2.3	-10.1

Deutsche Bank AG/London

All prices are those current at the end of the previous trading session unless otherwise indicated. Prices are sourced from local exchanges via Reuters, Bloomberg and other vendors. Data is sourced from Deutsche Bank and subject companies. Deutsche Bank does and seeks to do business with companies covered in its research reports. Thus, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. DISCLOSURES AND ANALYST CERTIFICATIONS ARE LOCATED IN APPENDIX 1. MICA(P) 072/04/2012.



Model updated: 09 August 2012

Running the numbers

Emerging Europe

Russian Federation

Metals & Mining

Alrosa

Reuters: ALRS.MM

Bloomberg: ALRS RX

Buy

Price (9 Aug 12) RUB 25.15

Target Price RUB 40.00

52 Week range RUB 22.40 - 76.44

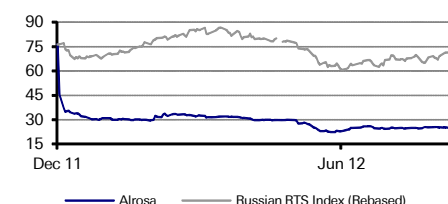
Market Cap (m) RUBm 181,482

USDm 5,732

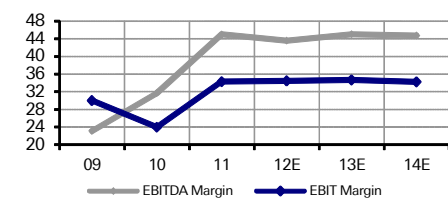
Company Profile

OJSC Alrosa explores, mines, processes, and sells rough diamonds through a global distribution network. On 34.5mm ct production in 2011, Alrosa was the world's biggest rough diamond mining company by volume and second by value. The group's main operations are located in Yakutia, in northeastern Siberia, near the cities of Mirny, Udachny, Nyurba, Aikhal and Anabar. With 1.2bn ct at 0.90ct/t in reserves, Alrosa also enjoys a world leading resource position that can support current production levels for at least 35 years.

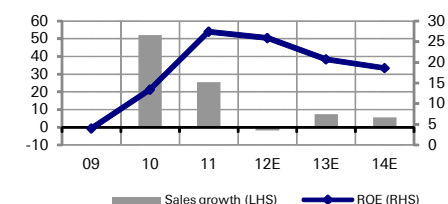
Price Performance



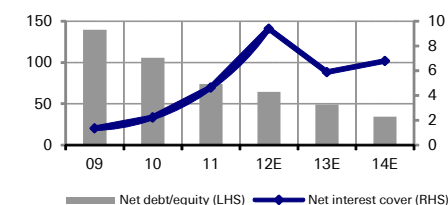
Margin Trends



Growth & Profitability



Solvency



Fiscal year end 31-Dec

Financial Summary

	2009	2010	2011	2012E	2013E	2014E
DB EPS (USD)	0.01	0.04	0.16	0.14	0.16	0.17
Reported EPS (USD)	0.01	0.05	0.12	0.15	0.16	0.17
DPS (USD)	0.00	0.01	0.03	0.02	0.02	0.02
BVPS (USD)	0.4	0.4	0.5	0.7	0.8	1.0
Weighted average shares (m)	7,365	7,365	7,216	7,216	7,216	7,216
Average market cap (USDm)	na	na	8,630	5,732	5,732	5,732
Enterprise value (USDm)	na	na	11,124	8,759	8,476	7,940

Valuation Metrics

P/E (DB) (x)	na	na	7.3	5.5	5.1	4.8
P/E (Reported) (x)	na	na	9.6	5.2	5.1	4.8
P/BV (x)	0.00	0.00	1.97	1.16	0.97	0.82
FCF Yield (%)	na	na	8.9	12.3	6.2	10.7
Dividend Yield (%)	na	na	2.9	1.9	2.0	2.1
EV/Sales (x)	nm	nm	2.4	1.9	1.7	1.5
EV/EBITDA (x)	nm	nm	5.3	4.4	3.8	3.4
EV/EBIT (x)	nm	nm	6.9	5.5	4.9	4.4

Income Statement (USDm)

Sales revenue	2,456	3,734	4,687	4,607	4,949	5,229
Gross profit	1,348	1,927	3,116	3,053	3,330	3,523
EBITDA	567	1,183	2,110	2,009	2,230	2,339
Depreciation	269	290	335	486	513	548
Amortisation	-438	0	166	-66	0	0
EBIT	737	894	1,608	1,588	1,717	1,791
Net interest income/(expense)	-544	-402	-347	-169	-292	-264
Associates/affiliates	18	34	42	47	48	49
Exceptionals/extraordinary	0	0	0	0	0	0
Other pre-tax income/(expense)	0	0	0	0	0	0
Profit before tax	210	526	1,304	1,467	1,473	1,576
Income tax expense	101	138	397	359	339	363
Minorities	1	3	6	14	9	10
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	108	385	901	1,094	1,125	1,204
DB adjustments (including dilution)	-40	-84	276	-57	0	0
DB Net profit	69	301	1,177	1,037	1,125	1,204

Cash Flow (USDm)

Cash flow from operations	-202	935	1,423	1,653	1,394	1,696
Net Capex	-347	-369	-658	-946	-1,038	-1,082
Free cash flow	-550	566	766	707	356	614
Equity raised/(bought back)	-3	-2	-112	0	0	0
Dividends paid	-60	-14	-73	-85	-113	-121
Net inc/(dec) in borrowings	-442	-622	-346	322	-224	-465
Other investing/financing cash flows	334	-258	-216	-1,358	-292	-264
Net cash flow	-721	-330	18	-414	-274	-236
Change in working capital	74	397	-128	292	-202	-14

Balance Sheet (USDm)

Cash and other liquid assets	168	135	373	270	290	321
Tangible fixed assets	5,553	5,502	5,266	7,464	7,989	8,523
Goodwill/intangible assets	48	47	45	49	49	49
Associates/investments	64	70	78	127	175	225
Other assets	1,978	1,529	1,723	1,598	1,835	1,874
Total assets	7,812	7,284	7,484	9,508	10,339	10,991
Interest bearing debt	3,901	3,339	2,968	3,435	3,211	2,746
Other liabilities	1,242	912	1,004	1,160	1,195	1,219
Total liabilities	5,143	4,251	3,972	4,596	4,406	3,965
Shareholders' equity	2,708	3,042	3,535	4,932	5,933	7,018
Minorities	-39	-9	-22	-11	-2	8
Total shareholders' equity	2,669	3,033	3,513	4,913	5,933	7,026
Net debt	3,732	3,204	2,595	3,166	2,921	2,425

Key Company Metrics

Sales growth (%)	nm	52.0	25.5	-1.7	7.4	5.7
DB EPS growth (%)	na	338.5	298.9	-11.9	8.5	7.0
EBITDA Margin (%)	23.1	31.7	45.0	43.6	45.1	44.7
EBIT Margin (%)	30.0	23.9	34.3	34.5	34.7	34.3
Payout ratio (%)	6.4	15.8	27.5	10.1	10.1	10.1
ROE (%)	4.0	13.4	27.4	25.9	20.7	18.6
Capex/sales (%)	16.1	10.6	15.6	21.1	21.0	20.7
Capex/depreciation (x)	-2.3	1.4	1.5	2.3	2.0	2.0
Net debt/equity (%)	139.8	105.6	73.9	64.4	49.2	34.5
Net interest cover (x)	1.4	2.2	4.6	9.4	5.9	6.8

Source: Company data, Deutsche Bank estimates

Erik Danemar

+7 495 933 92 19

erik.danemar@db.com



Investment thesis

Outlook

OJSC Alrosa explores, mines, processes and sells rough diamonds through a global distribution network. On 34.5mncr production in 2011, Alrosa was the world's biggest rough diamond mining company by volume and second by value. The group's main operations are located in Yakutia, in northeastern Siberia, near the cities of Mirny, Udachny, Nyurba, Aikhal and Anabar. With 1.2bn ct at 0.90ct/t in reserves, Alrosa also enjoys a world leading reserve position that can support current production levels for at least 35 years and provides Alrosa with growth options. Alrosa is currently transitioning from mainly open-pit to more underground production and, by also broadening its open-pit operations, Alrosa plans to further expand production by 18% (vs our estimate 12%) over 2011-21F to 40mctpa. With a constructive outlook on the diamond market (we forecast 4.5% CAGR 2012-18F), we take a positive view on Alrosa, as the company stands to benefit from improving cash flows and a stronger balance sheet with a potential for higher dividend yield. Given poor liquidity, we believe a liquidity event could be key to unlock value in Alrosa.

Valuation

Our RUR40 target price is based on an aggregate DCF model with a seven-year horizon to 2018. We use a 12.7% USD nominal WACC based on a 4% risk free-rate, a 2% country risk and a 7.5% equity risk premium. We use beta of 1 and an 8% long-term pre-tax cost of debt on a 25%/75% long-term target debt/equity capital structure. With an historical effective tax rate meaningfully higher than the statutory 20%, we forecast a 23% effective tax rate for Alrosa. We add a 1% discretionary liquidity. In terms of multiples, our target price implies 6.1x/5.3x EV/EBITDA and 8.2x/8.0x earnings on our 2012/13 forecasts, which is in line with historical average forward multiples for the diversified miners, lower than precious metal, and, although with patchy data, lower than pure diamond averages.

Risks

Key risks to our forecasts are related to a weaker diamond price environment. A 10% parallel negative shift in our diamond price forecast would reduce our EBITDA by ~20% and earnings by ~30%, and lead to renewed balance sheet concerns. With ~70% of costs rouble-denominated, Alrosa is also exposed to rouble appreciation. We estimate that a 10% parallel shift of the rouble would reduce 2012/2013E EBITDA by 8%/10% and lower our target price by 27%. In terms of production, key risks relate to Alrosa's execution of its plans to convert to underground mining. In mining in general and diamond mining in particular, there are also exogenous geological risks. As a government company, there is, in our view, a risk that political or social concerns could dominate profit driven objectives. In addition, there are risks of changes to the fiscal and regulatory regimes that could materially impact earnings and value.



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Investment summary

Pure play leverage to diamond prices

Coming out of the rough

We initiate coverage on Alrosa (ALRS.MM) with a Buy recommendation and a RUR40 target price, offering almost 60% upside potential from the current trading level of RUR25.3/share. On our current forecasts, we see Alrosa trading at 0.63x our DCF estimate or 4.4/3.8x 2012/13F EV/EBITDA and 5.6x/5.1x 2012F/2013F P/E, implying a 17% discount to global miners, a 40% discount to gold companies, a 35% discount to (a small peer group of) other diamond companies and a 60% discount to luxury good companies on an EV/EBITDA basis. Alrosa has, in our view, been held back by very poor liquidity and is unlikely to attract significant interest until concrete plans emerge on its much expected but in our view still uncertain IPO. The company in particular and the industry in general have also suffered from a lack of transparency, which is part of the nature of the industry and the exploration and mining of diamonds. However, we are constructive on the outlook for the diamond market and at the current price level, we believe Alrosa offers value for the patient investor.

We initiate coverage on Alrosa (ALRS.MM) with a Buy recommendation and a RUR40 target price

We view Alrosa as a diamond in the rough, with inclusions of non-core assets and value dilutive social obligations, unclear government intentions, intransparent asset quality and, importantly, poor liquidity locking up value in attractive and sizeable core assets. With time, we believe the rough can be cut and polished to enhance value, through reduction of social obligations, divestment of non-core assets, increased disclosure and liquidity improvement, possibly via an IPO.

We view Alrosa as a diamond in the rough...

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Strengths and opportunities

- **Big on production:** In 2009, Alrosa passed De Beers as the world's largest diamond producer by volume. Alrosa reached a production of 34.5mct in 2011 or about 25% of the total global supply of rough diamonds. With 11 open-pits, four underground developments and eight alluvial mines, Alrosa has a well diversified platform. On our simplified sum-of-parts model, no mine makes up more than 22% of Alrosa's value. By legacy, Alrosa is vertically integrated and self-sufficient in much of the infrastructure it needs to bring diamonds from kimberlite pipes to the cutters or even to the jewellers, through Brillianty Alrosa, the company's cutting and polishing arm.
- **...and on reserves:** In 2011, to improve transparency around the company, Alrosa disclosed its tremendous reserve base. With 1.2bn carats of reserves (non-JORC however), Alrosa controls about one-third of global reserves and can support its current production levels (~34mctpa) for approximately 35 years.
- **...and growing:** In contrast to Alrosa's peers, Alrosa has continued to expand production. Over 2011-21F, Alrosa plans to further expand production by 18%. Meanwhile, Alrosa has one of the industry's highest exploration spend/sales of 3.5%. Alrosa boasts a strong exploration track record and believes it can fully replace its 2012-20 production to stand at 35 years life of mine nine years from now. In our view, the size of Alrosa's reserve base offers growth options beyond the company's current plans
- **...profitably:** After a sharp recovery (~+50%) in Alrosa's realized average rough diamond prices in 2011, its EBITDA margin jumped 16pp to 47%, driving the free cash flow yield to 9% on current price and allowing the company to



refinance and bring down its leverage metrics. That said, current operating and financial leverage leaves upside to our ~20% ROEs (2012-14F) in case of strong diamond price performance.

- **...with stronger balance sheet:** After peaking at 6x net debt/EBITDA in the crisis year of 2009, strong cash flows saw leverage come down to 2.9x and 1.5x in 2010 and 2011, respectively. From looking financially strained, Alrosa now has some financial flexibility.
- **...that support yield potential:** While the company's policy is to pay no less than 0% of its RAS net income, Alrosa paid 28% on IFRS on 2011. If diamond markets stay strong and Alrosa continues toward an IPO, we believe the company, also encouraged by the government, will be more inclined to distribute cash to shareholders. We see potential for 4-6% yields on a 25% payout ratio.
- **A positive price outlook:** After consolidation and flattish pricing in 2012, we expect diamond prices to expand at nominal 4.5% CAGR out to 2014 (1% above our 2012 and 2013 global inflation forecasts).
- **...supported by constrained supply:** The diamond industry looks constrained on the supply side; there has been few new discoveries since the 1990s. Meanwhile, a large group of mines are forced underground (including Alrosa's) as the open-pit mines have matured and reached target depths. This will push costs higher and likely constrain supply. In our base case, we expect supply to expand by about 2.8% CAGR to 2020.
- **... strong emerging market demand:** We believe emerging markets, and particularly India and China, will drive incremental demand growth as the positioning of diamonds gradually improves (in Japan, following the U.S., the share of brides that received diamond rings grew from 6% to 76% in 30 years), while wealth creation and an expanding middle class tends to disproportionately benefit the luxury goods market. According to De Beers, diamonds already rank in the top three discretionary luxury products Chinese and Indian women aspire to own and Chinese demand has expanded 20-30% per annum over the past few years.
- **... and governed by a concentrated industry structure:** 60% (~82mct) of the 2010 global output came from 11 mines, or four miners. In the 2009 slump, all the major producers but Alrosa (selling to Gokhran) cut production to support prices, with pressure coming from the pipeline
- **Uniqueness:** Like diamonds, pure play investment opportunities in diamonds are rare. A number of investment vehicles have failed to raise or grow funds as ETFs have done in the gold space. Alrosa offers, albeit in a still very illiquid form, exposure to one-third of the world's current diamond reserves, attached with a vertically integrated production platform

Weakness and threats

- **Poor liquidity:** Despite a \$5.7bn market cap, with 9% formal and 5% actual free float on MICEX, Alrosa trades only ~0.5m per day, inviting only the most patient, optimistic on a liquidity event and volatility resilient investors to take a stake in the company (and they often do not trade much!). We still believe that the 7% plus 7% IPO option, which could be appropriate both with respect to Alrosa's strategic status and Alrosa's financial position, is a likely outcome. In our view, an IPO could be an important catalyst to the stock.
- **State company:** Alrosa is owned 51% by the federal government and 32% by the regional Sakha government, with 8% held by Sakha municipalities. In our



view, as it is controlled by the government at the federal and regional levels, Alrosa has a social and political utility function next to its profit maximising interest. Moreover, Alrosa is a mono-employer in many of the locations where it operates. Alrosa is in the process of transferring a number of social infrastructure assets to local authorities and took a \$220m write off on this in 2011. However, it retained obligations to maintain several of these facilities until 2016 at an estimated \$60m per annum cost. We believe social spend will remain a drag on Alrosa's margin and cash flow over the foreseeable future. The flip side of the government stake is the support Alrosa, in our view, has received in times of hardship, both in terms of funding from state bank and in terms of off-take from the state Gokhran, which bought diamonds from Alrosa for UD\$900m in 2009.

- **Single commodity producer, big bet on diamonds:** While Alrosa's prices were supported by Gokhran's purchases in 2009, global diamond prices collapsed as demand slowed and the cutter and polishers in the value chain rapidly built working capital to unsustainable levels. While we currently hold a constructive view on diamond prices, we note lower prices will squeeze Alrosa's margin over a big and relatively inflexible cost base
- **Industry deterioration:** De Beers controlled up to 90% of supply up until the 1990s. That share has now dropped toward 40%. Without an industry steward, there is a risk that supply discipline could break down and lead to price deterioration. Moreover, when De Beers could control the industry channel, it marketed the industry. It is also a sign of concern when leading producers like BHP Billiton, Rio Tinto and the Oppenheimer family (signals) intent to exit the industry
- **Limited growth:** Even if Alrosa is outgrowing many of its peers, 1.2-1.8% CAGR is not much to drive earnings growth in the absence of price increases.
- **Higher costs...:** Alrosa is in the process of converting much of its mining from open-pit to underground. In terms of ore processing, we expect underground feed to increase from 5% to 20% by 2020 and in terms of carats from 25%-40%. Given the geology of kimberlite pipes, underground operations are typically lower in volumes and higher in costs. While Alrosa believes it can support production by reaching higher grades, and has demonstrated some success at International and Mirny, we note execution and cost inflation risks in this process. While Mir took 10 years to launch, Aikhal took 25 years to develop and still has not ramped to full capacity. Moreover, Alrosa currently processes an average head grade of 1.2ct/t, which is above its 0.9ct/t reserve grade, suggesting that cost pressure may increase at lower grades.
- **... and capex:** On its current exploration and expansion plans, Alrosa plans to invest close to 20% of revenues and 2x its depreciation charge over the next few years to expand its asset base as it opens new open pits and converts mature pits to underground operations. Meanwhile, we expect maintenance capex to grow as Alrosa's nature and age of operations evolve and age. Intensive capex will delay further deleveraging and contain dividend potential.

Catalysts

Important potential catalysts include the sale of 50% +1 share in Alrosa's gas assets and its Timir iron ore project. The release of Alrosa's reserve audit in 4Q12 could also be an important event with detail on its asset quality. The key catalyst, in our view, is details and a decision on a potential IPO.



Risks

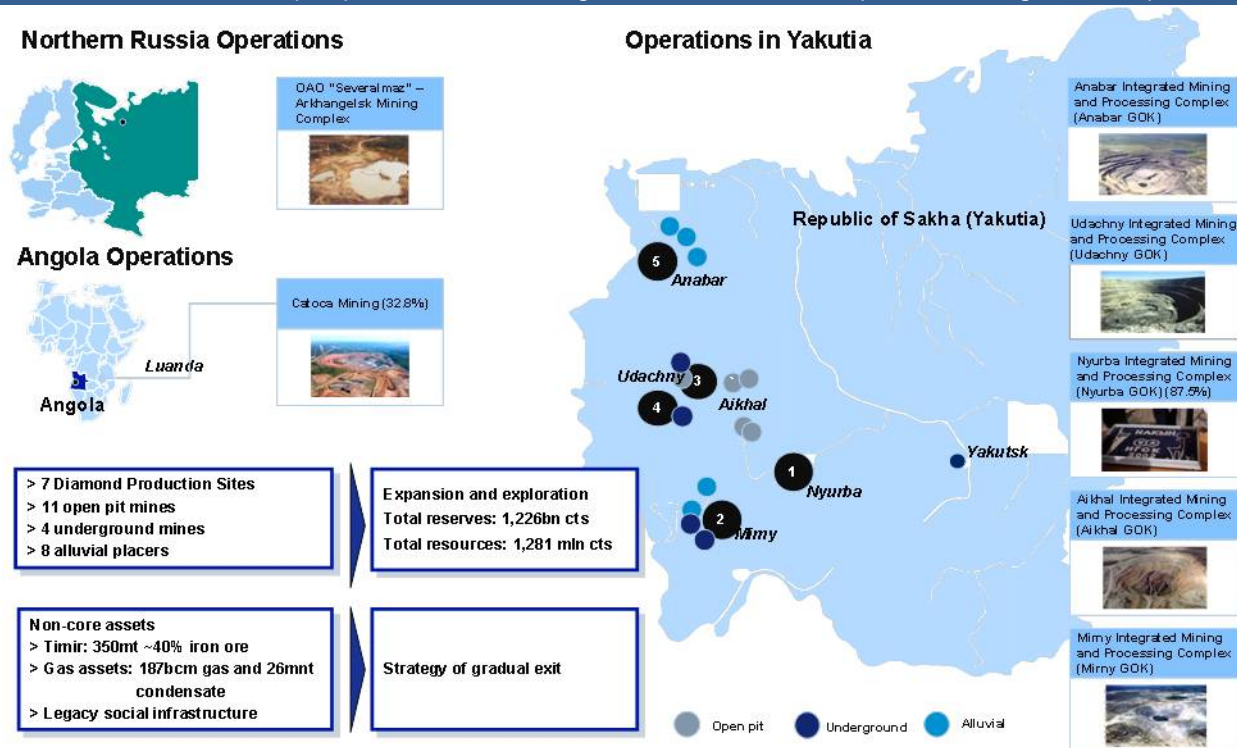
Key risks are diamond prices, rouble appreciation, project execution, taxation

- Key risks to our forecasts are related to a weaker diamond price environment. A 10% parallel negative shift in our diamond price forecast would reduce our EBITDA by ~20% and earnings by ~30%, and could lead to renewed balance sheet concerns.
- With ~70% of costs rouble-denominated, Alrosa is also exposed to rouble appreciation. We estimate that a 10% parallel shift of the rouble would reduce 2012/13E EBITDA by 8%/10% and lower our target price by 27%.
- In terms of production, key risks relate to Alrosa's execution of its plans to convert to underground mining. In mining in general and diamond mining in particular, there are also exogenous geological risks.
- While Alrosa believes it can support production by reaching higher grades, and has demonstrated some success at International and Mirny, we note execution and cost inflation risks in this process. While Mir took 10 years to launch, Aikhal took 25 years to develop and still has not ramped to full capacity.
- As a government company, there is, in our view, a risk that political or social concerns could dominate profit driven objectives. In addition, there are risks of changes to the fiscal and regulatory regimes that could materially impact earnings and value.
- While synthetic diamonds are currently almost exclusively used in industrial applications, we do not exclude that they could, at some point, become a substitute to natural diamonds.
- After almost a decade of supply management in the diamond industry, De Beers has withdrawn from a role as industry steward. It is possible that supply and pricing discipline could slip as a result.
- In our view, the poor liquidity in Alrosa's shares poses a risk to investors that seek exposure and expect an IPO.



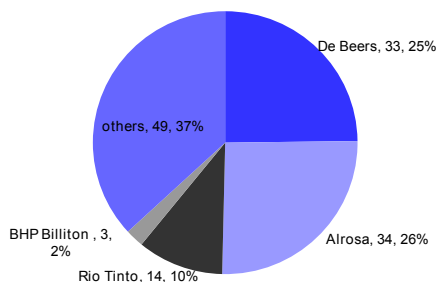
Alrosa at a glance

Figure 1: Alrosa has 11 main open pit mines, four underground mines and developments and eight alluvial placers



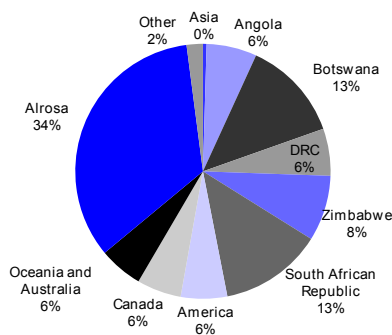
Source: Deutsche Bank, Alrosa

Figure 2: World's biggest diamond producer (volume)...



Source: Deutsche Bank estimates, Company data

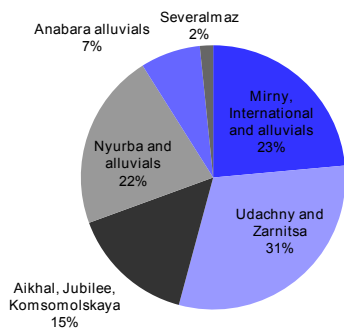
Figure 3: ...and diamond reserve repository



Source: Deutsche Bank estimates, Company data

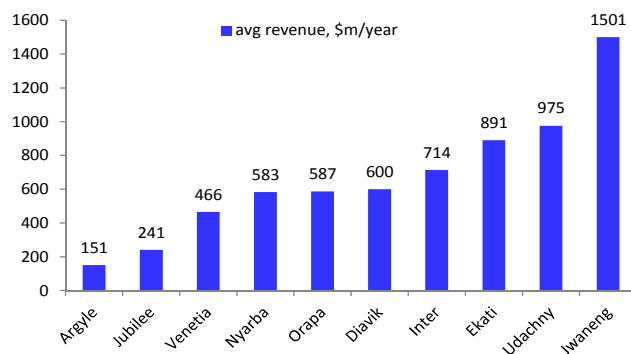


Figure 4: A well diversified portfolio (2011 production)...



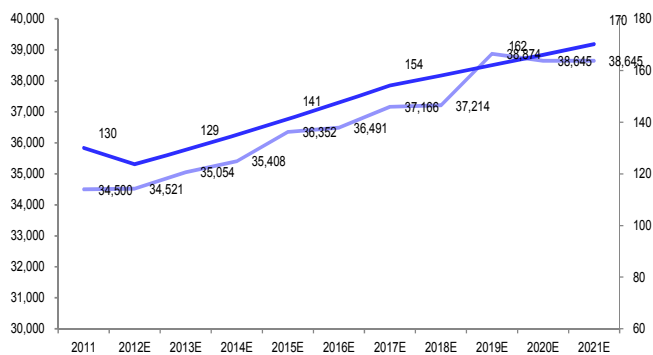
Source: Deutsche Bank estimates, Company data

Figure 5: ...including top quality assets (global mines)...



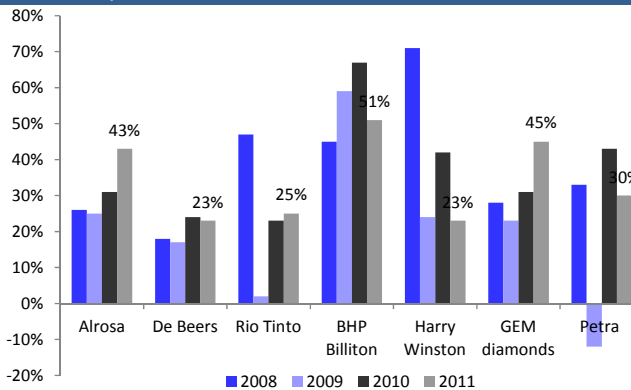
Source: Deutsche Bank estimates, Company data

Figure 6: ...that will grow, on strong prices, in a slowing industry and replace reserves to maintain +35 years LoM



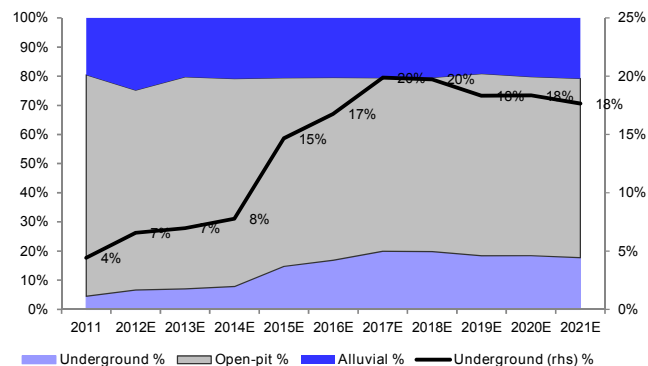
Source: Deutsche Bank estimates

Figure 7: ...and deliver strong cash flows off a strong diamond price outlook



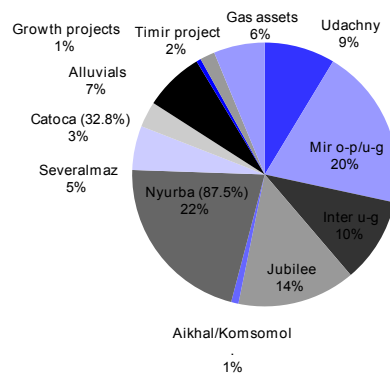
Source: Deutsche Bank estimates, Company data

Figure 8: ..but going deeper will raise costs and capex pressure and absorb cash flows



Source: Deutsche Bank, estimates

Figure 9: Indicative asset value distribution. Price/carat differences adds another dimension to diamond mining



Source: Deutsche Bank, estimates



Valuation

Triangulating a value by DCF, NAV and multiples

Initiating with a Buy rating and a RUR40/share target price; cheap for a reason...

We initiate coverage on Alrosa (ALRS.MM) with a Buy recommendation and a RUR40/share target price, offering almost 60% upside potential from the current trading level of RUR25.3/share. We currently see the stock trading at 0.63x our base case DCF estimate or 4.4/3.8x 2012/13F EV/EBITDA and 5.6x/5.1x 2012F/2013F P/E, implying a 17% discount to global miners, a 40% discount to gold companies, a 35% discount to (a small peer group of) other diamond companies and a 60% discount to arguably less relevant luxury goods companies on an EV/EBITDA basis.

With very poor liquidity (\$0.5m) ahead of what remains only a possible IPO for the company, a relatively untransparent industry and improving but still limited company disclosure and a stronger but still leveraged balance sheet, we believe Alrosa should trade at a discount to more liquid and transparent peers.

... but too cheap at 0.63x our NPV and 4.4x EV/EBITDA 2012F

However, we are also quite constructive about the outlook for diamonds, expecting prices to rise with at least 4.5% CAGR over 2012-18. Alrosa is more optimistic, expecting a rough diamond price CAGR of 7%, putting its money where its mouth is and investing some 20% of revenues or 2x depreciation in the next few years on our estimates to go underground, grow production and replace reserves to benefit from the expected stronger pricing environment.

Our base case calls for Alrosa to grow production by 12% by 2021 or at 1.2% CAGR, which is shy of Alrosa's target of 18% at 1.7%. Meanwhile, we expect strong prices to support an EBITDA margin above 40% with healthy free cash flows even at Alrosa's pace of investment. We expect Alrosa to cover growing maintenance capex costs as well as an ambitious expansion and exploration program from internal cash flows. At its current market cap, that will still leave healthy 12%/6% free cash flow yields in 2012F/2013F.

While Alrosa's current dividend policy is to pay 10% of RAS, it distributed 28% of IFRS earnings as a result of strong cash flows in 2011. Strong cash flows have also allowed Alrosa to strengthen its balance sheet and bring down its net debt/EBITDA to below 2x in 2011 and, on our forecasts, 1.6x in 2012E, while still lifting ROEs to forecasted 27% and 26%..

Against this backdrop, we believe there is upside potential in Alrosa on a relative and absolute basis. While we see some growth and yield potential, our Buy recommendation is driven by valuation and a positive view on the diamond market, which Alrosa is in a prime position to benefit from. It also based on the assumption that a liquidity increase, at some point, will unlock value in the company.



We value Alrosa on DCF with a multiple and SOTP cross-check

Our RUR40 target price is based on an aggregate DCF model with a seven-year horizon to 2018. We use a 12.7% USD nominal WACC based on a 4% risk free-rate, a 2% country risk and a 7.5% equity risk premium. While we derive a 0.73 beta for Alrosa to MICEX, we believe this reflects the lack of liquidity and trading activity rather than a low correlation with market movements and we use beta of 1. Similarly, while Alrosa's weighted average cost of debt currently stands at 6.75% and its net debt/equity ratio is at 74%, we use 8% as a long-term pre-tax cost of debt and a 25%/75% long-term target debt/equity capital structure. With an historical effective tax rate meaningfully higher than the statutory 20%, our forecasted 23% may, if anything, be aggressive but should, in our view, represent a fair long-term estimate. We add a 1% discretionary liquidity risk given lingering uncertainty on Alrosa's IPO plans. We expect operating costs to grow as Alrosa moves increasingly underground and we expect Alrosa's EBITDA margin to deteriorate from 47% in 2011 (adjusted) to 42% in our exit year. While capex, due to Alrosa's intensive near-term investment program, by far exceeds depreciation (~2x in 2011-14F), we level the two in our exit year. We convert dollar 12-m forward target price at our 2H13 average rouble forecast of 31.65, close to current spot.

Figure 10: Deutsche Bank discounted cash flow model for Alrosa

Year	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E
EBIT	1,401	1,578	1,717	1,791	1,853	1,897	1,975	2,033
Tax on EBIT	(322)	(363)	(395)	(412)	(426)	(436)	(454)	(467)
Working capital change	(84)	109	(202)	(14)	(154)	(82)	(116)	(20)
Depreciation and amortisation	382	486	513	548	581	601	611	569
Capex	(737)	(993)	(1,038)	(1,082)	(931)	(812)	(697)	(569)
Free cash flow	640	818	594	832	923	1,167	1,320	1,545
Discount factor	1.00	0.89	0.79	0.70	0.62	0.55	0.49	0.43
Discounted cash flows	640	726	468	582	573	643	645	
Continuing value								15,782
Discounted cash flows								3,637
Discounted continuing value								6,849
DB EV adjustment								(2,940)
Spot value of equity								7,546
\$/share								1.05
12-M forward								1.27
RUR/share at RUR/\$31.50								40.0
Cost of capital	Model	"Actual" reference	1Q12					
Cost of equity	13.5%	10.4%			Gross debt	4,328		
Risk-free rate	4.0%	1.6%			Cash and equivalents	547		
Country risk	2.0%	2.9%			Net debt	3,782		
Beta	1.00	0.73			Pension obligations	160		
ERP	7.5%	8.0%			Minority interest	16		Book
After-tax cost of debt	6.2%	5.4%			Investments	0	Gas assets	1,100
Cost of debt	8.0%	6.75%			Associates	89	Timir	316
Tax rate	23%	20%		SA / Nyurba minorities	381	Book discount	70%	
Equity proportion	75%	26%		Investments (DB)	991	Total	991	
Debt proportion (YE11)	25%	74%		32.8% in Catoca	391			
Discretionary	1.0%	0.0%		Book EV adjustment	3,869			
WACC	12.7%	6.7%		DB EV adjustment	2,940			

Source: Deutsche Bank



We apply a 2.5% terminal growth rate, in line with cost and price inflation assumed at that point, to capture the wealth of Alrosa's resource base and the expansion options that it offers.

Figure 11: Valuation sensitivities to WACC and terminal growth rate

	10.7%	11.2%	11.7%	12.2%	12.7%	13.2%	13.7%	14.2%	14.7%	15.2%
0.0%	42.8	39.7	37.0	34.4	32.1	30.0	28.0	26.2	24.5	22.9
0.5%	44.8	41.6	38.6	35.9	33.4	31.2	29.1	27.2	25.4	23.7
1.0%	47.1	43.6	40.4	37.5	34.9	32.5	30.2	28.2	26.3	24.6
1.5%	49.6	45.8	42.4	39.2	36.4	33.9	31.5	29.3	27.4	25.5
2.0%	52.5	48.3	44.5	41.2	38.1	35.4	32.9	30.6	28.5	26.5
2.5%	55.6	51.0	46.9	43.3	40.0	37.0	34.4	31.9	29.7	27.6
3.0%	59.2	54.1	49.6	45.6	42.1	38.9	36.0	33.4	31.0	28.8
3.5%	63.3	57.6	52.6	48.3	44.4	40.9	37.8	34.9	32.4	30.1
4.0%	68.0	61.6	56.0	51.2	46.9	43.1	39.7	36.7	33.9	31.4
4.5%	73.4	66.1	59.9	54.5	49.8	45.6	41.9	38.6	35.6	33.0
5.0%	79.8	71.5	64.4	58.3	53.0	48.4	44.4	40.8	37.5	34.6

Source: Deutsche Bank estimates

Sensitivities

In terms of sensitivities to our operating assumptions, Alrosa is most sensitive to diamond prices.

Figure 12: Alrosa sensitive to a 10% parallel upward shift in diamond prices

	2011E	2012E	2013E	2014E	2015E
Revenue	0%	7%	10%	10%	10%
EBITDA	0%	15%	19%	19%	20%
EBIT	0%	18%	25%	25%	26%
Earnings	0%	21%	30%	31%	33%
Free cash flow	0%	10%	51%	41%	39%
EBITDA margin	0pp	3pp	4pp	4pp	4pp
Net margin	0%	12%	18%	19%	21%
Target price	56.6	Previous	40.0	Change	42%

Source: Deutsche Bank estimates

A 10% downward shift would be largely proportionally negative, although slightly more severe with an estimated 50% fixed costs and relatively high operating leverage. Lifting our expected rate of diamond price appreciation by 1pp (from 4.5% to 5.5%) would raise our target price by 14%.

With ~70% of costs rouble-denominated, Alrosa is also exposed to rouble appreciation. We estimate that a 10% parallel shift of the rouble would reduce 2012/13E EBITDA by 8%/10% and lower our target price by 27%.

Liquidity drought

We believe one of the key issues holding Alrosa back is its poor liquidity. While an IPO could provide an important catalyst for the stock and offer a reason to position for such a liquidity event, we recognize that the outlook for a share placement remains uncertain, partly due to Alrosa's improved cash flows and debt position. With that outlook in mind, we believe Alrosa should trade at a discount to its peers.

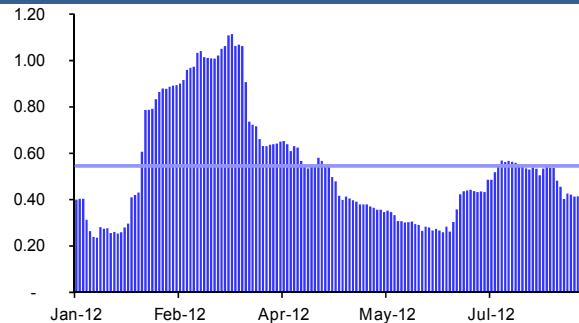


Figure 13: Alrosa's share performance YTD, following introduction on MICEX in November 2011; hurt by ...



Source: Deutsche Bank, Bloomberg Finance LP

Figure 14: ... poor liquidity (\$m) and uncertainty about any IPO

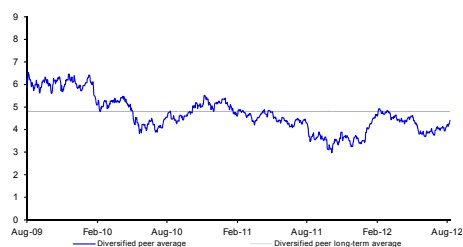


Source: Deutsche Bank, Bloomberg Finance LP

While we believe Alrosa should trade as a mining company, we think that the diamond market has special characteristics that may tilt valuation parameters. In contrast to metals, diamond prices are more directly consumer driven and, in particular, driven by luxury goods consumption. We believe diamonds may be more priced off affordability than marginal cost and so that diamond prices will appreciate with growth, inflation and wealth creation. In addition to this, we face a constrained supply situation and a concentrated industry structure that we think may support price growth to at least offset inflation in operating cost and allow the diamond miners to show earnings growth. We forecast an upward sloping diamond curve and believe diamond earnings multiples should reflect such dynamics.

In terms of multiples, our target price implies 6.1x/5.3x EV/EBITDA and 8.2x/8.0x earnings on our 2012/13 forecasts, which is in line with long-term average forward multiples for the diversified miners, lower than precious metal, and, although with patchy data, lower than pure diamond averages, although multiples have come off.

Figure 15: Diversifieds 1YF EV/EBITDA



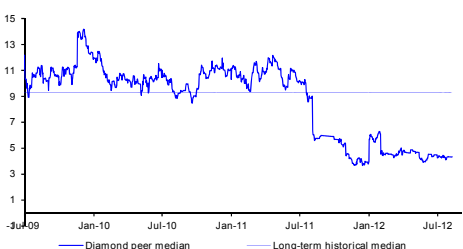
Deutsche Bank, Bloomberg Finance LP

Figure 16: Golds 1YF EV/EBITDA



Deutsche Bank, Bloomberg Finance LP

Figure 17: Diamond* 1YF EV/EBITDA



Source: Deutsche Bank, Bloomberg Finance LP

Figure 18: Diamond* 1YF P/E



Source: Deutsche Bank, Bloomberg Finance LP, * Includes Gem diamonds, Petra, Lucara, Harry Winston, Alrosa. All based on Bloomberg consensus



Figure 19: Comparable valuation table: cheaper than most average benchmarks on most metrics (Pure diamonds and luxury goods are based on Bloomberg Finance LP consensus)

Company	Rec	Target Price	Current Price	Market Cap, USDmn	P/E (x)	EV/EBITDA (x)	P/BV (x)	FCF yield	ROE, %	Net Debt/Equity, %	Dividend Yield, %	EBITDA Margins
					2012	2013	2012	2012	2012	2011	2012	2012
Pure diamond												
Gem Diamonds	N/R		192.5	417	9.4	9.0	2.5	17.6	9.0	-32.8	0.00	33%
Harry Winston	N/R		13.7	1,160	17.0	14.8	5.2	0.3	neg	29.2	0.00	28%
Lucara Diamonds	N/R		0.6	216	35.9	7.4	4.3	neg	n/a	-4.0	n/a	26%
Petra Diamonds	N/R		110.0	871	24.6	10.9	9.5	neg	4.7	-1.0	0.00	31%
Weighted Average					19.8	12.0	6.9	4.9	6.1	7.0	9.7	30%
Alrosa	Buy	40.0	25.3	5,874	5.5	5.1	4.4	12.3	25.9	73.9	1.90	44%
Luxury goods												
Burberry Group Plc	N/R		1,350.0	9,335	18.8	16.1	10.5	n/a	32.1	-40.6	1.9	26%
Prada S.P.A.	N/R		57.3	18,887	25.8	20.8	15.3	2.4	27.7	n/a	0.7	31%
SWATCH	N/R		399.8	12,694	14.7	13.2	9.5	0.9	17.0	-25.7	1.7	27%
Tiffany & Co	N/R		58.3	7,388	16.7	14.7	8.5	neg	19.6	-2.4	1.9	24%
LVMH	N/R		130.6	82,063	17.9	16.1	10.4	3.2	16.0	21.1	2.3	25%
Weighted Average					18.7	16.4	10.9	2.8	19.2	9.0	1.9	27%
Diversified Large Caps												
ANGLO AMERICAN	Buy	2,960.0	2,027.5	44,144	12.3	9.9	6.1	NM	6.9	2.6	2.6	28%
BHP BILLITON	Buy	2,220.0	1,976.0	65,365	9.6	10.2	5.6	6.6	21.8	10.1	3.7	45%
ENRC PLC	Buy	1,030.0	425.6	8,584	8.9	6.1	5.7	NM	8.6	8.7	2.3	32%
NORILSK NICKEL	Hold	240.0	158.8	30,269	7.8	7.3	5.0	6.4	26.8	31.3	4.2	44%
RIO TINTO	Hold	4,885.0	71,160	71,160	8.7	6.7	5.3	0.1	18.9	20.5	3.4	38%
VALE	Buy	29.0	18.7	60,868	5.5	5.8	4.8	1.3	20.4	24.3	6.4	44%
Weighted Average					8.8	7.8	5.3	3.0	20.2	16.8	4.0	39%
Gold & Silver												
ANGLOGOLD	Hold	310.0	276.0	13,040	10.2	6.2	5.2	4.4	26.3	26.6	1.4	41%
BARRICK GOLD	Buy	50.0	33.8	33,800	8.1	5.4	5.9	NM	16.8	41.6	2.2	55%
FRESNILLO	Hold	1,580.0	1,565.0	17,578	23.3	13.4	11.0	1.6	36.6	-31.9	2.2	64%
GOLDCORP	Buy	45.0	36.9	29,902	20.3	10.3	10.3	NM	7.4	-3.6	1.5	52%
GOLD FIELDS	Hold	112.0	109.3	9,840	8.8	4.9	3.9	3.3	47.9	18.5	2.8	46%
NEWCREST	Buy	28.1	24.4	19,732	18.2	11.4	9.6	NM	7.1	10.5	0.5	47%
NEWMONT	Hold	50.0	46.9	23,049	11.1	7.5	5.6	2.1	15.5	16.2	3.2	48%
POLYMETAL	Buy	1,110.0	935.0	5,652	10.0	5.8	7.3	6.0	29.5	21.7	2.0	48%
POLYUS GOLD	Buy	260.0	192.8	9,154	11.8	8.3	7.0	NM	24.3	5.0	2.1	50%
Weighted Average					13.7	8.3	7.4	3.9	19.2	7.7	1.9	51%
PGMs												
AMPLATS	Buy	550.0	432.0	14,378	63.2	51.7	18.9	neg	2.29	6.4	0.5	13%
AQUARIUS	Buy	71.0	36.2	267	NM	NM	12.9	n/a	-18.05	-4.2	0.0	n/a
IMPALA PLATINUM	Buy	175.0	132.1	10,300	19.2	23.2	12.9	3.1	12.68	-5.4	1.4	23%
LONMIN PLC	Hold	850.0	759.0	2,409	212.9	233.9	17.2	1.1	0.12	7.0	1.2	11%
NORTHAM	Buy	36.0	25.9	1,220	90.0	14.6	47.9	neg	7.11	-16.8	0.4	6%
Weighted Average					61.1	55.2	17.8	2.8	5.9	1.1	0.9	13%

Source: Deutsche Bank



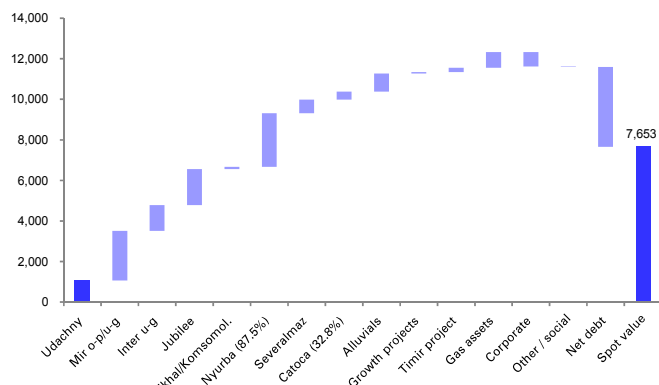
Cheap on reserves, but reserve multiples for diamond miners are imprecise

One of Alrosa's key investment attractions is the company's vast ore reserves, representing almost a third of global reserves and almost all of Russia's. With 1.22bn carats at 0.9ct/t of reserves, Alrosa trades at 7.4x EV/reserves and 4.9x P/reserves, while our target price implies 10.2x and 7.7x. That said, given the heterogeneous nature of diamond reserves (price, grade, and cost of extraction), we do not believe reserve multiples are the most appropriate valuation benchmarks.

More safety in law of large numbers than precision in sum of the parts

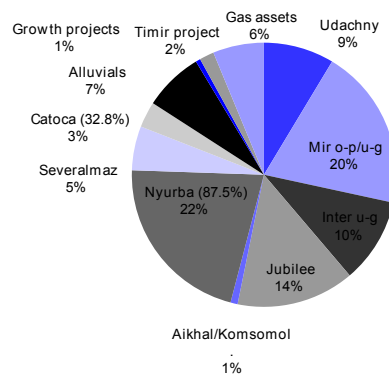
We typically value miners on a sum-of-parts of life-of-mine DCF model for each mine. Given i) the relatively poor detail on mine reserve data (basically only aggregates and 2011 operating parameters) as well as ii) the high importance of reserve quality and characteristics, we feel more comfortable in valuing Alrosa on an aggregate model with a DCF methodology. Another problem is attributing meaningful indirect costs in the case of Alrosa. That said, we have also modelled on a mine-by-mine basis to identify indicators of value and cost drivers in Alrosa's asset portfolio. On a crude and imprecise sum-of-the-parts model, we derive a value of RUR38/share. However, in this case, we find the indicative value distribution more interesting than the outcome itself. For example, on the current underground development capex and cost growth projection, we estimate the flagship Udachny mine to contribute only 10% of Alrosa's overall value. Meanwhile, high yielding (2011A average prices of \$293/ct) contributes 20%, large scale (with minority interest) Nyurba 22% and high grade International 10%. Alrosa's Severalmaz growth project contributes 5% to our value on assumption of better pricing, higher grade and lower costs as the project ramps. With limited visibility on mine-by-mine operational parameters, we treat our sum-of-parts models as indicative only. We believe Alrosa's reserve update, expected in 4Q12, can allow us to forecast mine output and profitability more precisely.

Figure 20: Indicative sum-of-parts valuation ladder



Source: Deutsche Bank estimates

Figure 21: Indicative asset value distribution



Source: Deutsche Bank estimates

Our forecasts are 5%/4% and 10%/17% below Bloomberg Finance LP consensus on EBITDA and earnings 2012/13F, respectively. Our target price is 20% consensus.



Business profile

Global volume leader, targeting further growth

OJSC Alrosa explores, mines, processes, and sells rough diamonds through a global and partly proprietary distribution network. On producing 34.5m ct in 2011, Alrosa was the world's biggest rough diamond mining company, accounting for 28% and 97% of global and Russian rough diamond volume production, respectively. The group's main operations are located in Yakutia, in northeastern Siberia, near the cities of Mirny, Udachny, Nyurba, Aikhal and Anabar. With 1.2bn ct at 0.81ct/t in reserves, Alrosa also enjoys a leading resource position globally, with about one-third of global reserves, that can support the company's current production levels for another 35 years.

Background, history and overview

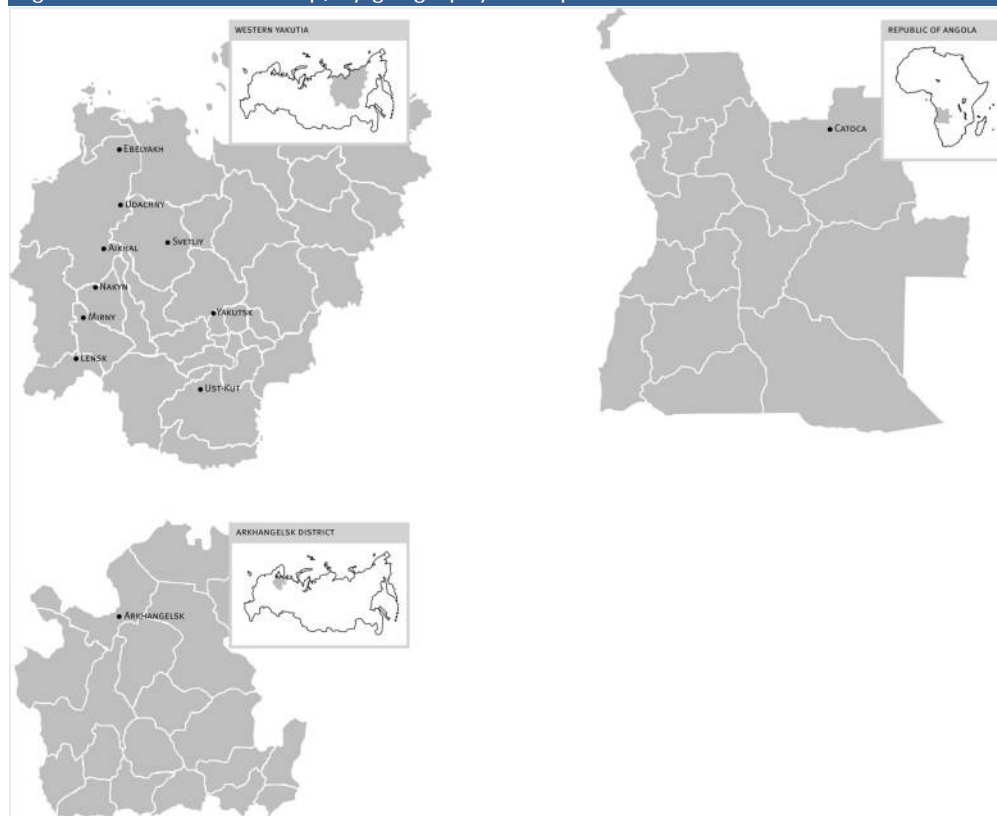
The history of diamond mining in Yakutia and Russia dates back to 1954, when the first diamond pipe, Zarnitsa ("Sunrise", now part of the Udachny "Fortunate" complex) was discovered in what was then the USSR. In 1957, Yakutalmaz was established as a holding company of diamond producers in the region, and industrial production of diamonds commenced. Two years later, the USSR sold the first shipment of Yakut diamonds on the world market. The Soviet diamond mining industry developed around the Mir open-pit mine and adjacent diamond placers, which funded the further development of the Aikhal and Udachny pipes in the 1980s. On 19 February 1992, Joint Stock Company Alrosa (Alrosa) was established under a decree of Russian President Boris Yeltsin. Alrosa is the legal successor of i) the companies and support structures of Yakutalmaz (the dominant state-owned diamond mining company in the former USSR); ii) select entities within the Committee for Precious Metals and Gems, organized under the under the Ministry of Finance of the Russian Soviet Socialist Republic (involved in sorting, preparation for shipment and shipment of rough diamonds); and Almazynvelirexport (the monopoly exporter of diamonds until the early 1990s).

Alrosa is a vertically integrated company that is involved in all the processes of diamond exploration, mining, beneficiation and sales. Operating in remote areas with production complexes structured around so-called mono-cities in regions where the company provides the main source of employment and income, Alrosa has also developed its own supporting infrastructure, including social facilities, construction, logistics and power assets. As the regional administration develops its infrastructure, Alrosa is currently reducing its involvement in some of these business areas.

In Russia, Alrosa carries out diamond mining operations at nine primary and ten alluvial deposits. The main operations are located in Yakutia, in northeastern Siberia, near the cities of Mirny, Udachny, Nyurba, Aikhal and Anabar and are organized into four mining and processing divisions, four exploration expeditions, a research and design institute as well as a motor transport and an airline unit. Alrosa also has meaningful iron ore and gas assets, which it considers non-core and may divest. Operating in extreme environments with a boreal climate, permafrost and winter temperatures below -50C, Alrosa has developed special technology and methods for mining in the harsh conditions of Siberian Russia. Alrosa also operates the Severalmaz diamond mining subsidiary in Russia's northwest, with the Arkhangelsk mine and the Karpinsky pipe development in the Lomonosov diamond field (see more below). Outside Russia, Alrosa owns a 32.8% stake in Catoca Ltd, the largest diamond miner in Angola and the fourth biggest diamond mine globally.



Figure 22: Alrosa asset map, by geography and operation



Source: Deutsche Bank, Company data

Sorting, valuation and sales are coordinated through Alrosa's United Selling Organization (USO). The USO was established in 1996 and currently employs more than 500 sorters and experts. Alrosa has representative offices in London and in Luanda, Angola, and maintains trading companies for the sale of rough and polished diamonds in New York, Hong Kong, Antwerp, Geneva, Dubai and Ramat-Gan in Israel.

Through Brillianty Alrosa, Alrosa cuts and polishes a small part of its rough diamonds. However, this business is considered ancillary to the sale of rough diamonds; in 2011, Alrosa sold \$181m, or less than 4% of total revenues. The company sees the retail segment as an opportunity to learn and understand the trends and business dynamics of the downstream segment.

About 70% of Alrosa's rough diamonds are exported. 60-70% of the rough is sold on more stable long-term contracts while the rest is split between auction and spot sales depending on current market conditions.



Figure 23: Alrosa's organizational structure; mining and processing



Source: Deutsche Bank, Company data

Strategy; going for greater

In February 2011, Alrosa's supervisory board approved a development plan through 2018, which set out the company's key strategic priorities:

- Strengthen Alrosa's leading position in the global rough diamond market
- Secure a reserve replacement ratio of more than 100%
- Strengthen the company's distribution channels
- Increase the company's capitalisation

To work towards these objectives, Alrosa plans to i) complete the development of underground mines at the Mir, Aikhal and Udachny open-pit mines, ii) increase the intensity of geological exploration, and iii) overhaul and upgrade its equipment and fixed assets and expand its global marketing and sales network, to provide better visibility on sales by increasing the share of rough that is sold under long-term contracts. To achieve these targets, Alrosa plans to invest approximately \$10bn by 2021 on our estimates and some \$8bn by 2018E (including exploration, which Alrosa however expenses). Meanwhile, and given Alrosa's share in the global diamond market (25% by volume in 2011), the company stresses on its strategic flexibility and that the company will be mindful of global price dynamics as it weighs expansion against capex spend and global supply trends.

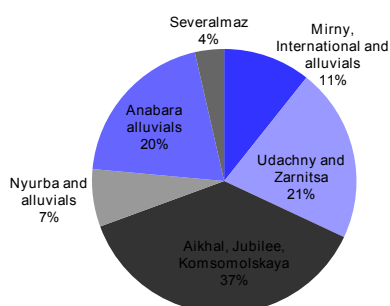


Asset description

A diversified portfolio with strong reserve base

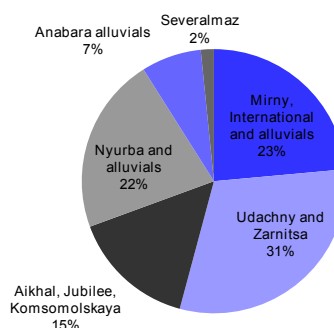
In Russia, Alrosa operates nine primary and ten alluvial deposits in Yakutia, in northeastern Siberia, and Arkhangelsk in northwestern Russia. Outside Russia, the company owns a 32.8% stake in Catoca Ltd, the largest diamond miner in Angola and the fourth biggest diamond mine globally. Alrosa also has iron ore and gas assets, which it considers non-core and may divest.

Figure 24: 2011 ore processing by division



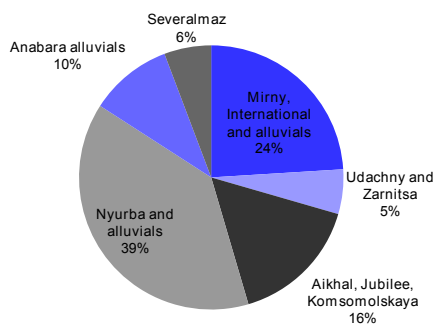
Source: Deutsche Bank estimates, Company data

Figure 25: 2011 diamond carat production by division



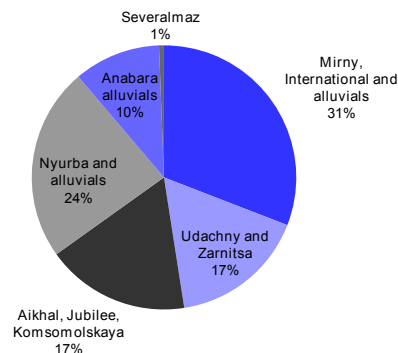
Source: Deutsche Bank estimates, Company data

Figure 26: 2011 opex by division



Source: Deutsche Bank estimates, Company data

Figure 27: 2011 value of diamond production by division



Source: Deutsche Bank estimates, Estimates of mined value company data

Udachny ("Fortunate") – a volume, but not value, leader, going underground

The Udachny division operates the Udachny and Zarnitsa open-pit mines. Over the past 19 years, this division has been the leading producer of diamonds in Russia. The division is principally engaged in mining the Udachny diamond pipe, which was discovered in 1955 following exploration in the basin of the Daldyn River. This deposit is located in the permafrost zone 12km south of the Arctic Circle. Ore extracted from the Udachny division is processed at treatment plant No. 12, which, with seven autogeneous mills and on reaching the full 12mtpa design capacity in 2002, is Alrosa's second largest. The Udachny open-pit is expected to be depleted in 2016 and



underground development was started in 2004, with the first phase of 1.5mtpa capacity expected to be commissioned in 2014 to replace slowing ore feed from the open-pit. The underground mine is expected to ramp up to full 4mtpa capacity by 2017. In the transition period, processed yields are expected to decline as grades deteriorate (~1.9ct/t in 2011) and costs per ton expand. As the underground mine ramps, grades should gradually improve, while costs will stay elevated due to higher underground mining costs. Alrosa estimates Udachny to have a mine life of 52 years.

The Zarnitsa ("Dawn") open-pit operation mines the Zarnitsa kimberlite field, which was the first kimberlite field discovered in Siberia. The Zarnitsa open-pit mine has design capacity for the extraction of up to 3.0mtpa. In 2010, the mining operations at the Zarnitsa field were suspended as extraction became uneconomical against a sharp fall in diamond prices as a result of the global economic crisis. Since 2011, limited production at the Zarnitsa open-pit mine was resumed only to the extent necessary to verify its mining efficiency ratios. Upon the results of such verification, a decision will be made whether to continue the operations or to schedule the Zarnitsa open-pit mine for temporary abandonment. With a smaller-scale (1mtpa for ~200kct vs. the original design of 3mtpa) and a lower grade (~0.2ct/t in 2011) operation, Zarnitsa would have been uneconomical as a standalone operation in our view, but gains operating leverage from utilizing the nearby (15km) Udachny processing facilities.

Figure 28: Udachny is a city close the Arctic Circle



Source: Deutsche Bank, Company data

Figure 29: Udachny open-pit, one of the world's largest



Source: Deutsche Bank, Company data

While Udachny was a volume leader in 2011 at 10.5mct, producing almost one-third of Alrosa's total output, we expect rough diamond production levels to gradually decline to stabilize to around 6mct as underground mining is phased out. Meanwhile, cash costs are expected to increase despite some grade improvement. Stone quality and pricing (~\$107/ct in 2011 vs. the \$130/ct average) may improve with depth to contain margin erosion. However, an expected \$1.2bn 2012-2021E expansion capex to drive the underground development at Udachny will consume much of near-term cash flows, which makes the underground project more leveraged to the diamond price. Alrosa expects costs to rise sharply at Udachny as stockpile processing winds down and the mine goes underground.



Mirny ("Peaceful") – underground pathfinder but value leader

The Mirny division was established in 1957 to operate the International, Mir and Dachnaya open-pit mines, which were closed in 1981, 2001 and 2005, respectively. The production complex is located in a region of compact permafrost near the city of Mirny. It now operates the International and Mir underground mines, which were commissioned in 2002 and 2009, and several alluvial mines.

International was Alrosa's first underground mine. The open-pit mining at this deposit started in 1971. Due to water-levels and complex ore cross-sections, open-pit mining was discontinued in 1981 at a shallow depth of 285m. In the mid-1970s, the construction of an underground mine started at the deposit. In 1999, the start-up facility of the mine was placed into operation. Full underground mining operations were launched in 2002 and reached below 1km in 2009. Alrosa is contemplating, and currently working towards, an option to expand International in two phases, by 2015 and 2018. Diamonds from the International pipe are unique in their gem quality and prized in the world market. Despite being deep underground, International currently has attractive economics due to a high grade (7.9ct/t in 2011E) containing direct unit costs (~\$39/ct for the division) and relatively high quality stones (~\$161/ct) boosting yields and free cash flows. Alrosa estimates mine reserves to last for at least another 22 years.

The Mir diamond pipe has confirmed diamond bearing ore to a depth of 1,3km. Open-pit mining ceased in 2001 and underground extraction started in August 2009. While underground mining at Mir is complicated by water flows and heavy mineralisations throughout the ore body, Alrosa expects the Mir underground mine to reach the full 1mtpa capacity in 2013 (vs. 4.5mtpa from the open-pit) and also for higher quality diamonds to offset incremental expenses. Indeed, in 2011, we estimate the average price for Mir's rough at ~\$290/ct with divisional direct cash costs of ~39/ct on grades of 3.9ct/t. Alrosa expects to maintain production levels for the entire 40-year life of the mine. Mirny conducts alluvial mining on the Irelyakh river, and on the Vodorazdelnye Galetchniki, Levoberezhnaya and Gornoye alluvial deposits. These highly seasonal operations involve three floating dredges that collect diamond-bearing gravel from the surface of riverbeds from April to November.

Ore extracted from the International and Mir underground mines is processed at the modernized 1.88mtpa treatment plant No. 3, while alluvial sands are processed at the three dredges.

Figure 30: The International underground mine



Source: Deutsche Bank

Figure 31: Open-pit mine at the Mir pipe



Source: Deutsche Bank



Aikhal – more processing cost for less diamonds

The Aikhal division operates the Aikhal underground mine and the Jubilee and Komsomolskaya open-pit mines.

The Jubilee open-pit mines are one of the largest diamondiferous ore deposits in Russia. The pipe consists of three vertical pipes (western, central and eastern), discovered in 1975, approximately 15km northwest of the city of Aikhal. The quality of diamonds has increased with the size of stones at depth in the mine and an estimated yielded ~170/ct in 2011. However, dispersion is high with a low average grade (0.4ct/t in 2011) implying relatively high unit direct divisional processing costs (~\$40/ct).

The Komsomolskaya open-pit is located 8km northwest of the city of Aikhal. It began production in 2002 and has a target depth of 460m. Komsomolskaya is a small scale operation with a 1mtpa capacity, low grade (0.3ct/t in 2011) and marginal economics on relatively low-yielding diamonds (Alrosa's lowest at \$63/ct in 2011). As with Udachny's Zarnitsa, we believe Komsomolsky may be unviable as a standalone business but leverages off Aikhal's infrastructure. We model Aikhal and Komsomolskaya together and derive only a marginal value.

The Aikhal diamond pipe was discovered in 1960. In 1997, the open pit reached its 350m target depth and the development of an underground mine started in 1998. After halting the construction in 2005, the mine was commissioned in December 2009 and had ramped up to ~50% of its 500ktpa capacity in 2011. Higher grades (~5.7ct/t at ~\$103/ct price 2011) from Aikhal's underground ore feed improves the economics of the Aikhal division, which otherwise has marginal economics off low grades and pricing yield. Further underground development is expected to require about \$230m expansion capex in 2012-21E.

Ore from the Aikhal division is processed at treatment plants No. 8 and 14 with 1.6mtpa and 10mtpa design capacities, respectively. Built in 1996, the treatment plant No. 14 has modern X-ray sorters and is the largest such plant in Russia and among the three largest in the world.

Nyurba (87.5%) – young and high yielding but short-lived

The Nyurba division operates the Nyurbinskaya open-pit mine as well as several alluvial mines and plans to develop a second open-pit mine, Botyobinskaya, in 2013-15. Alrosa owns a 87.5% stake in Nyurba, with the residual 12.5% stake held by the Ministry of Property Relations of Yakutia (10%) and other entities (2.5%).

The Nyurbinskaya open-pit mine is located in the permafrost zone 175km south of the Arctic Circle. The mine became operational in 2003. Once the 450m target depth is reached, Alrosa plans to develop Nyurba using underground mining. Nyurba is a relatively attractive operation in Alrosa's portfolio; while mining and processing costs (~\$245/t in 2011 according to our estimate) are comparably high, grades (5.1ct/t) and yield (~\$255/ct) improve economics and cash flows. Alrosa expects Nyurba to remain a core producing asset, contributing more than 5mctpa up until 2018.

The Nyurba division also conducts alluvial mining, producing some 1mt of diamond bearing gravel pa.

The Botyobinskaya diamond pipe was discovered in the Sredne-Markhinsky kimberlite field in 1994 and may be developed starting 2013-2015 to compensate for the depletion of the Nyurbinskaya deposits. Alrosa believes that parallel mining of the deeper levels at



the Nyurbinskaya pipe and exploiting the Botyobinskaya diamond pipe will make it possible to maintain the aggregate ore yield at the division.

Ore and gravel from the Nyurba division is processed at treatment plants No. 15 and 16.

The plant No. 15 was commissioned in July 1999 with a 0.4mtpa capacity. After being used to process exploration material from the Nyurbinskaya pipe, it has been used to process alluvial gravel. The plant No. 16 has the highest level of automation of any of Alrosa's plants and has a 1.5mtpa design capacity, which currently leaves it underutilized and gives Alrosa an option to develop the Botyobinskaya mine.

Almaz Anabar and other alluvials – stable but seasonal source of high-price rough

Almazny Anabara, a wholly-owned subsidiary of Alrosa, undertakes alluvial diamond mining in the Anabar district in north Yakutia. Due to Anabar's location, ore processing is seasonal between June and October. Previously, all alluvial mining used to be carried out by the Anabar division, established in 1984, but in 2008 these assets were transferred to the Udachny division, which currently leases them to Almazny Anabara.

In our forecast, we group alluvial operations together. Alrosa expects alluvial mining to remain a core source of diamond production, with processed gravel volumes growing from 5.5m m3 in 2011 to more than 7m m3 in 2021 and rough diamond output growing from just below 4mct in 2011 to 5.5mct in 2021. Alrosa notes that alluvial diamonds tend to be of higher value than average in the group (~\$200/ct in 2011), while cash costs are at or below open-pit operations.

Severalmaz (99.6%) – growth production hub with high operating leverage

Severalmaz operates the Arkhangelsk open-pit mine and is developing the Karpinsky-1 pipe in the Lomonosov diamond field. This field consists of six kimberlite pipes. Mining conditions are complicated by harsh climatic conditions and large volumes of groundwater. Alrosa was previously considering divesting up to 45% of the asset, with companies like Rio Tinto reviewing the operating, but later, partly on the back of stronger diamond prices, decided to develop Severalmaz on its own. In contrast to most of Alrosa's assets in Yakutia, local social infrastructure is available in Arkhangelsk and does not imply the same economic burden on Alrosa as it does in Mirny and Udachny. At Severalmaz, Alrosa is building more standard quarters for workers from Arkhangelsk.

Severalmaz started to develop the Arkhangelsk open-pit mine in 2002 with production being launched in 2005. Severalmaz's production has since contributed only about 1% to Alrosa's overall value. In 2011, we estimated that Severalmaz was making losses. Grades in the Arkhangelskaya pipe is relatively low (0.5ct/t in 2011) and the produced lower-than average quality (on average priced at \$81/ct in 2011). Costs are, however, expected to come down as operations are optimized, grades improve at deeper mining levels and expanding production offsets fixed costs. At the Lomonosov field, Severalmaz is also developing the Karpinsky-1 open-pit

Karpinsky-1 is an adjacent pipe that is expected to produce 2mtpa of ore and 1.3mct starting 2015 and with diamond production increasing on higher grades. During 2012-21E, Alrosa plans to invest c.\$400m into the expansion of the Arkhangelskaya pipe and launch of Karpinsky-1. At current economics and realized diamond prices, we estimate this capex to be value-accretive to investors. On lower costs, which Alrosa expects as grade increases, and improved pricing, which is expected as a result of improvements in stone quality, the economics would improve over a relatively high operating leverage. Moreover, with more than 200mct of reserves, Severalmaz has life far beyond the currently planned 40 years of operation.



Figure 32: Arkhangelsk pipe at Severalmaz; current depth



Source: Deutsche Bank

Figure 33: Hydro-geological studies to manage groundwater



Source: Deutsche Bank

Oil and gas company LUKoil is currently developing the Grib kimberlite pipe property only 25km away from Alrosa's Severalmaz assets in the Lomonsov diamond field. According to LUKoil's development plan, the company will spend \$1bn in capex to commission diamond production in 2H13 and reach a 4mctpa capacity, at a slightly higher quality than the Arkhangelskaya and Karpinskaya pipes. The Russian media (Interfax 12.06.15) has speculated that LUKoil and Alrosa could swap non-core assets to improve their respective asset profiles while broadening their core operating portfolios.

Development projects – the growth option portfolio; needs to be discounted

In addition to Alrosa's current operations, with the transition towards more underground mining and the expansion of the Severalmaz operations, the company has also accumulated a licence portfolio with several development options.

- At end-2010, Alrosa won an auction supervised by Rosnedra (the government regulator of the usage of natural resources in Russia) to develop additional diamond deposits in the Republic of Sakha (Yakutia).
- The licences cost RUR2.3bn and cover the Ruchey Gusiny and Ebelyakh alluvial deposits as well as the Dalnaya diamond pipe, with total reserves estimated at 42mct and an average expected price yield (real, at time of auction) of more than \$70/ct.
- In April 2011, Alrosa was awarded the licences for developing the Verkhne-Munskoe and Maiskoe diamond deposits in Sakha (Yakutia). Both deposits were discovered earlier as part of Alrosa's ongoing geological exploration activity in the region.
- The Verkhne-Munskoe licence area covers three kimberlite pipes with total reserves of more than 38mct on an average grade 0.6ct/t and an expected average price yield (real, at time of auction) of more than \$210/ct.
- The Maiskoe licence area covers one kimberlite pipe with total reserves estimated at 12mct with a higher average grade of 3.7ct/t, but a lower average expected price yield of about \$90/ct, due to lower average quality and size.
- We note that the Verkhne-Munskoe pipes offers relatively sizeable reserves (~one year of Alrosa's total group production) at higher price yield but lower grade than company average, which on balance could support the economics of developing the deposits.
- With regards to the Ruchey Gusiny and Ebelyakh alluvial licenses and the Dalnaya pipes, economics could be more challenging at below average price



yields. While quality and size of the stones in general are lower than Alrosa's 2011 average (\$130/ct) and may point to marginal economics, all the diamond deposits (including Verkhne-Munskoe) are however adjacent to Alrosa's existing production facilities and will utilize installed processing capacity to increase production and further diversify ore feed sources. Leveraging existing production infrastructure will contain incremental capex on beneficiation capacity and will likely lift opex (mostly from additional ore hauling) only marginally. Moreover, alluvial operations tend to have operating costs at or below open-pit operations.

- In addition the above development options, Alrosa's current operations also offer some expansion opportunities from satellite deposits and capacity expansions. In a high diamond price environment, there may also be opportunities to recycle tailings to recover further smaller and lower quality diamonds, primarily for industrial purposes.
- According to one of Alrosa's development scenarios, the company expects to grow processed volumes from current tailings and the above development opportunities from 2.5mtpa in 2014 to 8mtpa by 2021, with average grade in the 0.6-0.7ct/t range and these operations contributing up to 15% of overall diamond production in 2021E.

Figure 34: Part of Alrosa's growth opportunities

	Type	M&I		M&I	
		Ore, mt	Carats, mct	Grades	Price exp
Ruchey Gusiny	Alluvial	-	14	-	70
Ebelyakh	Alluvial	-	14	-	70
Dalnaya	Open-pit	-	14	-	70
Verkhne-Munskoye	Open-pit	63	38	0.6	210
Maiksoye	Open-pit	3	12	3.7	90
Total / weighted average		67	92	0.7	130

Source: Deutsche Bank, Company data

With little transparency in Alrosa's plans to monetize its licence portfolio, or the capex and opex involved to do so, we struggle to attach a value to these assets. In our aggregate model, we include Alrosa's planned production from the assets at a relatively low margin, high maintenance capex and lower than average price yield. Our model attach marginal value to the development portfolio

Interfax (12.08.09) recently reported that Alrosa may acquire Nizhne-Lenskoye, an independent diamond producer with alluvial operations close to Alrosa's Anabar operations that, according to the newswire, has reserves of ~4.5mct at 1ct/m³ and produced 1.4mct (~4% of Alrosa's current output). Without detail on price or asset qualities, we simply point to potential synergies with the Anabar operations and that Alrosa already almost fully conciliated the Russian diamond market. With a reported ~\$1m of 2011 net income and ~\$200m debt (Interfax), we however take a cautious view on a deal. A purchase would be subject to anti-monopoly approval.

Catoca (32.8%) – African associate with robust cash flows and dividend yield

In 1989, Alrosa's (32.8%) predecessor entered into a cooperation agreement with Endiama (32.8%), an Angolan government-owned entity, the Israeli-owned Daumonty (18%) Financing Company and Brazilian Odebrecht Mining (16.4%) to establish Catoca Mining as a JV to mine the Catoca diamond pipe, located in the Luande Norte Province in eastern Angola, approximately 1,000km north of the nation's capital. Production commenced in 1997 and was expanded through a second phase launched in 2005. The operation is now fully self-financing and pays almost 100% of its net profit to the JV



partners. Catoca's diamonds are sold through Sodiam, an export agency of the Government of Angola. The venture operates on a concession basis, and is not required to purchase mineral rights to the Catoca deposit.

About 10% of Catoca's 2,400 people are seconded from Alrosa to provide advisory services. In terms of surface area, Catoca is the world's fourth largest diamond mine. Alrosa exploration work suggests that the Catoca diamond pipe may contain 220mt of ore at a depth of up to 400m and with an average grade of 0.7ct/t, or approximately 150mct. Recent estimates suggest deeper level mineralogy may provide for further reserves of up to 189mct, implying more than 30 years of mine life at the current production rate. Alrosa believes that, based on ore body size, mining conditions and the quantity and quality of diamonds, the Catoca diamond pipe is comparable to mines such as Jwaneng and Orapa in Botswana, the Cullinan in South Africa and Alrosa's Udachny mine.

Figure 35: Catoca's ore reserves

	Depth, m	Ore, mt	Reserves, m crt	Grade
B	960-760	135	92.5	0.69
C1	760-560	85.5	55.1	0.64
C2	560-360	50.5	41.7	0.83
Total		271	189.3	

Source: Deutsche Bank, Catoca, http://www.catoca.com/www/mineracao_geologia.asp

Ore extracted from the Catoca mine is processed at two processing plants with a total aggregate processing capacity of 10mtpa. After producing 1.8mct in 2000 and following the expansion in 2005, Catoca has produced 6-7mctpa with 35% gem quality diamonds at average prices around \$90/ct in 2011, generating just above \$600m in 2011 with ~50% EBITDA and ~20% net margins.

Figure 36: The Catoca diamond mine



Source: Deutsche Bank, Company data

Figure 37: Catoca's processing capacity



Source: Deutsche Bank, Company data

Alrosa expects production and pricing levels to remain stable in the medium term, which would imply Alrosa claiming about one-third of an approximate \$100m profit in cash dividends. In Alrosa's financial statements, Catoca is only recognized as associate income.



In 2006, a project funded by Catoca Mining (32%), Endiama (42%) and others (26%) were granted mining rights to a concession for the exploration and development of the Lapi alluvial and the Luemba diamond pipes in Angola. Alrosa also holds a 90% interest in Rosan Mining and Investment Company, which was created to implement mining, energy and civil works projects in Angola.

In June 2007, Vneshstroy, a subsidiary of Alrosa, completed the construction of Chicapa-1, a hydroelectric station on the Chicapa river in Angola to supply electricity to the Catoca mine. The hydroelectric station is operated by Hidrochicapa, another joint venture between Alrosa and the Government of Angola, where Alrosa holds a 55% stake. Alrosa may construct another hydroelectric station on the Chicapa river, to further increase power capacity in Angola.

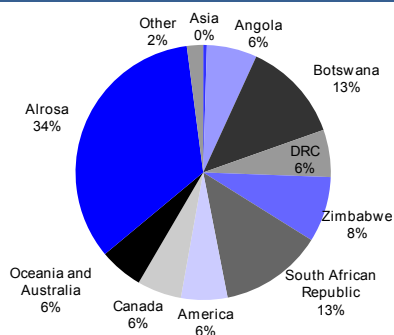


Reserves; the ultimate source of value; 1/3 of global reserves

Inevitably not transparent and not necessarily comparable; all reserves are *really* not created equal

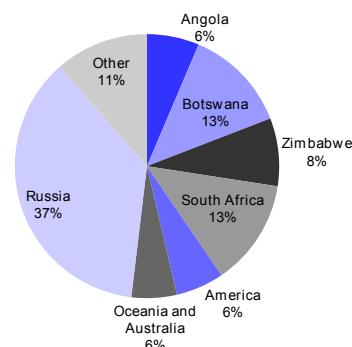
In mid-2011, Alrosa disclosed the internal preliminary estimate of its current reserve base. With 1.2bn ct at 0.90ct/t in reserves on its internal estimates, Alrosa enjoys a world leading resource position, with about one-third of global reserves, which can support the company's current production levels (~34mctpa) for approximately 35 years.

Figure 38: Alrosa against the world; estimated global diamond reserves; by carats, not by value



Source: Deutsche Bank, FGUNPP Aerology

Figure 39: Russia and Africa dominate global diamond reserves; Alrosa holds 93% of Russia's reserves



Source: Deutsche Bank, FGUNPP Aerology

While we view Alrosa's tremendous reserve base as a key pillar in the company's investment case, we note that the current reserve disclosure provides no granularity on a mine-by-mine basis, which complicates a sum-of-the-parts mine valuation model.

Figure 40: Alrosa reserves and resources, on internal estimates (non-JORC), June 2011

	Ore, kt	Diamonds, kct	Grade, ct/t	Check
Mineral reserves				
Probable	430.693	211.699	0.49	0.49
Proved	934.76	1014.694	1.09	1.09
Proven and probable	1365.453	1226.393	0.90	0.90
Mineral resources				
Inferred	12.11	21.732	1.79	1.79
Indicated	112.315	24.671	0.22	0.22
Measured	88.205	8.293	0.09	0.09
Measured and indicated	212.63	54.696	0.26	0.26
Grand total	1578.083	1281.089	0.81	0.81

Source: Deutsche Bank, Company data

As discussed in the industry section, we also note that diamond reserves, much more than homogenous metal reserves, differ not only in grade, location and depth, required extraction and processing method, recoverability and ore complexity and ore body scale, but also in the size and quality of the stones carried in the ore. While the former factors may drive the average cost and capex per carat, the latter will determine the value, to together drive the yield and value of a deposit. Indeed, with 12,000 categories of diamonds, there will be strong variability not only between mines but also within a mine. Gem diamonds mine low grade ore with average prices per carat of up to \$2,500.

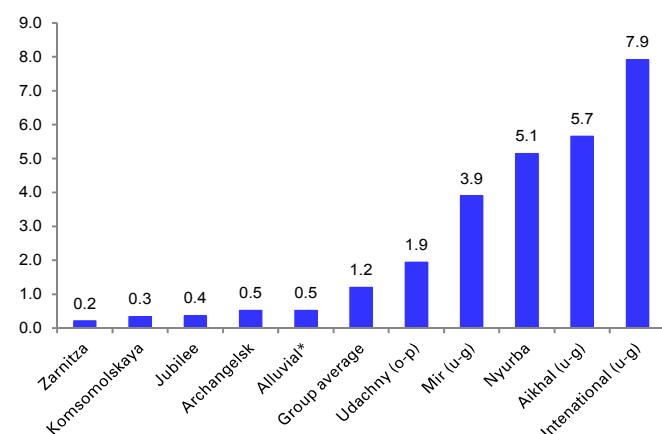


In 2011, stones from Mir, Alrosa's highest yielding deposit, were priced at an average of \$292/ct (although with some stones priced at the gem diamond level). Equally important, while Alrosa's Russian pipes on average produce ~65% gem quality diamonds and only 35% industrial diamonds, its Catoca JV in Angola reports about 20% gem quality diamonds, albeit at higher average value/ct.

In short, while Alrosa's significant reserve base provides some measure of longevity and production parameters (e.g., 35 years LoM, currently processing at 1.2ct/t vs. an average reserve grade of 0.9ct/t) for its aggregate operations, we believe that it gives limited nuance between its own mines and between diamond producers, rendering reserve multiples less relevant. Alrosa currently trades at a 4.9/4.6x P/R and P/R&R or 7.4/7.1x EV/R and EV/R&R.

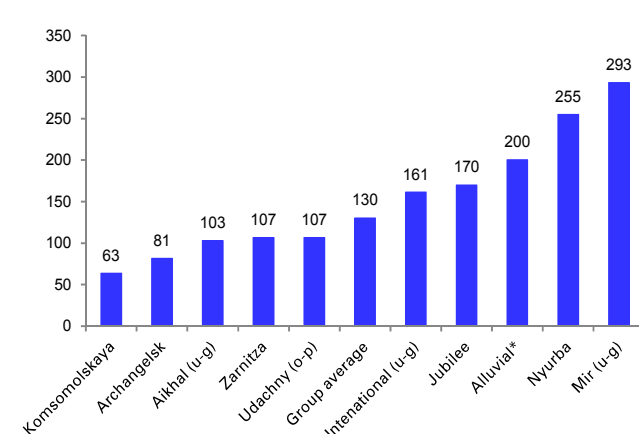
Alrosa is currently preparing a JORC-compliant resource study, which is expected to be released in 4Q12 and may provide more detail at a mine level and may allow us to switch to a sum-of-the-parts valuation as a primary approach. Meanwhile, we use and extend current (2011 indicative) operating parameters to support mine-by-mine models to identify internal relative value and back up our aggregate model.

Figure 41: 2011E average grade, carat per ton



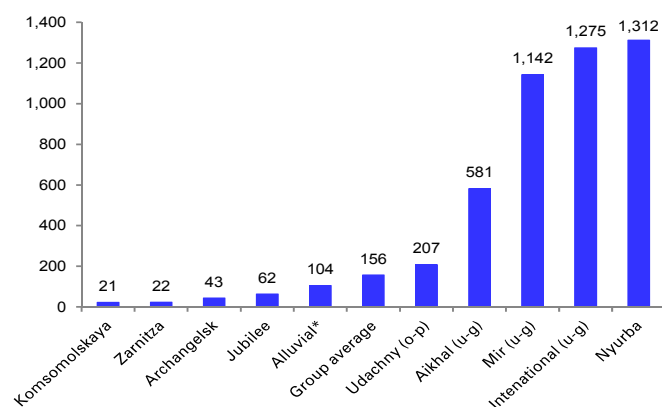
Source: Deutsche Bank estimates and company data

Figure 42: 2011E average price per carat



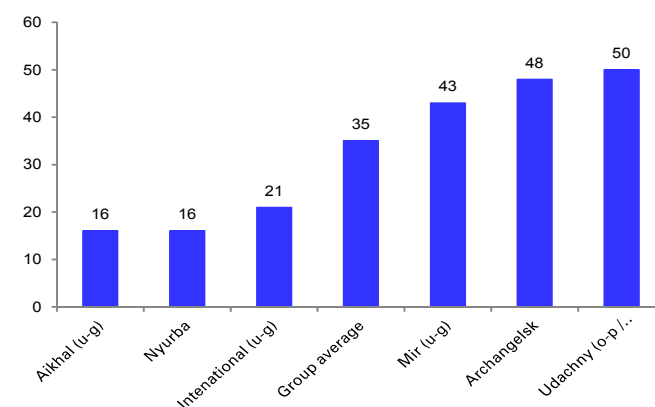
Source: Deutsche Bank estimates and company data

Figure 43: 2011E average revenue per ton processed



Source: Deutsche Bank estimates and company data

Figure 44: LoM estimates for key operating assets

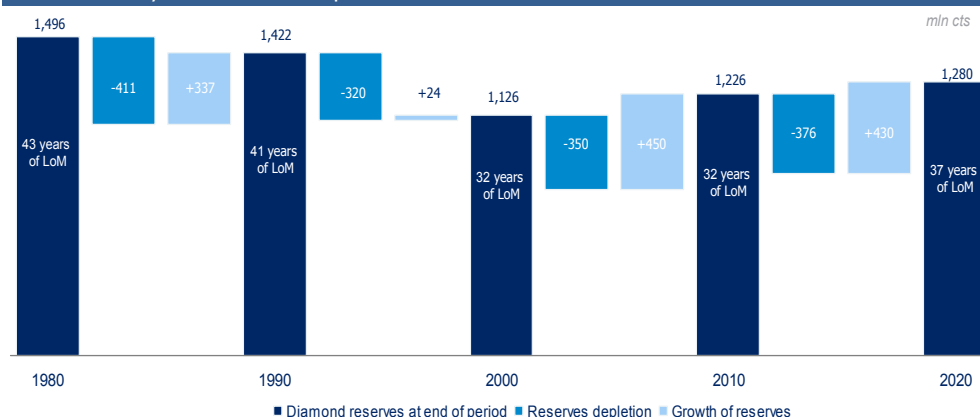


Source: Deutsche Bank estimates and company data



Alrosa has a record of maintaining its reserve base by replacing depleted carats through active exploration. We expect Alrosa's exploration capex budget to grow from \$150m in 2012E to \$300m by 2020E as the company increases spend to replenish faster production amongst scarcer resources. The company expects to spend ~\$5/ct of reserve carat (current, real), or just below Alrosa's current \$4.9/ct market cap. Given that we include all exploration capex in our cash flow forecasts and Alrosa pursues a strategy of continuous reserve replacement, we believe DCF (with terminal growth period), may be a more appropriate valuation metric.

Figure 45: Planning for the unplannable: Alrosa will spend ~\$200m or ~\$5/ct pa to replenish and even grow reserves as it expands production. We use life of mine valuation only as a reference point to our DCF



Source: Company data, based on Russian reserves classification

Non-core assets; cutting and polishing the inclusions

Besides its diamond producing assets, Alrosa carries various infrastructure assets to support both of its core operational activities as well as its workforce and the communities where it operates. The primary purpose of these operations is to reduce its operating costs, but the running of these assets inevitably raises Alrosa's operating leverage and dilutes its EBITDA margin. Indeed, we estimate Alrosa's 2012E mining margin (49%) 5pp above its blended consolidated margin (44%). In addition, Alrosa owns a subsidiary that holds the mining rights to the Timir iron ore deposit and also several gas assets. Alrosa's strategy has been to reduce its involvement in these non-core assets. The company plans to gradually transfer social infrastructure assets to the local governments and divest controlling interests to deconsolidate its iron ore and gas assets.

Social infrastructure; a soviet legacy and the cost of being a 'mono-employer'

- To support employees to relocate to these mining areas, Alrosa's predecessor entities created a complete local infrastructure in Mirny, Udachny, Aikhal and Lensk. Upon its formation, Alrosa assumed responsibility for these assets, which included hostels, residential houses, schools, hospitals, hotels, cultural centres and retail shops. By 1996, Alrosa had transferred some of these assets to the local authorities of Yakutia, but remains responsible for operating many of the assets, which in 2010 and 2011 carried operating losses of \$100m and \$130m, respectively (unadjusted for intersegment sales) on our estimates. Alrosa has since agreed a process to transfer the assets to Yakutia and is



continuing this process. In 2011, Alrosa booked an RUR6.5bn (\$220m) impairment on the disposal of such assets, while retaining maintenance obligations until 2015. Alrosa estimates the annual maintenance expense at ~RUR2bn (\$60m), which is a lot for a residual book value that is estimated at ~RUR1.5bn (~\$50).

Power and utilities, construction, transportation and airline, food and retail

- Fuel and energy make up ~20% of Alrosa's 2009-11 average cash costs. To manage costs in this item, Alrosa generates ~70m kWh from in-house diesel plants and owns the Vilyuyskaya GES-3, a hydroelectric power station on the Vilyu River. In-house power still covers only about 40% of Alrosa's requirement.
- Alrosa maintains a construction division (3,500 people as of 2010) that is engaged in the development of its mines as well as constructing temporary housing for workers, and maintaining the non-mining properties. It was also involved in building phases 1 and 2 of the Vilyui hydro-power plant.
- Alrosa carries a fleet of cargo ships and lorries, as well as aircraft designed to carry freight. Annual freight volumes amounts to up to 400kt. Alrosa also owns its own airline, which has about 70 aircraft and operates 16 routes from Mirny and six routes from Polyarny. To support air travel in Yakutia, Alrosa maintains small airports in Vitim, Lensk, Aikhal, Olenek and Saskylakh. The airline division receives fees from third parties who use these airports. In 2009, the Alrosa airline transported 229,000 passengers.
- Through its wholly-owned subsidiaries, Alrosa operates retail food stores to contain inflation and to support its employees in the mono-cities where it operates. In addition, Alrosa engages in agricultural operations to grow fresh produce in greenhouses to meet the needs of its employees within Yakutia.

Figure 46: Alrosa; from plane to mine in 300m (Mirny)



Source: Deutsche Bank, Company data

Figure 47: The Vilyui HPP



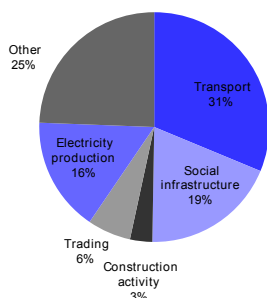
Source: Deutsche Bank

We expect Alrosa to gradually transfer its loss-making social infrastructure for its other infrastructure and logistics assets to break even going forward, leaving a drag on the company's operating and net margins. After 2016, the disposal of such assets and obligations however imply upside potential for margins and cash flows.

In addition to its social infrastructure businesses, Alrosa is also expected to make Charity donations. While in 2011, the fixed royalty payment to the Sakha region was reduced from RUR3.5bn to RUR1.3bn, Alrosa's voluntary social spend has also increased to c.RUR500m per annum.

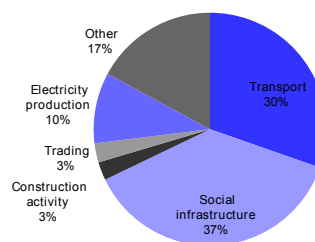


Figure 48: \$502m other sales from non-core infrastructure businesses in 2011, breakdown by segment



Source: Deutsche Bank, Company data

Figure 49: \$491m cost of other sales in 2011, breakdown by segment, adjusted for intersegment sales



Source: Deutsche Bank, Company data

Iron ore: more timid about Timir; half of half the licences ... later

In 2008, Alrosa acquired licences for the exploration and development of the Tæzhnoe, Desovskoe, Tarynnakhscoe and Gorkitskoe iron ore deposits in South Yakutia for a consideration \$173m. In 2010, the licences were transferred to Timir, a wholly-owned subsidiary. The deposits are clustered into two provinces 150km north and 350km west of the Neryungri coal mining industrial centre.

The four original licences were valid until 2028, but were subject to several conditions, including i) simultaneous development of all four deposits, ii) construction of mines and two ore treatment plants starting 2012 and 2013 with a total capacity of 30mtpa by 2020, and iii) construction of a steel mill to take feed from all mines by 2014.

In addition to the mining, processing and steel facilities, the second cluster of the Timir project (Tarynnakhscoe and Gorkitskoe) also requires significant investments in infrastructure, including a 195km railway access route, a 1,600MW hydro power plant to supply electricity via 500km transmission lines split over a substation, all of which will only be partly subsidized by the government. Alrosa has estimated the total capital investments into both clusters up to \$10bn.

However, the turn of the cycle has added some flexibility to the JV on the licence terms. Indeed, the current development plan focuses only on the development of the Tæzhnoe and Desovskoe deposits, which are only 4km away from the Trans-Siberian railroad, 6km from the local power trunk grid and which has sufficient power supply in the region and raw material feed to support steel-making facilities.

As such more modest terms proved more interesting for potential partners with more experience in iron ore and steel making, Alrosa has agreed terms to form a JV with Evraz to develop Timir on a 49:51% basis, which would allow Alrosa to deconsolidate Timir while recognizing attributable income.

A scoping study is in progress to review the project. In its current shape and initial form, the Timir economics look more realistic for a company with Alrosa's balance sheet and bulk material experience. The project features 350mt of fully explored and open-pittable reserves of relatively high quality of iron ore (Fe 38-40%). The planned commissioning is in 2016 and the target production volume stands at 7mtpa in 2016 on expected total project capex at \$1.9bn. Evraz believes the project can add an incremental EBITDA of \$450m per annum from 2020 (Evraz Investors Day June 19

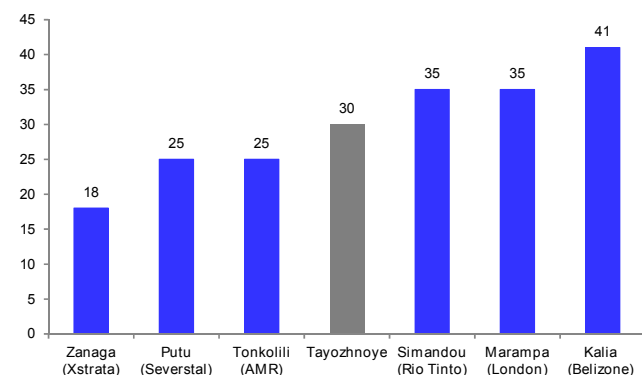
The project features 350mt of fully explored and open-pittable reserves of relatively high quality of iron ore (Fe 38-40%).



2012). At current sector 1YF EBITDA multiples of ~6x, such a recurring operating profit could imply an EV for the JV of \$2.7bn, not considering any option value from other license properties.

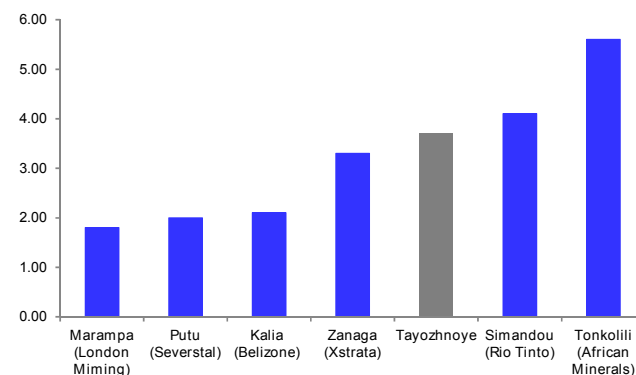
While we generally prefer companies to focus on their core competencies and allow investors to diversify their investment portfolios, we believe a smaller scale JV project option with an experienced partner may offer an attractive compromise to Alrosa. With a scoping study only underway and relatively poor visibility on the project, we do not model Timi at this point but value it on a 30% discount to book. We believe this may be conservative as we roll through the cycle and see some option value upside potential.

Figure 50: Tayozhnoye LoM cash costs, exw \$/t



Source: Deutsche Bank, Evraz

Figure 51: Tayozhnoye LoM capital intensity, \$/t



Source: Deutsche Bank, Evraz

Gas asset tennis; A non-core kind of carbon to be (partly) carved out

Buy: With a view to diversify its mineral extraction operations, Alrosa acquired certain Tyumen oil and gas assets in 2005-06. In 2005, Alrosa acquired 90% of Geotransgaz (GTG), a company with interests in gas and gas condensate fields for \$140m. In 2006, Alrosa acquired 90% of Sibintek, 100% in Urengoykaya Gazovaya Company (UGC) and interests other oil and gas assets for about \$300m.

Sell: In 2009, Alrosa revised its strategy and decided to focus on its core activities. In October 2009, Alrosa sold its 90% GTG and a 90% interest UGC to Bank VTB for a total cash consideration of RUR18.6bn or \$620m. Simultaneously, Alrosa sold put options on the assets to the buyers with a potential obligation to buy the assets back at a \$870m strike in October 2012, or what implies a 12% per annum funding rate, discounted for the put option granted to the buyer. The short option positions, which were marked-to-market through fair value estimates of the underlying companies as well as volatility on similar companies, caused meaningful earnings instability.

Buy: In March 2012, Alrosa decided to repurchase the 100% of the assets at \$1.037bn, implying a 7% premium to the implied strike and a 22.8% implied funding rate on our estimates. The gas asset buyback was financed by new debt issuance (two tranches of ECP total of \$1 040m) and Alrosa's cash flow from operations.

Sell: Having closed the option positions and fully consolidated the assets, Alrosa's intention is to sell 50% + 1 share and deconsolidate the gas assets in 2H12. The proceeds will be used to repay part of Alrosa's existing debt. According to Alrosa CFO Mr Igor Kulichik, the company is in negotiations with Zarubezhneft and two other interested parties regarding the gas assets.



What's traded? The total reserves and resources of the consolidated gas assets are 187bn m3 of gas and 26m tons of condensate. Alrosa expects Geotranzgas to connect the assets to Gazprom's trunk pipeline by end-2012 and that gas sales can start by that time. Total capex for 2012-15 is expected at \$400m. After reaching the expected full capacity transportation levels of 4bnm3 of gas and 1mnt of condensate in 2015, both enterprises are expected to generate \$380m of annual revenues with an EBITDA margin at the level of 70% (~\$270m), implying a payback by 2018 or 2019. A simplified DCF based on these scarce inputs, using our 12.7% discount rate and no terminal period gives us a fair value of \$1.17bn (\$1.4bn), suggesting that Alrosa may be able to recover its investment if it sells the asset at book value. With limited details on the asset and the sales terms, we discount the book value by 30% in our DCF valuation for Alrosa.

Non-core to core win-win swap; grab the Grib for gas

On the back of a licence originally acquired by Mr Vagit Alekperov in 1998 (Interfax 10.12.07), LUKoil is developing the Grib kimberlite pipe only 25km away from Alrosa's Severalmaz assets in the Lomonsov diamond field. According to LUKoil's development plan, the company will spend \$1bn in capex to commission diamond production in 2H13 and reach 4mctpa, at a slightly higher quality than the Arkhangelskaya and Karpinskaya pipes. The Russian media (Interfax 12.06.15) has speculated around the possibility for LUKoil and Alrosa to swap non-core assets to improve their respective asset profiles while broadening their core operating portfolios. According to Interfax, Mr Alekperov contemplated a 49% sale for \$225m to De Beers in 2008 (i.e., before much of the capex had been spent). Given Alrosa's acquisition price for the gas assets and that our estimates (~\$670m) suggest relatively low valuations for the Lomonosov developments, it is not obvious that a swap would be value-accretive to Alrosa.

Production; asset yield

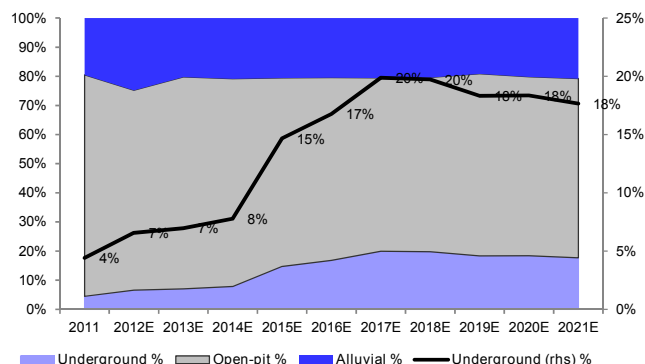
Our aggregate production forecasts for Alrosa are based on the company's guidance and tested against our aggregate mine-by-mine model.

A key theme of Alrosa's production and, indeed, business profile is its planned transition from an open-pit to an underground miner. Historically, Alrosa operated open-pit mines, but as the company has depleted near-surface reserves and stripping and ore hauling is becoming increasingly expensive, it has become rational for Alrosa to move underground. As Alrosa has gone through the target debt at several of its mines, the company's business profile reflect a more mature asset portfolio, which – inevitably – would tend to come with higher opex and capex.

The move underground started in the mid-1970s, when the International mine was approaching its target depth of 285m. International was commissioned as Alrosa's first underground operation in 1999 and reached its 500ktpa capacity in 2002. It may be expanded in two phases in 2015 and 2018. Mir went underground in 2009 and should achieve its target 1mtpa capacity in 2H12. Meanwhile, the group is currently engaged in constructing an underground mine at the Udachny deposit, where open-pit mining is expected to close in 2016. The Udachny underground operation is expected to overlap, starting ore mining in 2014 and ramping up to the full 4mtpa capacity by 2017. In 1997, the open pit at Aikhal reached its 350m target depth and the development of an underground mine started in 1998. After halting the construction in 2005, the mine was commissioned in December 2009 and had ramped up to ~50% of its 500ktpa capacity in 2011. Further underground development is expected to require about \$230m expansion capex in 2012-21E and the Aikhal underground mine is to be completed and fully ramped up in 2013.

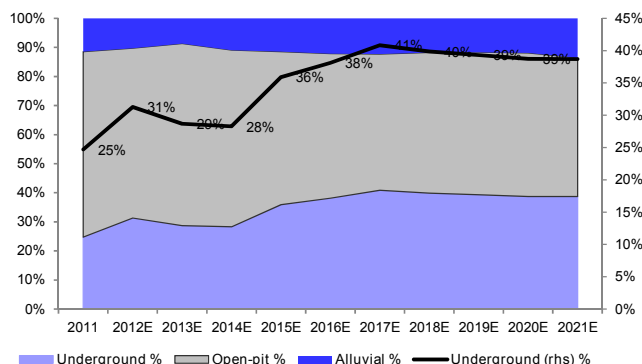


Figure 52: Ore processed by mining method (%); going deeper. Underground from ~5% to ~20%



Source: Deutsche Bank estimates and company data

Figure 53: Carats produced by mining method (%); deeper is higher grade. Underground from ~25% to ~40%

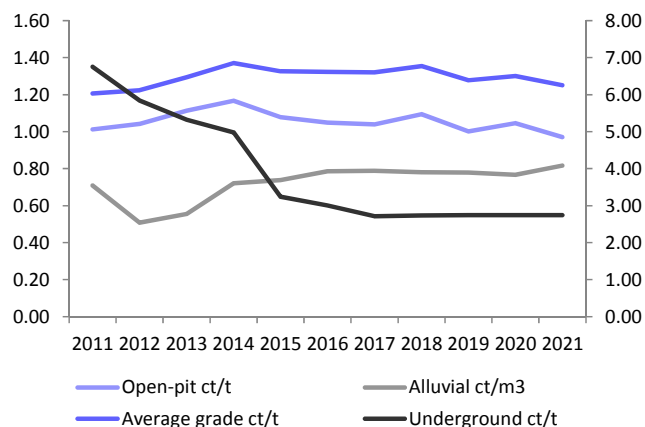


Source: Deutsche Bank estimates and company data

Beyond Alrosa's underground expansion projects, the company is also expanding the Severskalmaz operations, boosting the Arkhangelskaya mining capacity to 2mtpa by 2015 and starting to mine another 2mtpa from the adjacent Kaprinskaya mine in 2015. Alrosa also plans to start developing the Botuobinskaya mine at the Nyurba division in 2013-15, as ore production at Nyurba proper is expected to start declining from 2018. Alrosa will also strive to develop its recently acquired license properties; the Dalnaya, Verkhne-Munskoe and Maiskoe deposits. In aggregate, such developments will increase ore production from 2.5mtpa in 2013 to up to 8mtpa in 2021 and contribute as much as 6ctpa.

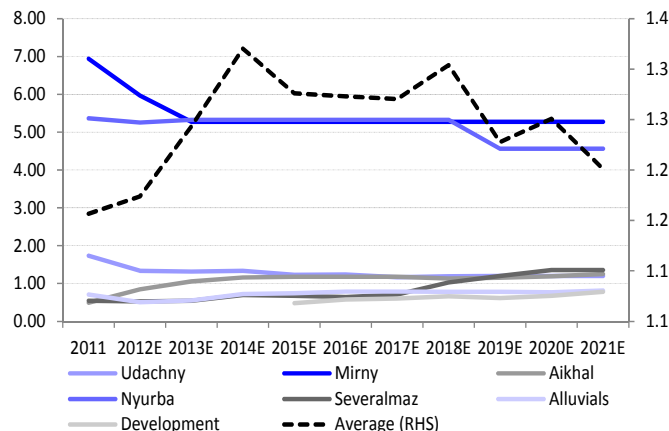
Alrosa's alluvial operation will continue to operate in the foreseeable future and the company will add the Ruchey Gusiny and Ebelyakh alluvial deposits to this group of diamond producers. Alrosa expects alluvial sand washing to expand from 5.8m m3 in 2011 to 7m m3 in 2021 and alluvial diamond production to expand from 4mctpa to 5.5mctpa.

Figure 54: Average grade by mining method, ct/t



Source: Deutsche Bank estimates and company data

Figure 55: Implied average grade for the group, ct/t



Source: Deutsche Bank estimates and company data

As Alrosa moves underground, ore mining volumes are set to decrease at the Udachny, Mirny and Aikhal divisions. On an aggregate level, this is offset by expansion of the

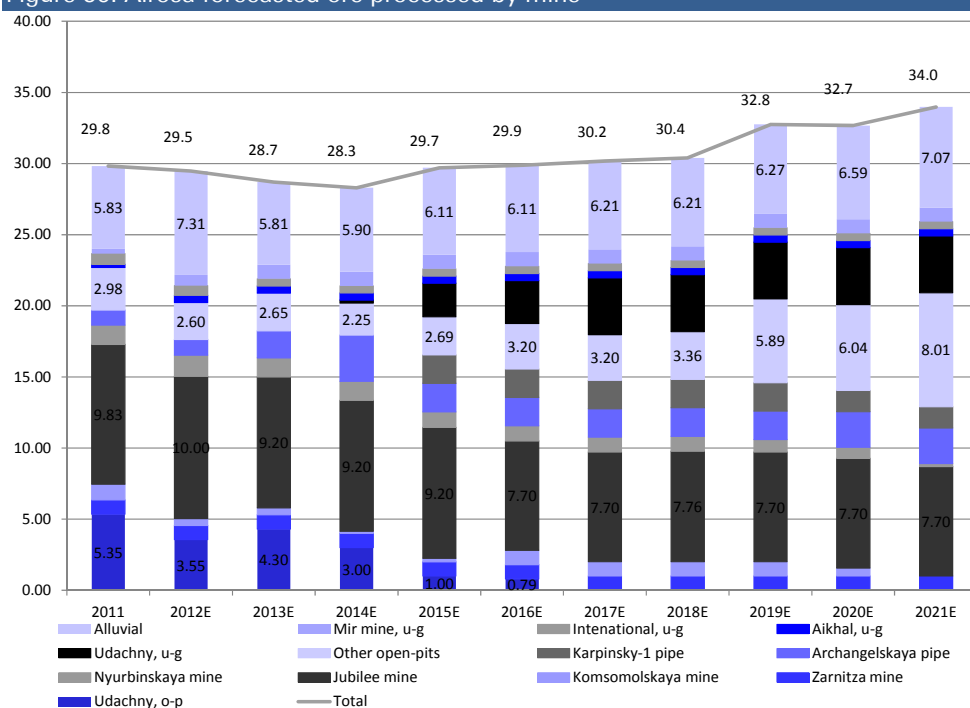


other open-pit assets, including Severalmaz, Botuobinskaya and the newly acquired properties, as well as a broadening of the alluvial throughput. Even so, Alrosa is adjusting its ore treatment plants to optimize capacity to streamline the supply chain. For example, major refurbishments are planned for 2014-16 at the ore treatment plant No. 2, as Udachny goes underground.

Underground mining is typically, all other things being equal, more intense in capital and operational expenses, produces less ore and incurring higher operating risks than open-pit mining. However, Alrosa believes that capital and operating cost growth can be contained by leveraging existing mining infrastructure and ore treatment plants. As seen at international and Mir (in our view the most attractive mines) grades and quality of diamonds may also improve at higher depth, with a higher yield per ton more than offsetting higher opex and depreciation and amortization charge. However, this is a risky proposition without exploration results to this effect.

As a result, Alrosa expects ore mining and processing to remain relatively stable during 2011-21, rising only 14% over ten years (or at 1.3% CAGR) from 30mt to 24mt. Meanwhile, and partly due to improved grades at underground mines, but also the expansion of higher grade operations in the asset portfolio (e.g., International), Alrosa expects diamond production to grow slowly over the same period (2011-21), expanding 18% over ten years (or at a 1.7% CAGR) from 34.5mct to 40.8mct.

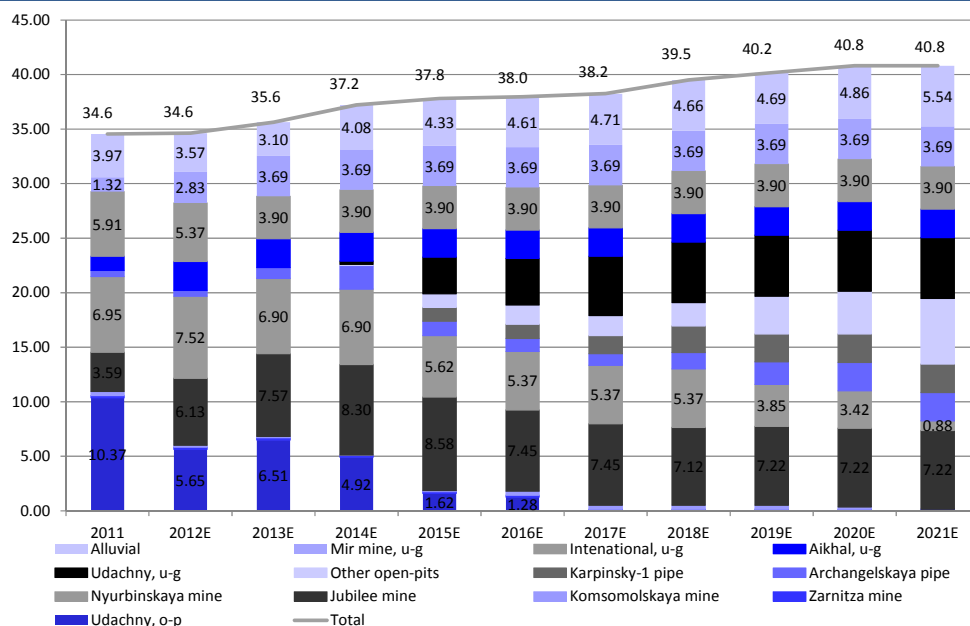
Figure 56: Alrosa forecasted ore processed by mine



Source: Deutsche Bank estimates and company data



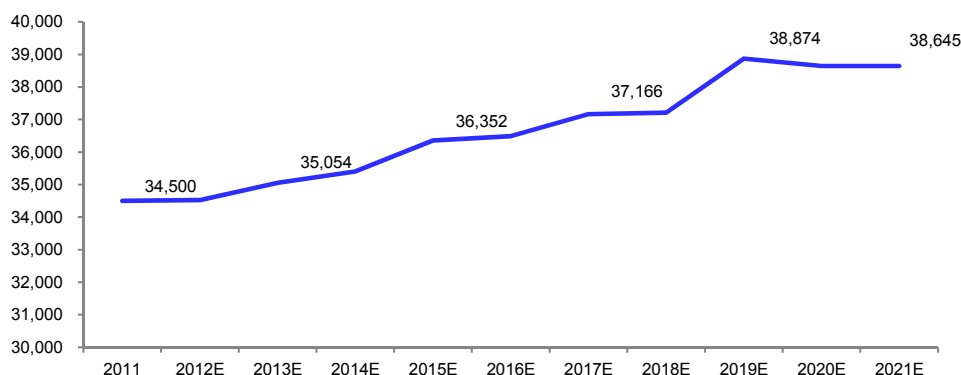
Figure 57: Alrosa forecasted diamonds produced by mine



Source: Deutsche Bank estimates and company data

Our aggregate model production forecast is slightly below the mine-by-mine production forecast and also lower than Alrosa's estimates, mostly on a grade haircut as Alrosa currently processes ore at higher than average reserve grade and continues to do so, which implies that grades would inevitably have to come off later. Our base case calls for Alrosa to grow production by 12% by 2021 or at 1.2% CAGR, which is shy of Alrosa's target of 18% at 1.7%.

Figure 58: Aggregate model production forecast



Source: Deutsche Bank estimates, Company data

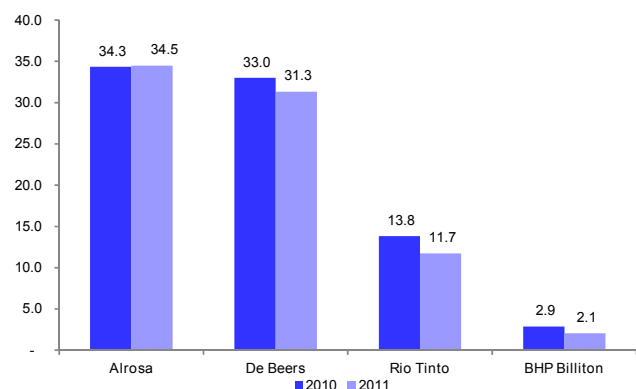
The value of market share; price taker and/or price maker?

While Figure 58 reflects our base case forecast for Alrosa's output and the attached capex, we note that Alrosa's expansion plans (notably lower margin Severalmaz and the large-scale underground operation at Udachny) are subject to a benign diamond pricing environment. Much as De Beers has cut its production from a maximum output of 50mctpa to approximately 30mctpa, with one-fourth of the global diamond market (by volume), Alrosa could potentially have a major impact on the global diamond price while cutting a significant part of its capex. As a global volume leader, Alrosa will be a



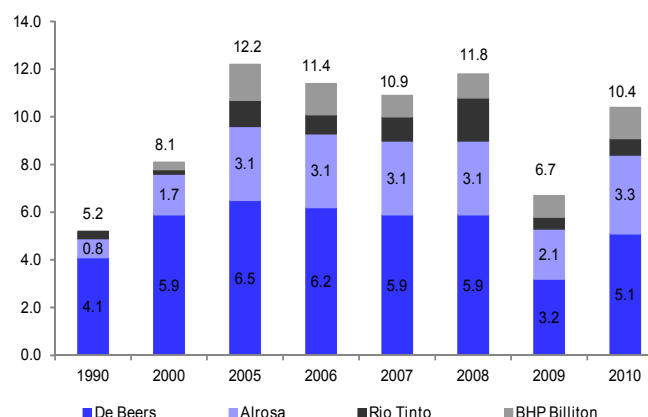
borderline price maker and will actively trade off capital-intensive production growth against the price tension and cash yield on its current operations. That said, we believe Alrosa's implicit social commitments may limit its operational flexibility. Historically, Alrosa's production has been less responsive to weakness in the global diamond market, where other producers have more proactively curbed supply. That said, in 2009, while Alrosa maintained production levels, Gokhran stepped in to take almost one-third of Alrosa's rough output, holding this stock off the market.

Figure 59: Production champion or industry maverick?



Source: Deutsche Bank, company data, mct

Figure 60: Sales discipline or demand slump (\$bn)



Source: Deutsche Bank, Company data, Bain

Sales and revenues – not a black box but a box all the same

Sorting and valuation – homogenizing a heterogeneous product

After rough diamonds have been recovered, the diamonds are sorted according to their categories and then valued. Initial sorting of diamonds is performed at Alrosa's Mirny division, while the final sorting and initial valuation – based on weight, size, colour, clarity and other stone characteristics – of diamonds is conducted by Alrosa's United Selling Organization (USO), which employs 1,000 people and maintains sorting facilities in Moscow, Yakutsk and Mirny. The initial valuation is conducted in reference to a price list maintained by Russia's Ministry of Finance. The classification process is compliant with international ISO 9001:2008 requirements and is based on the Russian K47-01-92 system, which in turn rested on De Beers' metrics. Stones larger than 10.8ct are subject to special valuation by the Ministry of Finance/Gokhran, who must also be offered the right of first refusal to buy such stones.

Following the initial sorting, the diamonds undergo pre-sale preparation and grouping into "boxes" and "lots". A box represents a collection of diamonds of a certain assortment, weights and properties. The boxes grouped into lots are offered for sale as indivisible units and commercial products ready for sale.

Alrosa cuts and polishes a small part (140kct in 2011) of its diamonds through Brillianty Alrosa, Orel-Alrosa and Almaz-Neva. Alrosa's involvement in the downstream business is considered non-core and serves to keep a close relationship with business fundamentals and trends.



Sales channels – all for one and one for all

In 1963, the USSR signed a first contract with De Beers to sell part of its diamond production through the latter's Central Selling Organization (CSO), subsequently transformed into Diamond Trading Company (DTC). Over time, the USSR, and then Alrosa, came to sell up to 60% of its rough diamonds through De Beers' channels.

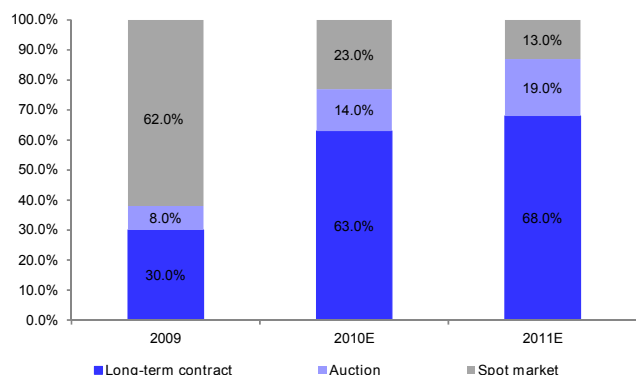
Disaggregating De Beers and managing distribution

However, this arrangement was challenged by the European Commission in 2003, and was, following a three-year antitrust investigation, phased out. As a result, sales to De Beers declined to 15% in 2007, 10% in 2008 and completely ceased in 2009.

Following the closure of its ties with De Beers, Alrosa has worked to replace, and partly replicate, this marketing channel. Its sales and marketing strategy aims to improve off-take visibility and cash flow stability through direct long-term (3-5 years maturity) rough diamond sales agreements with major international and domestic diamond buyers, in arrangements similar to De Beers' sightholder system. In 2009-10, 24 such agreements were signed and in 2011, Alrosa sold 68% of its diamonds on long-term contracts.

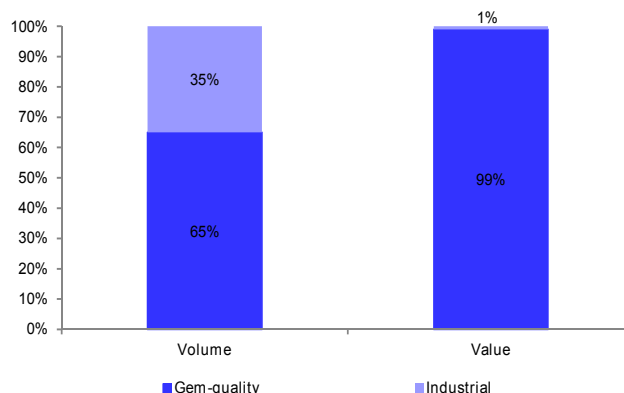
Under the framework agreements, specific rough diamond supply contracts are concluded on a monthly basis with the number and classification of boxes fixed for the maturity of the agreement, with an understanding that actual sizes, colours and other characteristics of diamonds may show differences in monthly sales. Alrosa sets the prices, typically quarterly, and the customer has the right to refuse part of the pre-agreed quantity of boxes. Boxes are prepaid by customers.

Figure 61: Increasing reliance on long-term contracts



Source: Deutsche Bank estimates, Company data

Figure 62: Gem vs. industrial and export vs. domestic



Source: Deutsche Bank, Company data

Beside long-term contracts, Alrosa also sells rough through auctions and spot sales. Spot prices are negotiated one-off transactions, which are particularly employed to domestic buyers. However, the spot price is set in reference to the price list of the Ministry of Finance and a mechanism is in place to secure that domestic spot prices are not below the export prices the company could have achieved. Spot prices are typically more volatile than prices achieved on long-term contracts. Auctions are mandatory for stones bigger than 10.8ct. These account for approximately 5% of Alrosa's total carat value and 0.5% of its weight. Special colour diamonds are typically also auctioned. Alrosa's auctions are similar to De Beers' sights and are open to qualified buyers.

Alrosa also sells the diamonds that are classified as industrial following sorting and are not milled to diamond dust. In 2011, gem diamonds accounted for 65% of volumes



sales but 99% of the diamond revenue, as Alrosa's average realized gem diamond price was \$197/ct, while the average achieved price for industrial diamonds was \$7.7/ct. While the latter generated a small revenue of only \$82m, Alrosa believes that pricing on the industrial stock could be increased with limited input costs as price sensitivity is relatively low and customers often are prepared to pay for a customized collection of industrial rough. The proportion of gem quality to industrial quality stones has been relatively stable over time and Alrosa expects it to remain at 65:35% going forward.

In 2011, Alrosa's 140kct internally (Brillianty Alrosa) polished diamonds were sold for US\$181m, implying a per carat average price of \$1,294. While the 550% mark-up on the \$197/ct average gem quality price may seem steep, the per carat pricing masks the fact that larger and higher quality stones tend to be polished at Brillianty Alrosa. Note that 6% of Alrosa's output have an average size of >1.8ct and account for 45% of the value.

Alrosa's average stone is 0.5ct (4mm in size or 0.1g) with 6% bigger than 1.8ct (the hurdle used by Alrosa for bigger stones). Alrosa's annual production of ~35m carats can fit into a single standard rail or auto container, with security of transport being a more central concern than the freight itself, in contrast to less compact coal shipped from coal quarries.

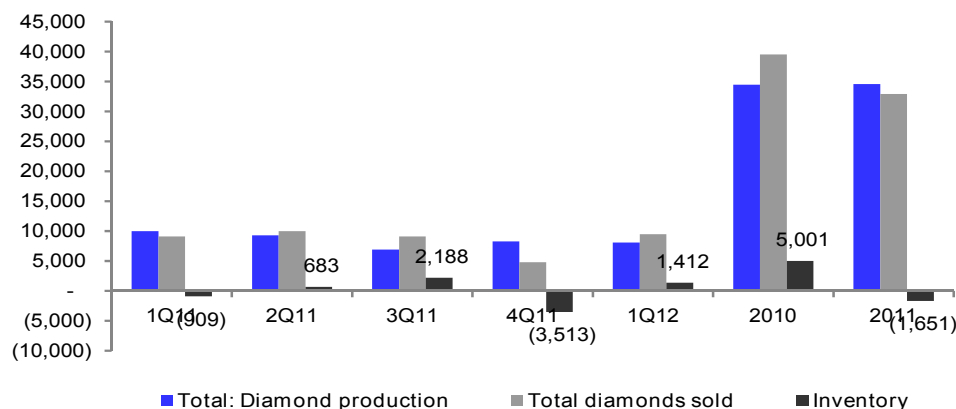
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Strategic reserves ... or just unsold inventory

While Alrosa's policy is to sell 100% of its production, the company also maintains approximately ~7mct strategic inventory to manage market fluctuations, smoothen out production gaps, manage volatility in quality and cover customer commitments. While we do not know the quality of these reserves, the inventory could be worth ~\$900m at the 2011 average price (while inventories stood at \$1.5bn at 1Q12 and diamonds was booked at EUR21.1bn/\$670m in 2011) on Alrosa's books.

Figure 63: Alrosa's sales were 42% (3.5mct) below production in 4Q12 during peak prices



Source: Deutsche Bank, Company data

Meanwhile, we note that Alrosa relatively actively manages its sales pipeline. Notably in 4Q12, Alrosa sold 42% less than it produced. While production and sales would tend to even over time, significant differences in production and sales would cause volatility in working capital and further complicate forecasting.

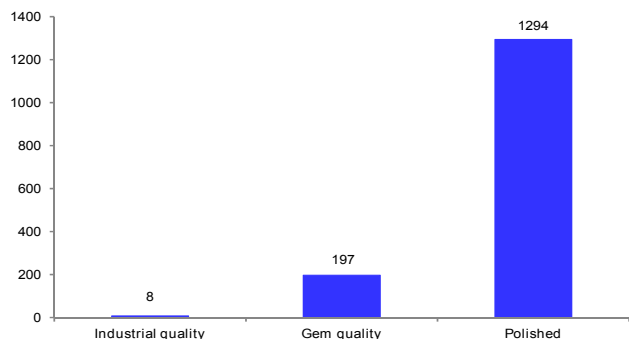
A new industry steward or a buyer of last resort? ...or we get Buy with a little help from our friends

The Russian repository for precious metals and gemstones is active not only in palladium and gold but also in diamonds. When Alrosa faced a heavy debt and a weak



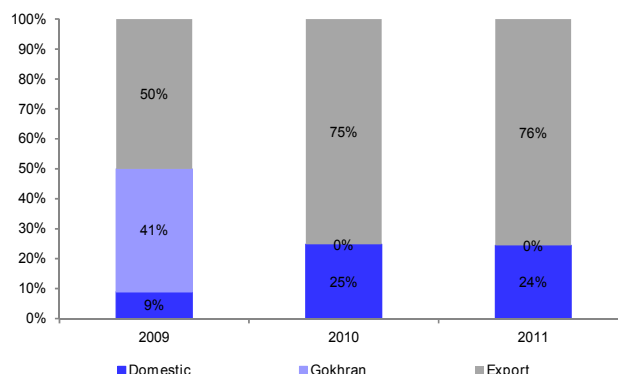
market in the post-crisis 2009, Gokhran stepped in and took \$900m worth off rough off Alrosa. The diamonds are up 60% in price since but Gokhran has made no signal of putting the stones back on the market. The government entity remains secretive about its intentions and does not disclose its full stock level, which is a government secret. According to Alrosa, Gokhran would purchase diamonds for approximately \$100m per annum under normal market conditions. As with many other features of the diamond market, this one is unpredictable; in March 2012, Gokhran bought diamonds for \$110m, but in 2010-11 it bought nothing.

Figure 64: Product pricing by carat; not apples to apples



Source: Deutsche Bank, Company data

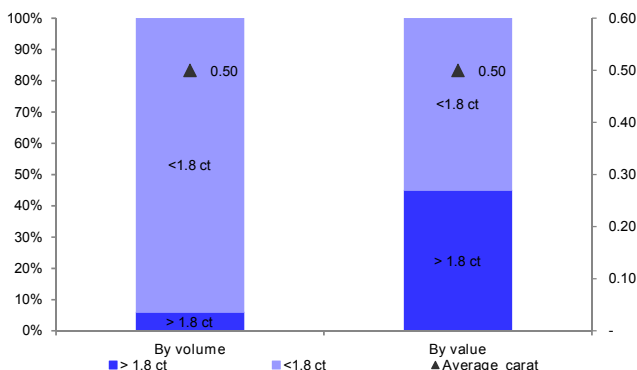
Figure 65: Where do the stones go? 75% exported



Source: Deutsche Bank, Company data

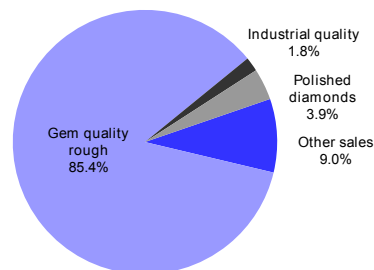
We forecast the average rough price for Alrosa (\$130/ct in 2011). In our base case, we forecast maintained price level between gem and industrial quality diamonds (\$197: \$7.7/ct in 2011) as well as for Alrosa's small share of polished sales (\$1,294/ct. For considering relative value in Alrosa, we also make a simplified assumption that relative prices between Alrosa's mines will also remain relatively stable over time off the 2011 levels. This is an important assumption. With 45% of Alrosa's value coming from 6% of its output (which is bigger than 1.8ct), the revenue stream and profitability of Alrosa is very sensitive to the average quality and size of stones.

Figure 66: The 6:45% rule; 6% volume (>1.8ct) account for 45% of revenue...



Source: Deutsche Bank, Company data

Figure 67: ...with gem quality making up 85% of total sales. 2011E group revenue breakdown



Source: Deutsche Bank, Company data

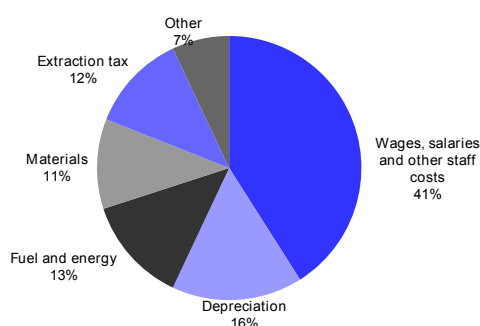


The costs and capex of carats

Alrosa faces operating cost pressures that are typical for mining companies; labour through the production process, diesel to power the mining fleet and fuel generators, explosives and chemicals in mining and processing, extraction tax and royalty to the government and local authorities, capital costs and various other costs.

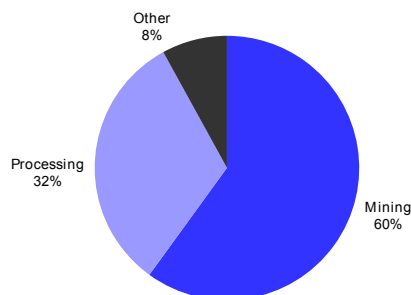
We estimate that about 75% of Alrosa's cost base is effectively rouble-denominated. Given that its rough diamonds are mostly priced in the \$, rouble appreciation will squeeze Alrosa's margins while rouble weakness would ease the cost pressure, typically providing some cost hedge in economic downturns, where the rouble would tend to follow oil prices lower.

Figure 68: Alrosa's cost structure (mining COGS)



Source: Deutsche Bank, Company data

Figure 69: Mining costs dominate opex and may grow



Source: Deutsche Bank, Company data

We expect local inflation, diesel prices and a marginal rouble appreciation to exert exogenous cost pressure, while grade dynamics and Alrosa's further underground access should exert the main internal operational and capital cost pressure. Our mining inflation (on tons processed) is based on CPI, PPI, diesel and our rouble forecast.

Figure 70: Macroeconomic forecast and cost drivers

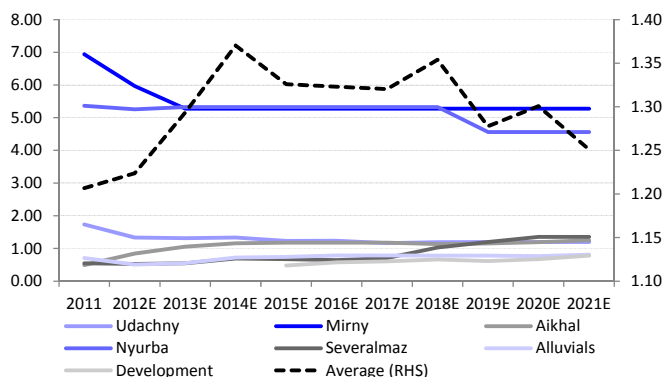
Global	2010E	2011E	2012E	2013E	2014E	2015E	2016E
Brent	80.3	110.9	109.1	116.5	120.0	120.0	120.0
Russian CPI	8.8%	6.1%	7.0%	6.8%	6.6%	6.5%	6.5%
Russian PPI	16.0%	12.0%	10.3%	7.0%	7.5%	7.6%	7.6%
Russian gasoline	20.1%	15.7%	2.1%	11.4%	3.2%	-3.5%	2.5%
RUR/USD EOP	32.20	31.50	31.70	30.80	31.00	31.00	31.00
RUB/USD average	30.37	29.39	31.23	31.60	31.25	30.90	31.00

Source: Deutsche Bank

While we expect the increasing share of underground mining to increase unit costs but for improved grades to contain cost growth somewhat. According to the company, recoveries (including all industrial class diamonds) are relatively stable at 96%.

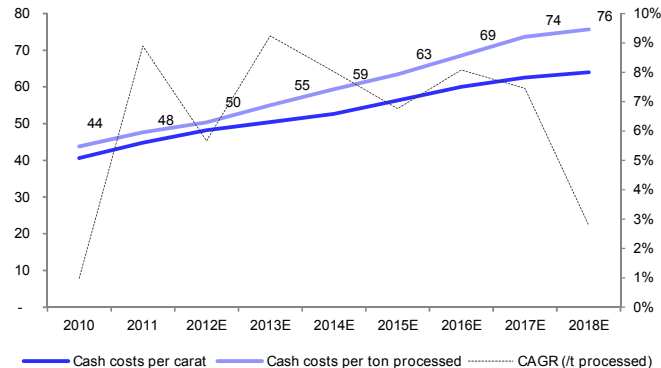


Figure 71: Estimated grade trend as Alrosa goes deeper



Source: Deutsche Bank

Figure 72: Deutsche Bank cash cost forecast estimates

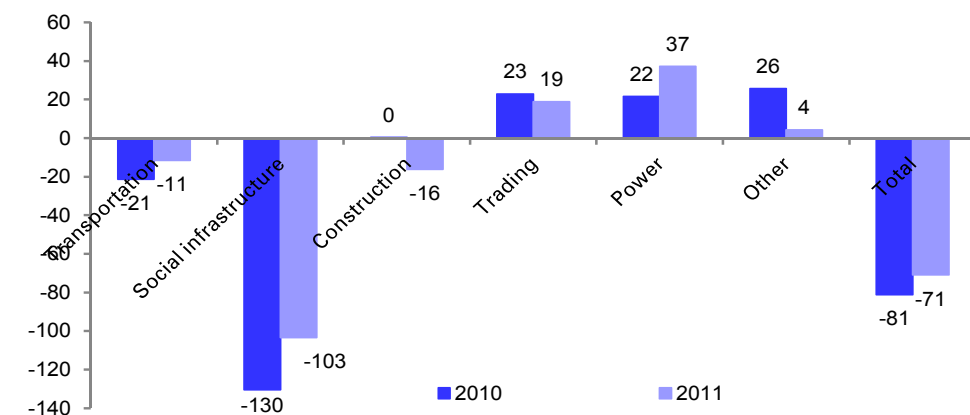


Source: Deutsche Bank estimates, company data

We believe specific cost pressure for Alrosa would also come from its implicit social commitments and meaningful in-house support infrastructure (transportation, construction and power).

Alrosa is basically the only primary industry in Udachny, Mirny and Aikhal, and we believe there are limitations to how much Alrosa could rationalize its ~35,000-strong workforce, should it ever want to do so. Meanwhile, while Alrosa is gradually transferring its social infrastructure assets to the local governments in Sakha, it will retain social obligations in the maintenance commitment to 2015 and still retain significant social obligations to the communities where it operates. In 2011, Alrosa transferred social infrastructure at the sum of RUR6.5bln (\$220m) to local communities, but kept an obligation to maintain these assets till 2016. The company estimates the annual costs of these maintenance obligations at RUR2bn (\$60 or 3% of Alrosa's 2011 EBITDA). In addition to this, Alrosa also faced social costs (including charity, education and medical services) within its other operating expenses. These totalled ~\$90m and ~\$140m in 2010-11.

Figure 73: Other businesses; losses* to decline with reduction in social obligations



Source: Deutsche Bank, company data (IFRS, * Unadjusted for internal sales)

We forecast Alrosa's other businesses to break even on an EBITDA level, while the social maintenance commitments will remain a drag in the near term. We believe the ancillary support businesses inflate Alrosa's fixed costs and increase the company's operating leverage. The reduction of social obligations will reduce Alrosa's fixed cost burden and offer cash flow upside if Alrosa can withdraw from these commitments.



The tax man's take – he giveth and taketh away

Alrosa faces three levels of non-profit taxes:

- Alrosa pays a mineral extraction tax of 8% of diamonds contained in ore extracted. However, the value of diamonds contained is based not on market prices (for which there is now liquid or accurate benchmark), but the price list is maintained by the Ministry of Finance.
- Alrosa also pays a fixed royalty payment to the republic of Sakha. This royalty has come down from RUR3.5bn per annum to RUR1.3bn per annum. We believe the reduction partly reflects Alrosa's maintained commitment on other social obligations.
- Lastly, Alrosa (or rather its customers) pays an export duty of 6.5% on the realized price. The duty is paid by buyer but forwarded by Alrosa to the Ministry of Finance. Alrosa reports revenues (and average sales price) net of the export duty, which arguably inflates Alrosa's EBITDA margin somewhat. About 70% of Alrosa's diamonds goes on export.

While Alrosa has meaningful explicit and implicit social commitments and pays operating taxes, we note that the main shareholders in the federal and local government, has provided support to Alrosa during more challenging market environments, by providing financing from state banks, certain tax relief, and arguably by the countercyclical investment activity of Gokhran.

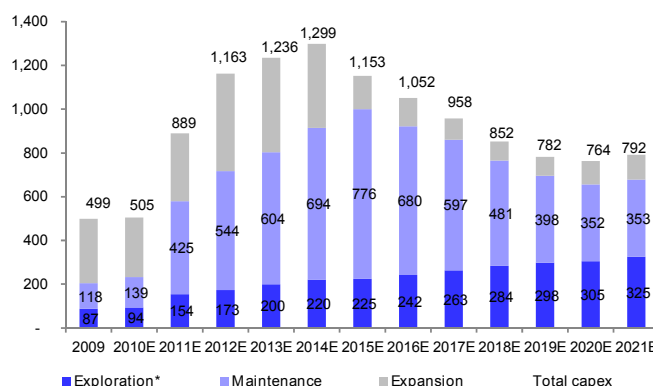


Capex – the cost of expanding, maintaining and finding carats

On Alrosa's current plans, which are contingent on a positive outlook on the global diamond market (Alrosa expects nominal diamond prices to rise 7% annually), Alrosa plans to expand carat production by 18% (a 1.7% CAGR) from 2011 to 2021, by means of converting mature open-pit mines to underground operations and by opening new open-pit mines.

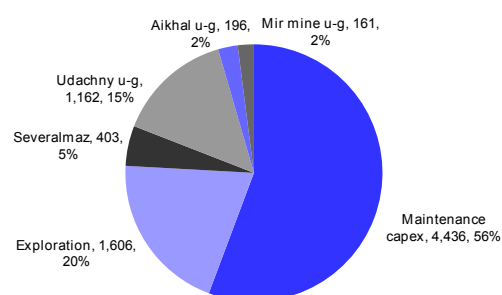
With increasingly mature current operations at growing depth and with the opening of new mines, Alrosa also faces increasing maintenance capex. Maintaining production levels at deeper levels in an inevitably increasingly narrow and depleted kimberlite pipe raises capital costs.

Figure 74: Capex* split over time and mine expansion



Source: Deutsche Bank, Company data, *Alrosa expenses exploration capex

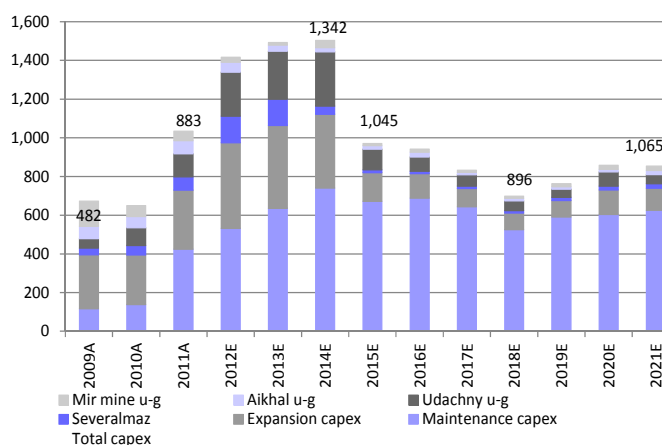
Figure 75: 2012-21E capex* of close to \$10bn



Source: Deutsche Bank, Company data, Company data, *Alrosa expenses exploration capex

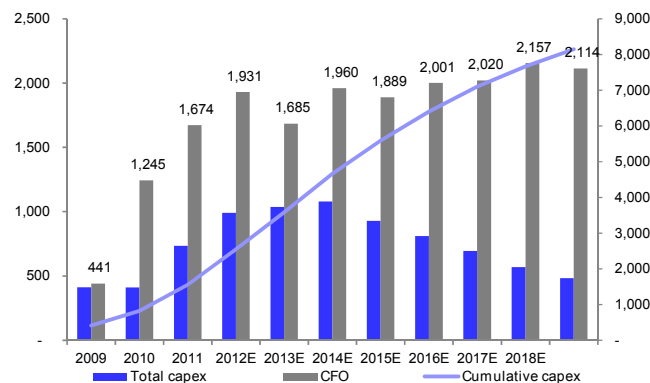
Meanwhile, Alrosa has an ambitious exploration program to meet its stated target of replacing extracted reserves and maintaining the current life of mine over at least the next 10 years. However, we note that Alrosa expenses its exploration efforts, while the maintenance capex component also includes some expansionary items. We expect improving operating cash flows, driven higher diamond prices to cover the capex planned to monetize that very stronger diamond price environment.

Figure 76: Alrosa estimated capex* over time and mine



Source: Deutsche Bank, Company data, *Alrosa expenses exploration capex

Figure 77: We forecast CFO to cover Alrosa's capex



Source: Deutsche Bank, Company data



The liability side; the claims on the carats

Equity placement on hold; liquidity event postponed; stock interest slowed

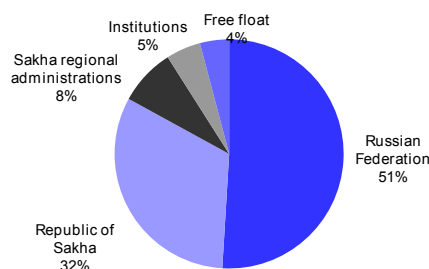
Alrosa became an open joint stock company in April 2011 and was admitted to the RTS board in July 2011. In September 2011, Alrosa executed a 1:27005 share split to improve liquidity, and in November, the company's stock started trading on the MICEX Index under the ALRS.MM ticker, with 9% formal and 5% effective free float. In April 2012, Alrosa's stock was admitted to the Quotation list A Level II. After a spike in trading, liquidity however remains poor at just above \$0.5/day (*Source: Bloomberg Finance LP*).

In the autumn of 2011, at the request of the Ministry of Economy, Alrosa was partly removed from the list of strategic entities, thus passing the last hurdle to an IPO. According to Russian law, 37% (pp) of the government's 50.92% stake in Alrosa is recognized as "strategic", meaning that such a stake should always remain with the government. The AGM has granted the Board of Directors the right to issue up to 28% new shares. While the original plan called for an up to 20-25% new share issue in the MICEX Index to reduce financial leverage and fund capex, improved market conditions and a revised project portfolio structure have moderated the need for external equity funding.

All the good to those who wait...

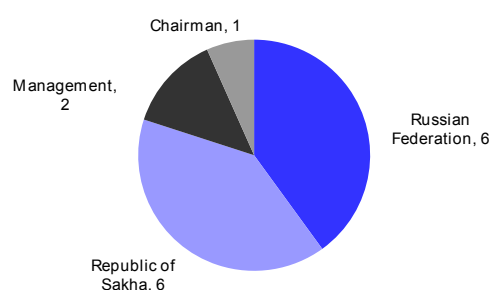
Alrosa however remains on the government's privatization list, with the most likely privatization structure, as discussed in and reported by Russian media, being a joint sale by the Russian government and the regional government of Yakutia of 7% each, to bring total free float to just below 25%. This would leave the government with a 44% stake and be compliant with the strategic stake as defined by Russian law (with a 7% headroom). The key motivation would now be for i) the federal and local governments to raise budget funds and ii) provide a proper market valuation of the company and a means to measure the effectiveness of management. This, according to company sources, may happen any time in the 2012-15 window, and could, in our view, provide an important liquidity event and a powerful catalyst for the stock. Conversely, with delays and uncertainty on the event and form of an IPO, interest in Alrosa's stock is likely to be cautious until better visibility on a privatization plan emerges.

Figure 78: The current shareholder structure



Source: Deutsche Bank, Company data

Figure 79: ...and the supervisory board



Source: Deutsche Bank, Company data

That said, in the latest communication from the Russian government, Alrosa was not included in the list of potential privatizations for 2012-13, but mentioned as a candidate for a full government exit by 2016. We believe the 7% +7% scenario with retained government/regional control may be a more realistic outcome to balance Alrosa's

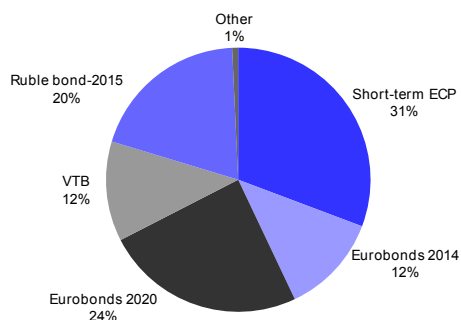


strategic status and social importance against proper benchmarking and access to capital.

Debt: leverage lower but still looms large

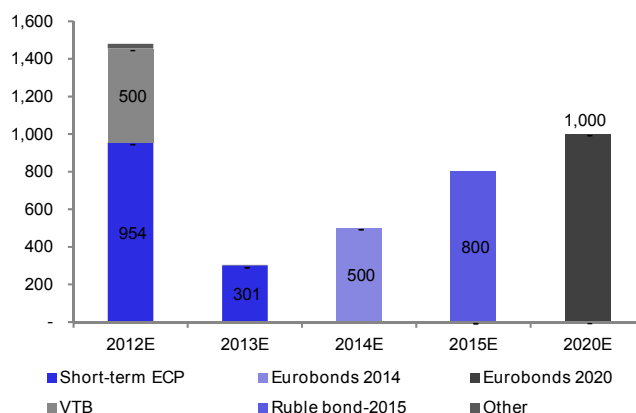
On the debt side, Alrosa's situation has improved significantly. In 2007 and 2008 Alrosa ran significant capex programs at both core and non-core assets and grew net debt from \$2.2bn in 2006 to \$4.3bn in 2008. When the post-Lehman crisis hit the diamond market and Alrosa's average diamond prices retreated 16% in 2009, gross debt/EBITDA peaked at 6.1x (Alrosa have typically maintained a cash and equivalents balance of \$300-400m) despite Gokhran's support (Gokhran acquired rough diamonds from Alrosa for \$900m in 2009 or about 40% of total sales). In our view, the sale of the gas assets with an attached put option to government-controlled VTB in October 2009 (for RUR18.6bn or \$620m), was in effect an asset backed funding at an implied 12% per annum funding rate, discounted for the put option granted to the buyer.

Figure 80: Alrosa's \$4.1bn debt at average 6.75% \$



Source: Deutsche Bank, Company data

Figure 81: ...and the maturity profile



Source: Deutsche Bank, Company data

A 17% recovery in Alrosa's diamond prices in 2010 significantly improved Alrosa's cash flows and also allowed the company to partly refinance its debt portfolio. In November 2010, it materially extended its average maturity and duration profile by placing \$1bn Eurobonds at 7.75%. As pricing continued to improve in 2011, gross debt/EBITDA dropped to 1.5x. With net debt/EBITDA now below 2x, we believe Alrosa has more flexibility in terms of its investment program and, potentially, cash distribution to its shareholders.

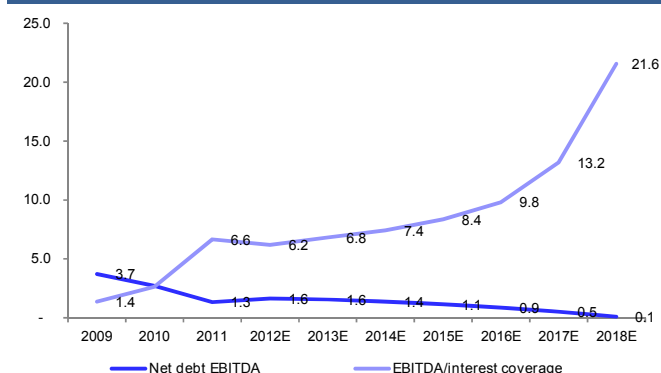


Figure 82: Alrosa's gross debt / EBITDA. Alrosa holds ~\$400m in cash buffer



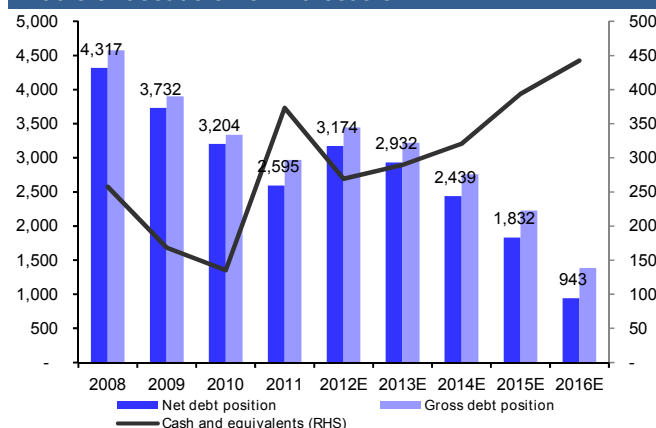
Source: Deutsche Bank, Company data

Figure 83: Stronger cash flows in 2011 improved leverage metrics and reduced urgency of placement



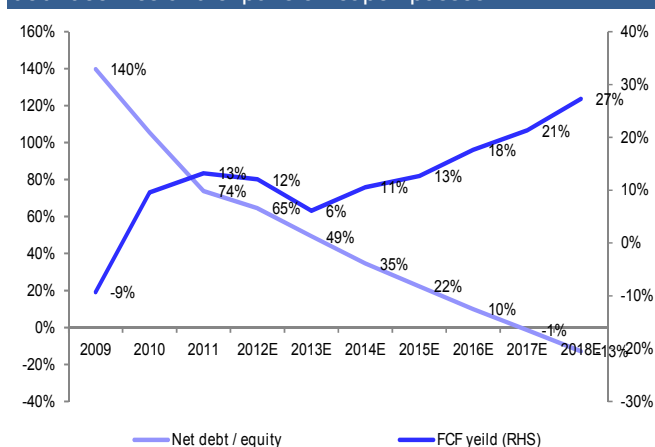
Source: Deutsche Bank, Company data

Figure 84: Significant capex will delay deleveraging to middle of decade on our forecasts



Source: Deutsche Bank, Company data

Figure 85: ...with FCF-yield post interest picking up as debt declines and expansion capex passes



Source: Deutsche Bank, Company data

Alrosa's improved financial standing has been reflected in its bond ratings, with the most recent outlook upgrade to positive from Moody's on a Ba3 current rating level.

While a significant part of Alrosa's short-term debt matures in 2H12, the companies plans to use proceeds from a sale of 50%+1 share in its Timir project as well as 50% + 1 share in the gas assets to redeem the debt. The company also believes it can refinance the ECP.

Figure 86: Alrosa's bond ratings; a balance between high operating leverage on a relatively intransparent product, social commitments, government support

Rating agency	Rating	Outlook	Date of assignment
Moody's	Ba3	positive	24.07.2012
S&P	BB-	stable	21.10.2011
Fitch	BB-	stable	11.10.2011

Source: Deutsche Bank, Bloomberg Finance LP



Derivative diversion...

The short put option position related to the gas assets was marked to market in Alrosa's IFRS accounts and caused earnings volatility (the assets were valued off peers with valuation driven by oil and gas prices, the gas taxation process and general market volatility) that was not necessarily correlated to Alrosa's core business. The repurchase of the assets in 1Q12 closed the option position and the related volatility in earnings.

In 2006, Alrosa entered into a series of RUR/USD FX forward hedges, with an aggregate amount of \$4.3bn over a five year maturity and rates from RUR/USD 26.5-26.8. Similarly, in 2008, Alrosa entered in to a cross-currency swap at RUR/USD 26.6 with VTB to hedge interest rate and balance sheet exposure. Both derivative structures also contributed to earnings volatility. These hedge positions rolled off in September and May, respectively, and will not, while leaving Alrosa more exposed to FX and interest rate movements, be a source of earnings volatility going forward. While we still believe that transfers of social assets may lead to discrete write downs of PPE we in general, and particular following the RUR6.5bn (\$220m) such book adjustment in 1Q12, we expect earnings visibility to improve as a result of the removal of these derivative positions from Alrosa's balance sheet.

...will not stand in the way of improving dividend yield potential going forward

With healthy free cash flows off stronger margins and more manageable debt levels, we believe Alrosa can fund its capex program through CFO and will be in a position to pay dividends. While the company's policy is to pay no less than 10% of its RAS net income (and while this is what we currently forecast), there has been call from the government as well as from investors to increase dividend payouts. In 2011, Alrosa paid 28%. If diamond markets stay strong and Alrosa continues towards an IPO, we believe the company, also encouraged by the government, may raise its dividend policy to 20-25%. Until that point, we think the dividends may be progressive with earnings on a more discretionary basis.

Figure 87: Dividend yield on 10% of RAS policy and 25% IFRS potential

	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E
Dividend payout	13%	14%	0%	6%	16%	28%	10%	10%	10%	10%	10%	10%	10%
Dividend yield	1.2%	1.2%	0.0%	0.1%	1.0%	4.0%	1.9%	2.0%	2.1%	2.2%	2.3%	2.5%	2.7%
Yield at 25% payout	1.2%	1.2%	0.0%	0.1%	1.0%	4.0%	4.7%	4.8%	5.1%	5.3%	5.6%	6.1%	6.5%

Source: Deutsche Bank

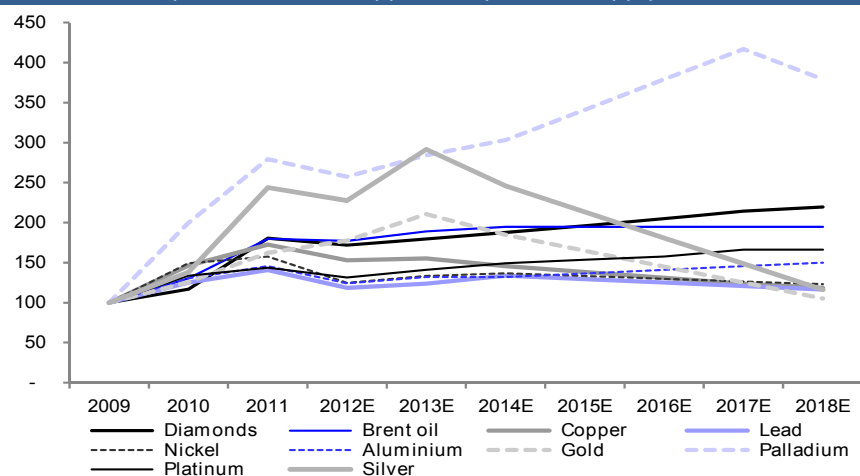
In search of the gems – industry, company, mine

Choosing mineral; diamonds within the commodity pack

While natural diamond production is very similar to mining of metals and similar to other extractive industries, the demand side is in our view very different, placing diamonds in a special bracket, closer to gold, among miners. With a positive outlook for diamond prices we believe the diamond segment could prove more defensive.



Figure 88: Diamond price to remain supported by limited supply and EM demand

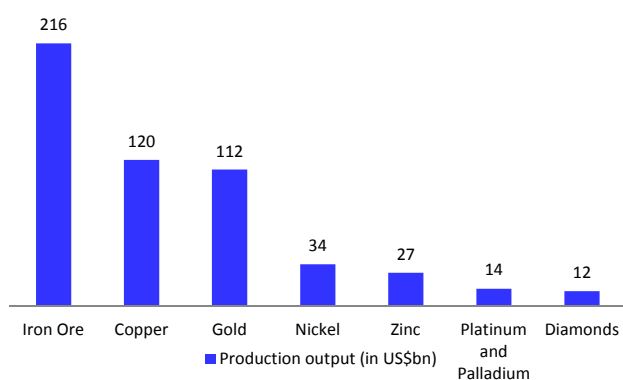


Source: Deutsche Bank, Bloomberg Finance LP, Company data

- While there has been substantial growth in supply over the past three decades, new supply is very limited with many of the largest mines going underground (with some potentially losing up to 50% of production in the process) over the next decade (see also industry section). This has resulted in higher exploration costs in recent years but with limited success according to public data.
- Diamond prices are more of an emotional luxury purchase than other commodities whose price is a function of scarcity, marginal cost and incentive for new production. We forecast diamond prices to grow at a 4.5% CAGR as scarcity increases and as consumers in developing economies see prosperity and consumption improving.

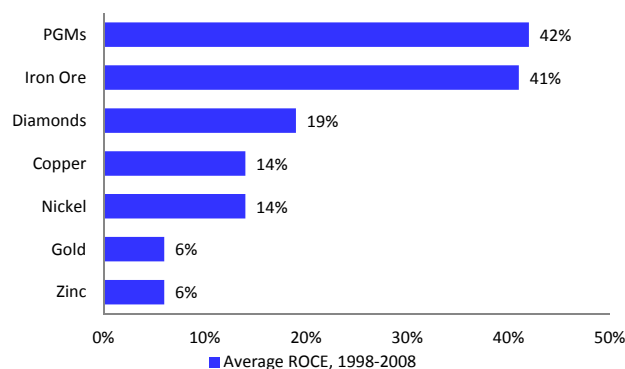
While a small and non-transparent market, diamond companies have offered relatively attractive returns to investors over time.

Figure 89: Production volume in \$bn



Source: Deutsche Bank, Johnson Matthey

Figure 90: Average ROCE 1998-2008



Source: Deutsche Bank estimates, Johnson Matthey, US Geological Survey

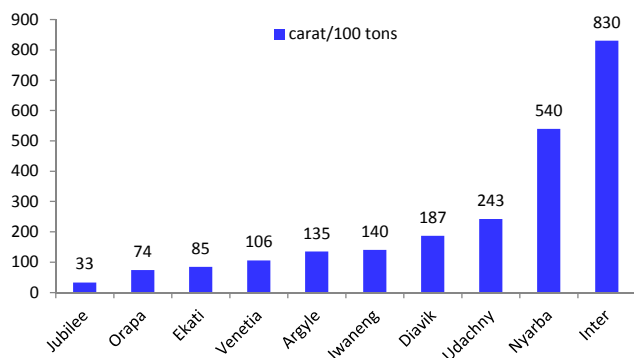
Picking a rock: digging into the companies yields another angle

A key feature of diamond mining is the heterogeneous nature of diamonds as a product (gem vs. industrial quality, grade and average size and quality of stones in the ore, costs of extraction, scale and capital costs). For example, Gem Diamond's Letseng mine (previously owned by De Beers) produced on average diamonds with price yields in excess of \$2,000/ct in 2010. That said, while stones are of large size and high quality



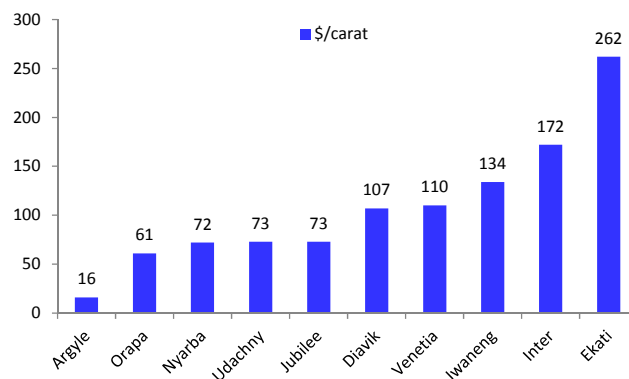
(the highest share of +10.8ct stones at any mine) they are rare and far apart, with grade below 0.02ct/t and Letsung running at 7mtpa to produce around 0.1mctpa (20kg). On the other side of the spectrum is Rio's Argyle mine, which peaked at 42mct production in 1994, but with only 5% of gem quality and an average price yield of around \$25/ct in 2010. BHP achieved \$295/ct at Ekati in Canada, which is nearly what Alrosa achieved at the Mir mine in 2011. Alrosa achieved average realized prices of in 2010 and \$130/ct, falling between these yield points.

Figure 91: Grade in ct/ton



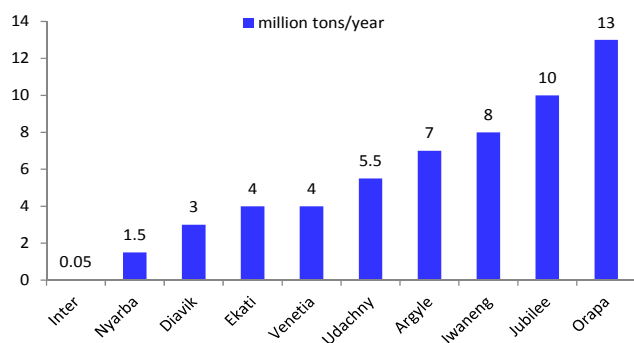
Source: Deutsche Bank, Gems & Gemology, Bain & Co, Company data

Figure 92: ... and price yield on ct per ton in ore



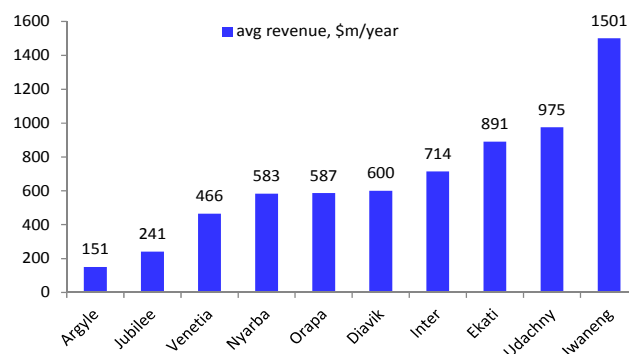
Source: Deutsche Bank, Gems & Gemology, Bain & Co, Company data

Figure 93: ... on scale (tons processed per year)



Source: Deutsche Bank Gems & Gemology, Bain & Co, Company data

Figure 94: ...yields revenue

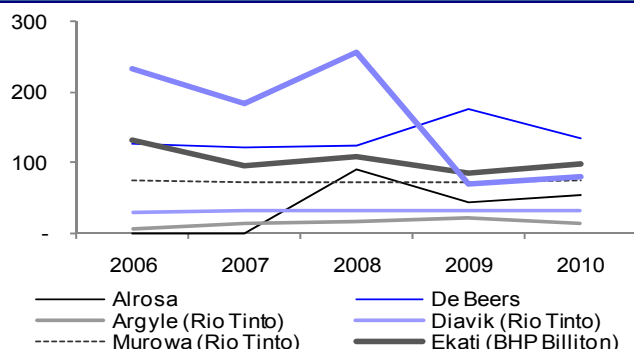


Source: Deutsche Bank, Gems & Gemology, Bain & Co, Company data

Costs also vary significantly. Our South African mining team stratified costs into higher costs/ct and lower costs/ct. Interestingly, costs have been better contained and the diamond industry experienced margin expansion as diamond prices recovered. On a weighted average basis, the mining margin improved from 21% in 2009 to 47% in 2010. Again, Alrosa takes a middle position. We estimate Alrosa's average cash costs/ct in 2011E at \$38/ct.

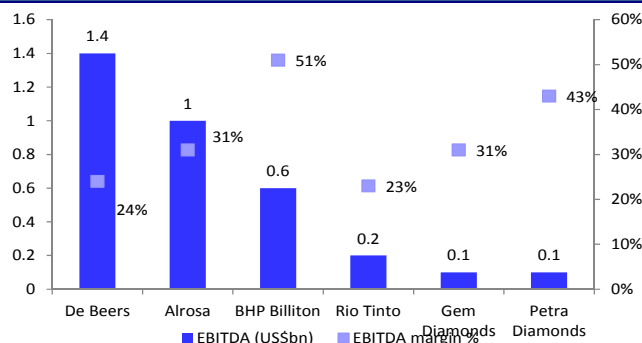


Figure 95: ...which over estimated unit costs



Source: Deutsche Bank, Company reports

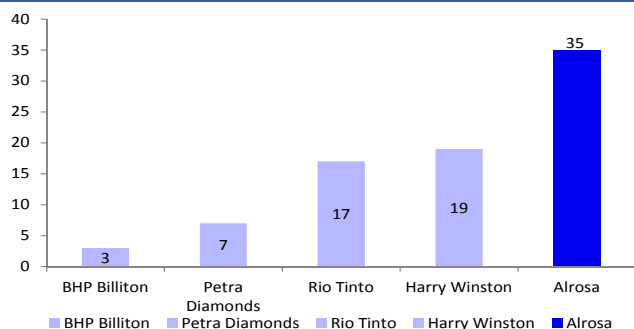
Figure 96: ... yields margins (2010 results)



Source: Deutsche Bank, Company reports, Company data. *BHP includes other segments

A further issue is of the sustainability of such margins, both in terms of life of mine from reserves and of the dynamics of diamond and ore quality as mining progresses at depth, which typically changes yield and costs.

Figure 97: Average life of mine



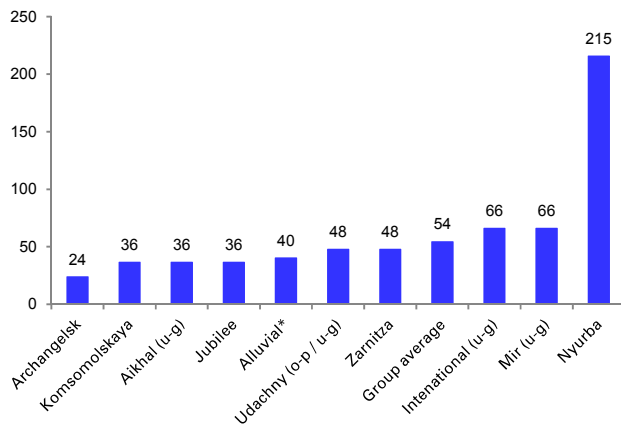
Source: Deutsche Bank estimates, Company data

Looking for gems within the ore within the rock

In continuation of our discussion on Alrosa's reserves in figures Figure 41 - Figure 44, and noted in the valuation section, asset quality also differ widely within companies. While details of Alrosa's reserve breakdown is limited and largely based on 2011 operating data, we find significant yield, cost and life differences between mines, driving the value of Alrosa's parts.

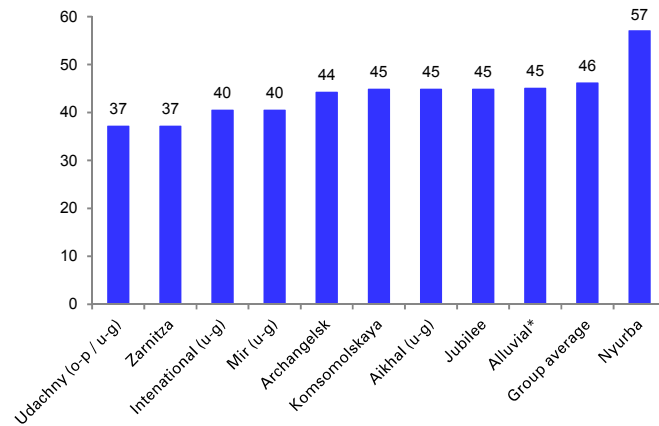


Figure 98: Cost: estimated direct mining opex per



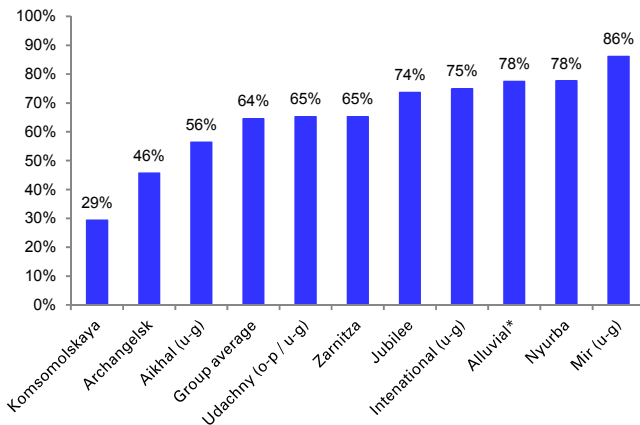
Source: Deutsche Bank estimates, Company data

Figure 99: Cost: estimated direct mining opex per carat



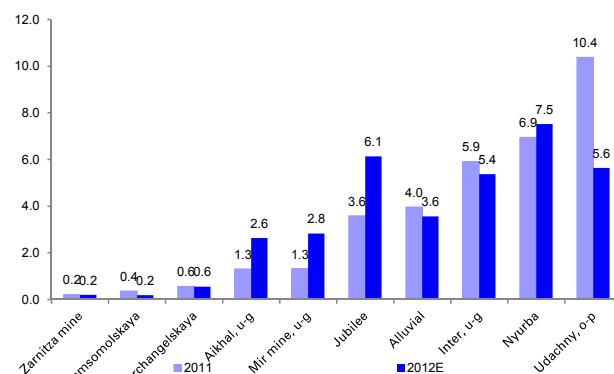
Source: Deutsche Bank estimates, Company data

Figure 100: Yield: estimated cash margin* in 2011



Source: Deutsche Bank estimates, Company data, *Before indirect operating costs, capex and depreciation

Figure 101: Scale: estimated 2012 output by mine



Source: Deutsche Bank estimates, Company data



The diamond industry

In this section we review the diamond industry and the underlying supply and demand trends to arrive at our view on the trajectory of diamond prices. While we recognize several near- and longer-term risks and consider the diamond industry to be relatively not transparent, we come out with a positive view where we expect diamond prices to trend higher.

What is a diamond?

The word diamond comes from the Greek word *adámas*, meaning 'adamant' or 'unbreakable.' Hardness, luminescence and rarity, as well as the intense marketing of these qualities and positioning of diamonds as jewellery and a symbol of love have made these small pieces of compact carbon extremely valuable.

The diamond crystal ("lattice") measures 10 of 10 on the Mohs hardness scale and has the most hardness and thermal (but not electrical) conductivity of any bulk material. While hard and resistant to scratches, diamonds can also be brittle. In terms of toughness, defined as a material's ability to resist breakage from a forceful impact, diamonds measure up well against other gemstones, but poorly compared with most engineering materials. Diamond crystals have a cleavage plane and are therefore more fragile in some orientations than others, a quality that is exploited by cutters and polishers. Diamonds also have remarkable optical characteristics with high luminescence, optical dispersion and ability to refract light; diamonds have a refraction index of 2.42; while glass, for example, has 1.52. Because of an extremely rigid lattice, it can be contaminated by only very few impurities, for example boron and nitrogen, which tilt an otherwise clear crystal towards blue or yellow tones. Cut and polished to accentuate brilliance and these characteristics, diamonds have a strong visual appeal for jewellery. Given their hardness and conductivity, diamonds also have a number of industrial uses and applications. Just above 50% of the volume of mined diamonds become gemstones for jewellery, but these account for more than 95% of the total value. In industry diamonds serve as drill bits for machinery, as abrasive slurries to cut and polish other materials, as tools in the production of microchips and computer processors, and as components in lasers. Today, however, more than 98% of industrial diamonds are synthetic (*Bain & Co, 2011*), i.e. manufactured in artificial conditions that simulate the conditions deep within the earth's mantle.

Diamond crystals form within the mantle of the earth at high pressure and temperatures. Diamond-carrying rock is brought from the mantle to the earth's surface through volcanic eruptions that create ore formations known as kimberlite and lamproite pipes. Kimberlite pipes, which are the most common source of diamond deposits, are usually carrot-shaped and can extend as deep as 2km underground. Lamproite pipes are typically shallower, up to 0.5km in depth, but tend to have a broader, martini-glass shape. Secondary diamond sources are deposits that have formed as derivatives of a primary kimberlite or lamproite source by erosion and eventually accumulated in riverbeds, along shorelines, in glaciers or on the ocean floor. Although such placer deposits account for only 10-15% of mined diamonds, they often produce higher-quality stones that retain more volume after polishing. Diamonds are mined in open pits, underground mines and bottom dredges.

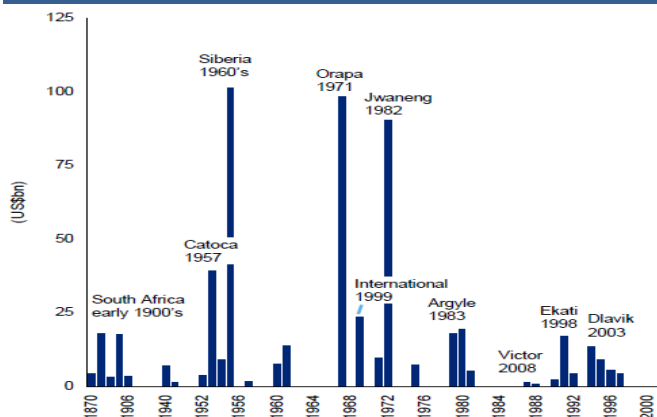


The diamond industry – how we got here

The first diamonds were reportedly found in India 8000 years ago, but trading started around the turn of the millennium, when traders began taking Indian diamonds to Arabia for polishing before selling the polished stones to Europe. By the 16th century, the trading hub had moved to Amsterdam, and when supply shifted to Brazil and southern Africa, London emerged as a global sorting centre.

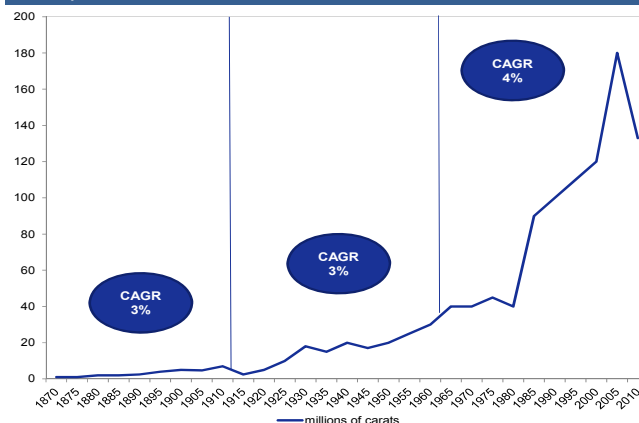
In 1870, significant diamond deposits were discovered in the Vaal and Orange rivers in South Africa, which started a diamond rush. At that time British-born politician and businessman Cecil Rhodes began buying up small diamond properties and, after acquiring the farm of the De Beers brothers and the Barnato diamond company, Rhodes had consolidated most of the South African diamond production. By the time Rhodes died in 1902, his De Beers company accounted for 90% of global diamond production and distribution. In the 1920s, after having established the Anglo American Corporation, the German-born businessman Ernest Oppenheimer started accumulating shares in De Beers and by 1927 he was the biggest shareholder and was made Chairman of the company. Rather than mining and exploration (in fact, during Ernest Oppenheimer's time at the company, no new mines were developed and supply contained), Mr Oppenheimer's focus was on distribution and marketing. From the De Beers platform, the Oppenheimer family arguably created and shaped the diamond industry and became an industry architect. Its 2011 decision to sell its 40% stake to Anglo American for \$5.1bn marks the end of an era in the diamond industry. South Africa dominated diamond production until the early 20th century, when mining spread to other African countries, and in the second half of the century, production spread to Russia (1950s), Australia (1980s) and Canada (1990s).

Figure 102: Major diamond discoveries; fading after 90s



Source: Deutsche Bank, Kimberley Process

Figure 103: Strong growth till 2000; peak diamond theory?



Source: Deutsche Bank, Kimberley process, Gems and gemology, Global output in m carats

The Russian diamond industry took its first steps in the 1930s, when Russian explorers recognized geological similarities between the Siberian bedrock and diamond-rich parts of southern Africa. They began prospecting in the Sakha region. In 1954 the first kimberlite pipe, Zarnitsa, was discovered and more than 500 additional kimberlites were found over the next two years. Mines were gradually developed, and by the 1970s Russia had become the world's third-largest diamond producer by volume, following South Africa and Congo. With a rapid influx of new rough diamonds to the market, the USSR agreed with De Beers in 1963 to sell part of its diamond production through the

The Russian diamond industry took its first steps in the 1930s

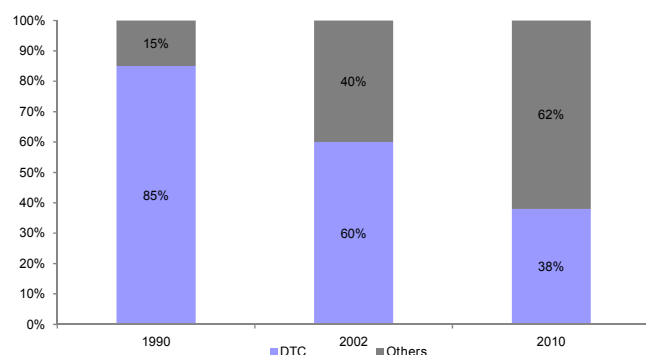


latter's Central Selling Organization (CSO) in order to better respond to global supply fluctuations.

Over time, De Beers came to distribute and manage the sales of 60% of the rough diamonds of the Soviet Union (and subsequently Alrosa). De Beers made similar arrangements with other leading producers and, while its market share slipped as global production expanded from ~20mct in 1950 to ~130mct in 1990, the company managed to retain a de-facto monopoly over the global diamond supply. Following the development of highly valuable deposits in Botswana in the 1970s, the group sold up to 80% of the world's diamonds at regular sales (sights) in London to selected rough dealers (sightholders) until around the turn of the century. With its aforementioned de-facto monopoly position and meaningful working capital to invest in London stored inventories, De Beers could manage to produce supply to match demand.

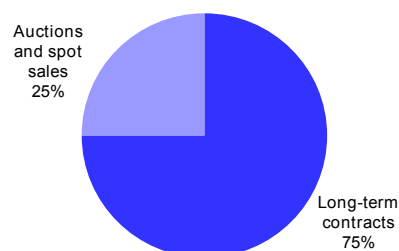
This arrangement was, however, challenged by the European Commission in 2003, and Russian sales were, following a three-year antitrust investigation, phased out by 2009. De Beers' share of global sales is now estimated at close to 35-40% of gem-quality diamonds by quantity and 50% by value.

Figure 104: De Beers' influence has declined



Source: Deutsche Bank, Bain & Co

Figure 105: De Beers sales structure, similar to Alrosa's



Source: Deutsche Bank, Bain & Co

The creation of an industry by branding a product into a symbol Externalities internalized by industry structure and supply management

With such a dominant position (~90%) in diamond distribution in the early 20th century, De Beers could internalize the returns of marketing the diamond industry as a whole. In the 1940s, the company intensified its marketing of diamonds as the ultimate luxury good and as symbols of love. Royalty were presented with De Beers diamond gifts, while Hollywood scriptwriters and celebrities were sponsored to use diamond jewellery in their films.

In 1947, the N.W. Ayer & Son (the first advertising agency in the US.) launched the renowned "A diamond is forever¹" slogan. Over the following decades, De Beers maintained significant levels of investment in advertising to market the notion that diamonds signify romance and everlasting love.

Partly as a result of such extensive marketing efforts, the demand for diamond engagement rings has grown steadily since the 1940s, with the share of US brides receiving a diamond engagement ring growing from 10% in 1939 to 80% by the end of

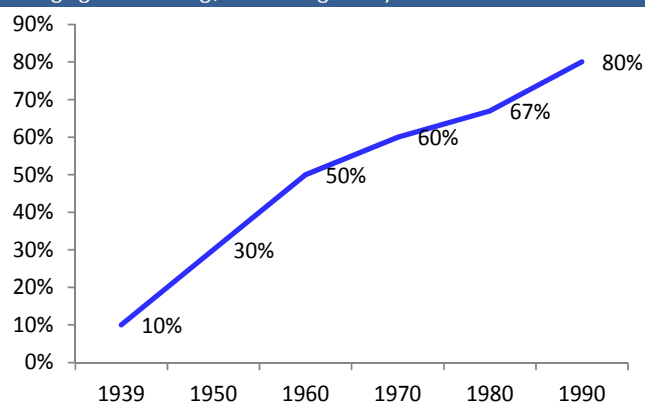
¹ Invented by Frances Gerety, a young copywriter at the N. W. Ayer advertising agency



the 20th century. In 1967, a bold advertising campaign was initiated by J. Walter Thompson² that was aimed at popularizing diamond engagement rings in Japan, where local Shinto tradition to that point had few roles for gemstones; marriages were instead sealed by sharing rice wine from the same wooden bowl. The share of Japanese brides with diamond rings grew from 6% in the 1960s to nearly 80% by the 1990s, presumably providing attractive ROIs on De Beers' marketing capex.

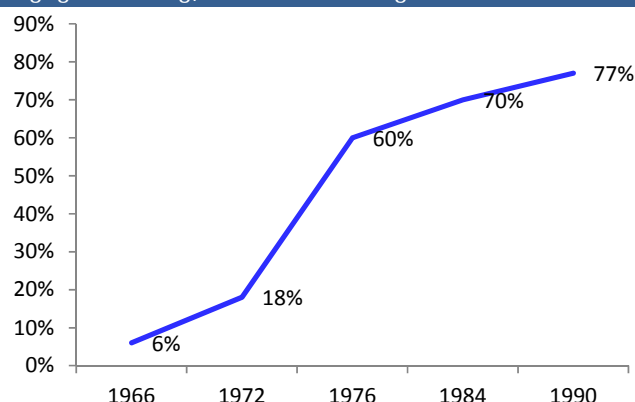
As marriage-related diamond jewellery makes up the majority of overall demand for gem diamond jewellery, this gives some importance to i) the success of marriage as an institution and ii) that institution adopting diamond trading in new growth areas (notably India and China). We note that most jewellery retail chains are increasingly actively marketing and distributing their jewellery in China.

Figure 106: Share of brides in the US receiving a diamond reengagement ring; following Hollywood's lead?



Source: Deutsche Bank, Bain & Co

Figure 107: Share of brides in Japan receiving a diamond engagement ring; more carats alongside the rice wine



Source: Deutsche Bank, Bain & Co

As De Beers' share in distribution declined after the turn of the millennium, the returns to the company's industry marketing campaign were increasingly externalized and accrued to "free-riders". To manage the new realities of the industry, De Beers transformed its strategy and so did the industry in two important ways:

- Instead of managing industry supply through DTC³ (which with a smaller market share it could not as effectively do), it would drive consumer demand.
- Instead of marketing the industry (the investments in which it could no longer fully appropriate), it would market its own brand across the value chain, including an own retail franchise. With this, De Beers would expect other industry players and retail chains to compete in branding campaigns, at least at the retail level, which would partly share the burden of marketing the growing industry to global consumers.

Consequently, in 2001 De Beers entered the retail sector in a JV with French luxury brand company LVMH to create the independently managed De Beers Diamond Jewellers, with 39 De Beers stores in 2011 and a proprietary Forevermark jewellery brand.

² The largest advertising agency in the world at the time

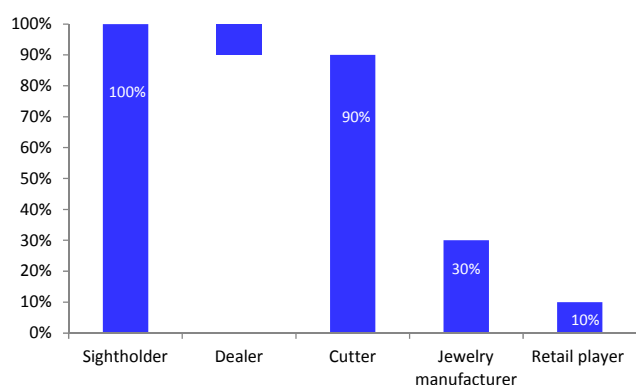
³ The Diamond Trading Company (DTC) is the successor of De Beers Central Selling Organization (CSO)



In 2003, De Beers launched the Supplier-of-Choice program, aimed at shifting marketing spend to other players, while De Beers focused on its own brand. De Beers would market and position itself as a reliable supplier of high-quality rough diamonds but restrict supply only to select sightholders, which, to gain access to De Beers' supply channel, would be expected to promote their own diamonds, as well as adhere to certain CSR and quality standards aimed at further lifting the perception and reputation of the diamonds sourced from De Beers.

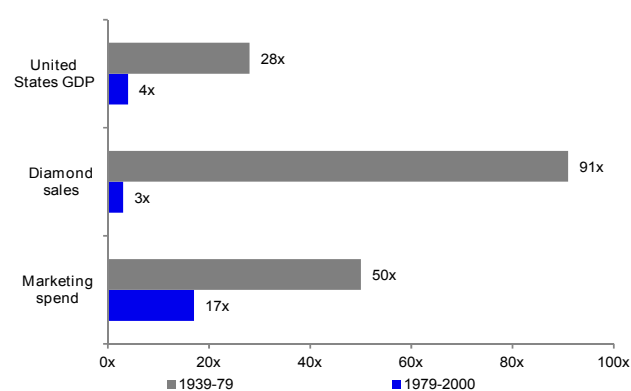
Incidentally, the Supplier-of-Choice program also contained the risk of brand dilution from conflict diamonds, which received increased attention during the 1990s; among other conflicts, these included the civil war in Sierra Leone. After facing challenges in controlling the sources of 80-90% of the world's rough diamonds, partly driven by purchases like the 200ct Millennium Star from a conflict-stricken DRC in the 90s, De Beers could now ensure stricter control of supply from its own mines.

Figure 108: Sightholders go deeper in the value chain



Source: Deutsche Bank, De Beers and Rio Tinto reports

Figure 109: Decreasing returns to industry marketing?



Source: Deutsche Bank, De Beers reports, Bain & Co

In De Beers' absence, retailers and jewellery manufacturers have stepped up their marketing efforts, with players like Tiffany and Cartier spending about \$50m a year each; this also benefits the industry image. Sightholders have also increased their marketing investments, in line with their participation in the Supplier-of-Choice program.



Figure 110: A diamond industry timeline

1870	1910	1947	1940	1950	1960	1970	1980	1990	2000
Discovery of massive diamond deposits in South Africa	Production started in other African countries	De Beers Diamonds are forever'' marketing campaign	Production started in Russia, Australia and Canada	Production at 20mct				De Beers commitment to EU to cease cartel	DB ceased purchases from ALROSA
De Beers Group monopoly over mining, trading and marketing.	De Beers establishes control over industry			Industry marketing intensifies		Continued expansion of non DTC mines			Supplier of Choice strategy started
					Important arrangement between DTC and USSR	Some producers and dealers began circumventing the DTC system	Diamond becomes attractive investment; dealers began independent trading		DB enters Retail with LVMH (does not receive a direct flow of diamonds from DTC)

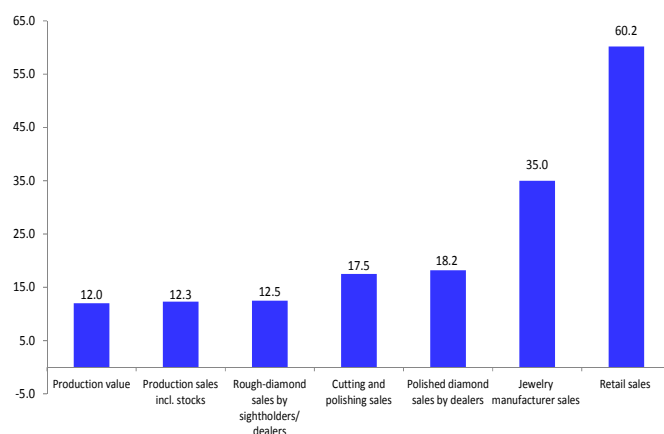
Source: Deutsche Bank



The diamond value chain: value in the tails, risk from the middle

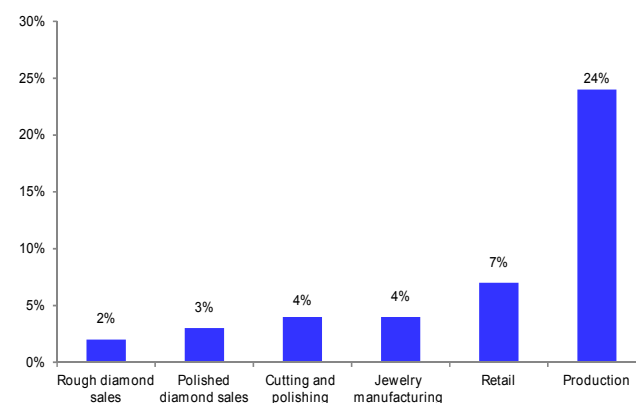
There are seven stages in the diamond value chain; from exploration, mining and processing, through rough diamond sales, cutting and polishing, jewellery manufacturing and retail sales. As diamonds pass through the value chain, their value increases by approximately five times, from \$12bn at the sights and auctions of rough diamonds to \$60bn as marketable jewellery at the retail stage. Most value is appropriated at the tails of the value chain, in mining and retailing, while limited incremental value is added in the intermediary stages.

Figure 111: The diamond value chain; fat(ter) tails



Source: Deutsche Bank, Bain & Co, Kimberley Process, Company reports

Figure 112: 2010E average segment operating margins



Source: Deutsche Bank, Bain & Co, Kimberley Process, company reports

- At either end of the value chain, the highest revenues and profit are realized: in diamond mining and production (diamond producers show healthy 22%/26% operating margins) and at the end, in retail. Within the mining and production segment, relative margins are driven by the quality of the ore body (grades, depth, ore type and average price yields), the availability of infrastructure and tax regimes. Within the value chain, margins are driven by industry structure and barriers to entry. With the four biggest diamond producers accounting for as much as 60% of rough diamond volumes and 90% by value, the diamond industry is concentrated even without De Beers' DTC consolidating sales. Rough diamonds are produced at around 20 major mines. Meanwhile, the lack of recent exploration success and depletion of current mines raise the bar for new players and for expansion to industry incumbents.

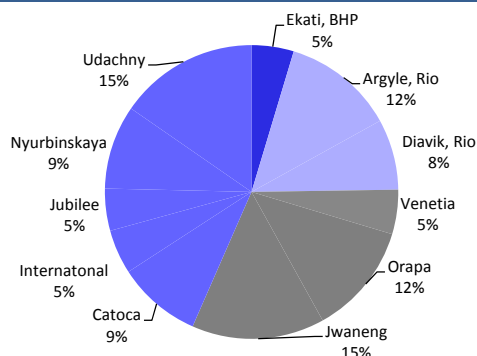
In terms of geographical diversification of the resources, the diamond industry is highly concentrated in a few locations, with about 70% of the world's diamonds located in Africa and Russia. The other main producing regions are Canada and Australia, both relatively recent entrants. Only 11 deposits account for about 62% of world production (see Figure 113).

- By volume the largest operating mines are: Argyle mine (Australia), Jwaneng and Orapa mines (Botswana), Udachny deposit (Russia).
- By value, the single biggest mine is Jwaneng, followed by Udachny and Ekati (Canada).
- Size matters: In terms of size, large diamonds account for a very large proportion of the market by value but a small portion by volume. The reason is



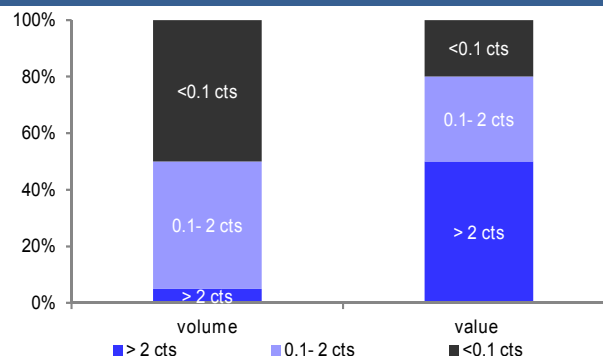
the relative scarcity of large diamonds, which lends them novelty and value and accounts for their greater expense relative to small stones. In 2011, according to IDEX, a four-carat diamond of the highest quality sold for an average \$500,000, vs. \$25,000 for a one-carat stone.

Figure 113: Concentrated 2010 global production, 60% (~82mct) of global output from 11 mines, or four miners



Source: Kimberley Process; Deutsche Bank on company information;

Figure 114: Large diamonds account for <5% of volume and 50% of value of total market



Source: Deutsche Bank on company information.

- Gaining access to rough or polished stones is critical to the business of diamond jewellery. The sale of rough diamonds occupies one of the key junctures on the value chain. There are three types of rough-diamond sales: long-term contracts, tenders and spot sales. For the biggest producers, long-term contracts account for the vast majority of their sales (90% for De Beers, 70% for Alrosa, >90% for Rio Tinto and 50% for BHP Hilton), while others, on average, channel 90% of their stones through auctions and spot sales.

Figure 115: Three types of rough-diamond sales

Method	Description	Advantages	Notes
Long-term contracts/sightholder system ⁴	Producers sell rough diamonds on a regular basis to the holders of long-term contracts, or sightholders. Typically sights are every four to six weeks. Prices are set at regular intervals. The quantity and quality of diamonds sold in each box is set in advance, as is the price for the entire box. Producers try to match their customers with an assortment of diamonds that suits their needs, and diamantaires/dealers are allowed to accept or reject the whole box; some producers allow the diamantaires to negotiate for only part of a box.	Long-term contracts guarantee supply and a measure of stability Fostering trust and credibility of potential buyers <100 independent sightholders exist worldwide buying more than 70% of all diamonds produced in the world	Only 10 to 15 sightholders can afford to buy a truly significant amount of diamonds (\$50m to \$100m) at a single sighting.
Auctions	The stones are typically sold in boxes with a certain assortment, similar to those used at sights A diamond auction may be open only to select buyers or to the public. Companies either run auctions on their own or through specialists that take a small commission.	Auctions allow buyers to make purchases without a long-term commitment, so they can take advantage of changing market circumstances Allow producers to maximize their profits in periods when diamonds are selling high, but they are also more vulnerable to major price drops as well Auctions help identify the maximum price the market will bear at any given time	Were only held for large stones 10 years ago. Now account for as much as 30% of overall rough-diamond sales The majority of the smaller producers use auctions as the preferred method of selling their supply as they are less expensive than operating a long-term contract system
Spot sales	Producers sell a range of rough diamonds based on one-time contracts	Allow for price testing of particular types of stones.	Spot sales are often conducted with nonexclusive buyers

Source: Deutsche Bank, Company data

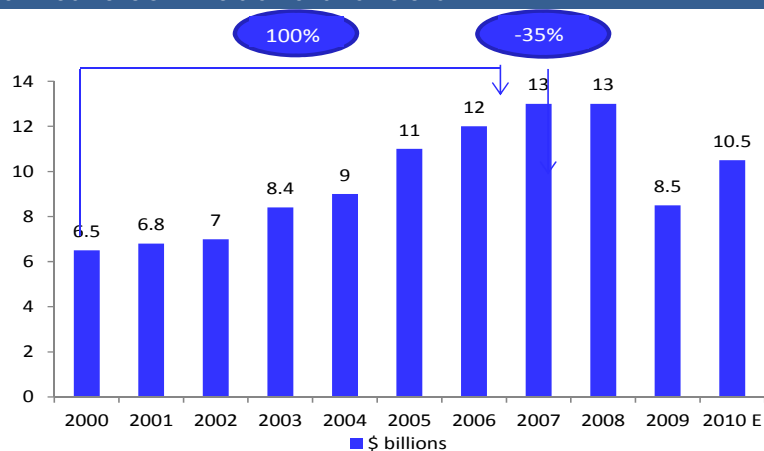
⁴ Under the system originally established by De Beers, sightholders were a small group of buyers who came to a location called a "sight" to inspect the diamonds for sale. Later the sales themselves came to be known as "sights." As the market has opened up in recent years each major producer, including Alrosa, has developed its own version of the system



In the middle of the value chain are cutters, polishers and jewellery manufacturers. These segments are highly fragmented, often privately owned and characterized by low profit margins. In addition, while the production side of the value chain is more capital intensive, the intermediate stages are intensive in terms of working capital. Cutters and polishers must often pre-pay for diamonds, while they are required to provide credit lines to retailers. While either end of the value chain can typically access debt and equity capital from banks and investors, it is more challenging for the small-scale polishers and cutters. As a result, special diamond financing institutions, specializing in working capital funding, have emerged to fund the players in the middle. During the 2008-09 crisis, the players in the middle found themselves squeezed by rising leverage ratios. As a result, they tried to reduce inventories by cutting prices to the retailers. This contributed to the price contraction in 2009.

There are current concerns about the amount of leverage at this level of the diamond value chain, but some industry analyses (Bain & Co) suggest that the middle players have become more prudent with regards to inventory and leverage levels following the 2009 crisis, making this part of the value chain more resilient to future fluctuations. We believe this middle segment remains vulnerable to volatility in demand and prices.

Figure 116: Debt levels in the diamond value chain



Source: Deutsche Bank, Bain & Co, Botswana Resource Conference 2011

In the cutting and polishing stage, craftspeople called lapidaries transform rough stone into finished gems, during which process most diamonds lose 50% to 60% of their weight. After a century of dominance in Belgium, Israel, the United States and Russia, cutting and polishing are now predominantly done in Asia and particularly India, where 800,000 diamond cutters work. Jewellery manufacturing is characterized by extreme fragmentation, with more than 10,000 manufacturers around the world, 80% of which are based in India and China.

While retail sales are also fragmented, more than a quarter-million retailers sell jewellery to consumers around the world, this segment enjoys the highest mark-ups, both due to the lack of price sensitivity of the consumers and due to the strong brand names commanded by leading segment players (Tiffany's, Graff, Cartier etc). In recent years the profitability of retail players has come under some pressure as a consequence of the economic downturn and the emergence of online players such as Blue Nile. So far the share of online sales is relatively small, but the Internet has brought significant disruption to the industry by introducing greater price transparency.



In the table below, we illustrate the stages in production and sales of diamond. We have assessed the value added at various stages and have incorporated the margin earned at each point in the pipeline. This is an important issue in the market as De Beers has historically maintained a good understanding of the inventory and debt levels at the various points in the pipeline, an industry stewardship beyond pricing that may leave the supply chain more vulnerable without coordinated supervision as De Beers assumes a more passive role.

At present, we think that cutting centre debt levels have fallen from c.\$15bn at the peak in 2006/7 to c.\$8-10bn. The primary concern with this level of debt is that interest rates globally are at historically low levels and as inflation concerns mount (potentially demand damaging oil price increases), there will pressure on demand as inventories are destocked in the event of weaker demand.

Figure 117: Diamond flow sheet, incorporating value, margins and participants as well as summary of the activities at points in the pipeline

	Exploration	Rough		Polished manufacturing and dealing	Jewellery	
		Production	Distribution		Manufacture	Retail
Value (\$m)	3-6bn*	14.8bn	14.2bn	19.6bn	n/a	Retail: 70.3bn PWP: 19.1bn
Margins (%)	n/a	0→20	3→5	-16→19	-20→10	
Number of participating companies	100s	100s	50s	1,000s	10,000s	>250,000
Description	 Finding new deposits of diamondiferous kimberlites that can be mined economically	 Carats recovered through mining	 Rough distributor: Selling rough diamonds purchased from a primary source Rough dealer: Trades diamonds purchased from rough distributors and/or other rough dealers	 Cutting and polishing rough diamonds ready for inclusion into jewellery	 Crafting jewellery incorporating polished diamonds	 Selling diamond jewellery to the end consumer

T: PWP is the price of a polished diamond at Cutting Centre before any additional market-ups. It denotes the diamond content of a piece of diamond jewellery sold at retail.

* Deutsche Bank estimates

Source: Deutsche Bank drawing and estimates, De Beers



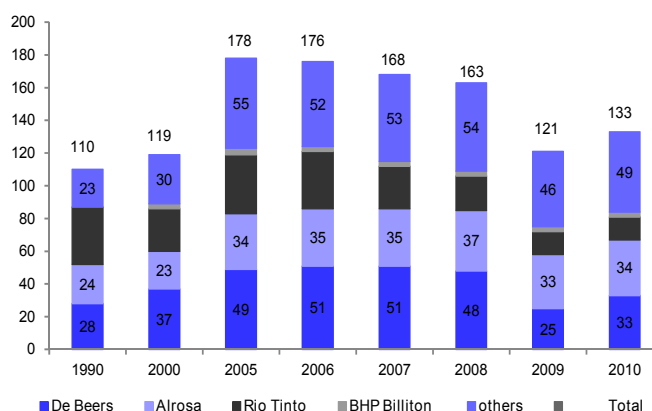
Supply outlook; limited discovery and new supply options

Following a price-induced slump in the post-crisis 2009, diamond production recovered to grow 12% YoY to 133mct, still well below the peak production of 178mct in 2005 as some pre-crisis capacity was not restarted.

In 2009, the former industry steward, De Beers, responded to weaker prices and cut output but also sold some of its more mature assets to smaller producers (like Petra diamonds), implying an overall decline of more than 40% in production. While Alrosa cut production by a more modest 11%, it enjoyed the off-take support from the government depository Gokhran for almost 40% of its output.

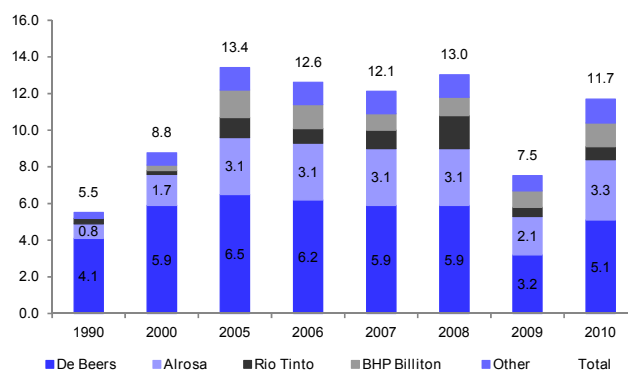
The recovery in production in 2010 reset Alrosa's and De Beers' volume parity, but De Beers value leadership in the industry. The significant difference in volume and value illustrates a key feature of the diamond industry; that reserves are not created equal and that diamonds come in approximately 12,000 categories, with quality often being more important than quantity, especially as value to increase exponentially against improving quality characteristics (carat size, clarity and colour).

Figure 118: Global rough diamond production (mct)



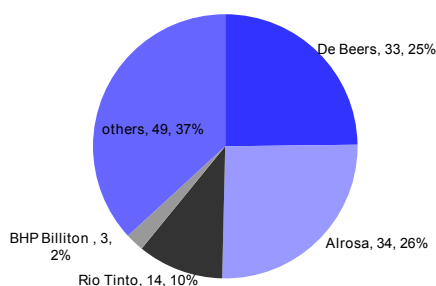
Source: Deutsche Bank, Company reports; Kimberley Process Statistics

Figure 119: Rough diamond sales (\$bn)



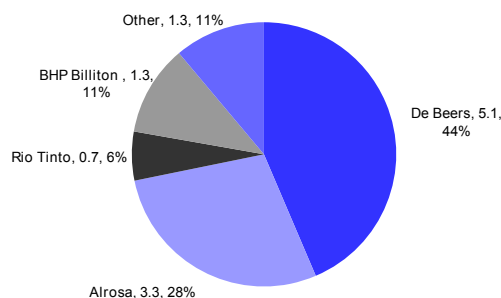
Source: Deutsche Bank, Company reports; Kimberley Process Statistics

Figure 120: 2010 rough diamond output (mct/ in %)



Source: Deutsche Bank, Company reports; Kimberley Process Statistics

Figure 121: 2010 rough diamond sales (\$bn/in %)

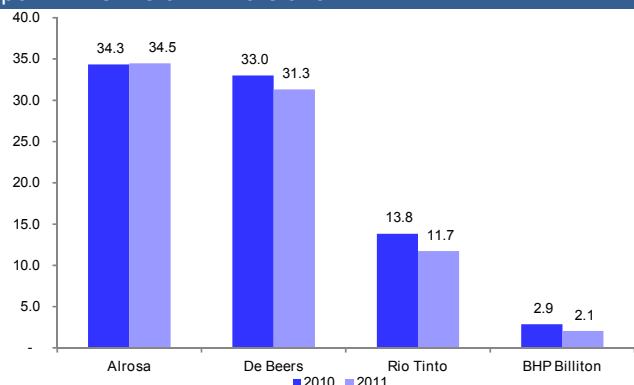


Source: Deutsche Bank, Company reports; Kimberley Process Statistics



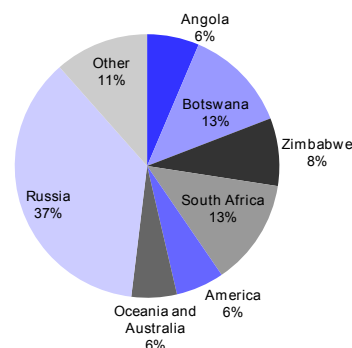
Estimates suggest 2011 production was roughly flat at 135mct, as the main producers (excluding Alrosa +1% YoY) cut back on 2010 levels, while some smaller producers increased output.

Figure 122: 2011 production, m carats. The 2011 starting point in terms of run rate and...



Source: Deutsche Bank, Company data

Figure 123: ...reserves: Russia and Africa dominate global diamond reserves; Alrosa holds 93% of Russia's reserves



Source: Deutsche Bank, Company data

Looking forward, the diamond supply outlook looks constrained as i) an increasing number of more mature mines in the world are reaching their target depths and underground economics are unclear, while ii) only a limited number of expansion projects are expected. Meanwhile, no material new deposits have been discovered over the past 15 years, limiting the potential for supply increases.

The exploration side: Limited expansion options

Despite relatively intensive exploration activity over the past two decades, no material new deposits have been discovered over the past 15 years, limiting the potential supply increases even at higher incentive prices. In response to the financial crisis, all major producers cut their exploration budgets.

Figure 124: Limited meaningful recent discoveries that have led to production

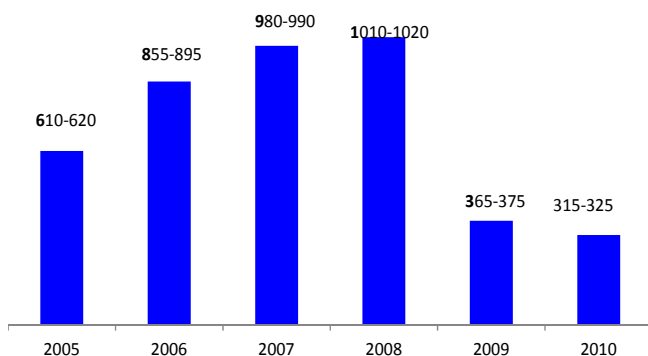
Year	Mine	m carats/year
1980	Venetia	9
1985	Catoca	8
1992	Ekati	5
1994	Diavik	12
1996	Nyurba	5
1997	Murowa	0.5
1980-97	Total	39.5

Source: Deutsche Bank, Company data, Kimberley Process

While we would expect a rebound in exploration spend, indications that BHP and Rio Tinto may be exiting the industry do not suggest that they would invest more in exploration. Alrosa has been a leader in exploration-related spending, with an annual exploration budget at c.3.5% of its revenues. With a superior reserve base and a government mandate to replace depleted reserves, we expect Alrosa's reserve base to recover in line with its declared strategy.

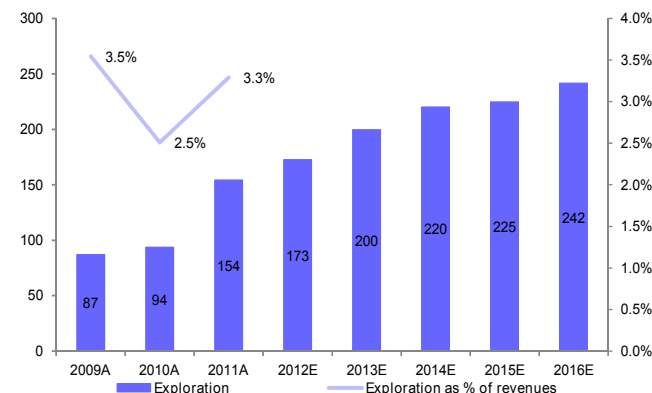


Figure 125: World diamond exploration trend, \$m



Source: Deutsche Bank estimates, Company data, Kimberley Process

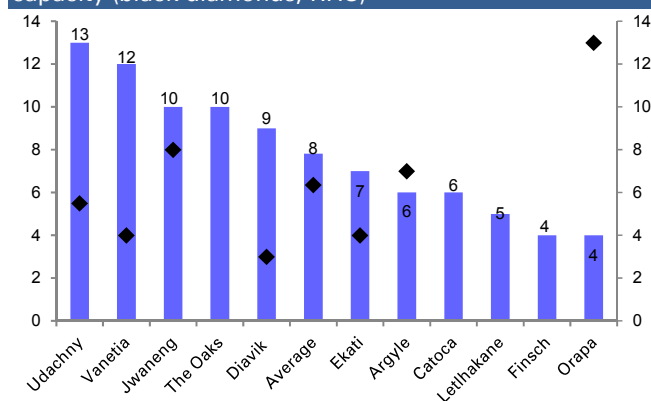
Figure 126: Alrosa, a global exploration champion (\$m)



Source: Deutsche Bank, Company data

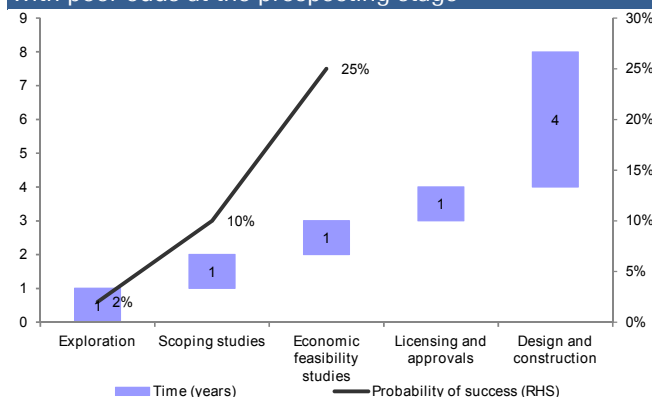
The exploration cycle is a capital-intensive and risky process with significant lead times. From the greenfield exploration stage, the probability that a producer will find a deposit that both contains diamonds and can be developed into a commercially viable diamond mine is estimated at 1-3% by companies in the industry. The probability of successful development at the feasibility assessment stage jumps only to 25%. Once a prospective deposit has been identified, it may take up to 10 years to begin commercial production. Only about 1% of the Kimberlite pipes discovered to date have proven to be economically viable at current diamond prices.

Figure 127: Years from discovery to production and target capacity (black diamonds, RHS)



Source: Deutsche Bank, Company data

Figure 128: Discovery to production may take 6-10 years with poor odds at the prospecting stage

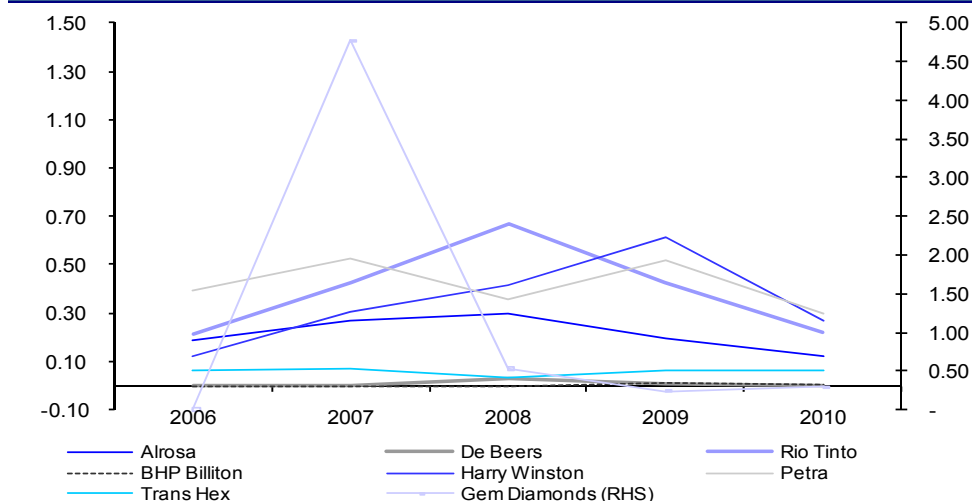


Source: Deutsche Bank estimates

Looking at the capex trend more broadly as a proxy for sustaining and expanding current production levels, we reviewed the re-investment rate of the major miners by reviewing the capex/sales ratio. We found that Gem Diamonds has the highest investment rate but that Rio Tinto, Alrosa, Harry Winston and Petra have invested more than De Beers and BHP in relation to their size.



Figure 129: Capex/sales for listed diamond mining companies over time



Source: Deutsche Bank, Company data

A diamond is forever, reserves are not

Depletion and partial exit from current operations...

While there have been limited new diamond discoveries over the past decades, reserves at current mines are being depleted and mature open-pit mines are reaching their target economic depth. While many miners hope to sustain production levels as they move underground, we note that production tends to decline due to the geology of the kimberlite pipe, which is carrot shaped and increasingly narrow at depth. Often, 40-50% of production in mines will be lost when going underground, which could result in a loss of 30-50mctpa of global production over a 20-year period unless compensated for by substantial capital investment. However, lower mined volumes may be offset by higher grades or higher quality stones, which is partly what Alrosa has experienced at its International underground mine.

- BHP Billiton's FY11 diamond production contracted 28% to 2.1mct due to declining grades at its flagship Ekati mine in Canada. The Ekati mine accounts for c.4% of the world's diamond production by volume and, with a high average yield, 6% by value, but it is now exhausting its open-pittable reserves. In November 2011, BHP announced that it is reviewing its participation in the diamond business on the grounds that it lacks scalability. The company's statement specifically read that "years of extensive exploration suggest that there are few options to develop new diamond mines" to provide scale.
- Rio Tinto's output in FY11 fell 15% to 11.7mct (vs. a peak production level of 42mct) on the back of partly weather-related problems at its lamproite flagship Argyle mine, which makes up just over 50% of Rio's diamond business. Declining output from Argyle has effectively reduced Australia's share of world output in recent years. While the mine has reserves for another 20 years of operation and resources for an additional 20 years, the mature asset has depleted its open-pittable reserves. Underground development has been launched and with an expected 2013 start-up at a capex of \$2.1bn. In March 2012, on the heels of BHP, Rio Tinto announced that it had started a strategic review of its diamond division, including options, to divest the business unit. At a 2011 EBITDA of \$180m or 0.6% of the group total, the diamond business lacks scale for the leading miner and, similar to BHP's, Rio Tinto's statement said that the industry is suffering from "a lack of new discoveries limiting supply" and preventing the growing scale.



- Alosa's flagship Udachny mine, which over the past 19 years has been the leading producer of diamonds in Russia, is approaching the target depth for open-pit mining. The mine has another 52 years of life, but the open-pit mine is expected to be depleted in 2016. Underground development was started in 2004 with the commissioning of the first phase of 1.5mtpa expected in 2014 to replace slowing ore feed from the open-pit mine. The underground mine is expected to ramp up its capacity to 4mtpa only by 2017.
- De Beers' Jwaneng (one of the richest mines in the world with peak production at 16mct) and Orapa (one of the world's largest mines with peak production at 16mct) mines are also gradually depleting their open pittable reserves. In 2010, De Beers' Debswana commenced the Cut-8 extension project at Jwaneng Mine. The project represents a major investment commitment, intended to extend the life of the mine (LoM) to 2025 and yielding 100m carats worth \$15bn over LoM in total at a cost of \$3bn over the next 15 years.

... vs. limited commissioning of new projects

While major growth projects are unlikely in the next few years, there are a number of smaller-scale projects that are expected to contribute carats to global supply, with Alosa making a meaningful contribution.

- Alosa's contribution comes mainly from Severalmaz's expansion of mines in Arkhangelsk, which combined, are expected to contribute incremental 0.5mct-4.5mct during 2013-2018E. Alosa believes that a planned development of its exploration portfolio (including the Ruchey Gusiny and Ebelyakh alluvial licenses and the Dalnaya, Maiskoe and Verkhne-Munskoe pipes) can add another 5mct, given ramp-up operations during 2016-21E.
- In addition, LUKoil is developing the Grib kimberlite pipe only 25km away from Alosa's Severalmaz assets in the Lomonsov diamond field. According to LUKoil's development plan, the company will spend \$1bn in capex to commission diamond production in 2H13 and reach 4mctpa, at a slightly higher quality than the Arkhangelskaya and Karpinskaya pipes.
- De Beers' main growth opportunity is the Gahcho Kué mine in Canada. The Gahcho Kué project is a highly diamondiferous primary kimberlite cluster located at Kennedy Lake, approximately 300km northeast of Yellowknife in Canada's Northwest Territories. With an expected capacity of 2-4mct and start-up planned for 2014E, Gahcho Kué is one of the largest diamond mines under development in the Western world, and has the potential to become one of Canada's major diamond mines as well.
- The Bunder project is Rio Tinto's first and the most advanced diamond mining venture in India. The project comprises a cluster of eight lamproites located in Madhya Pradesh state, 500km south east of New Delhi. Rio Tinto discovered the Bunder deposit in 2004 as part of a regional exploration reconnaissance program. It holds 27mct at 0.7ct/t. It is estimated that development will cost at least \$500m and that the production may be launched in 2016 with a potential to be increased to 5mtpa and produce ~3.3mct p.a. on our estimates.
- Other potential expansion projects are expected in Canada and Africa. Among these, Lucara Diamonds' AK6 project in Botswana is expected to add 1mctpa starting in 2012, while other mines will be launched 2013 or later.



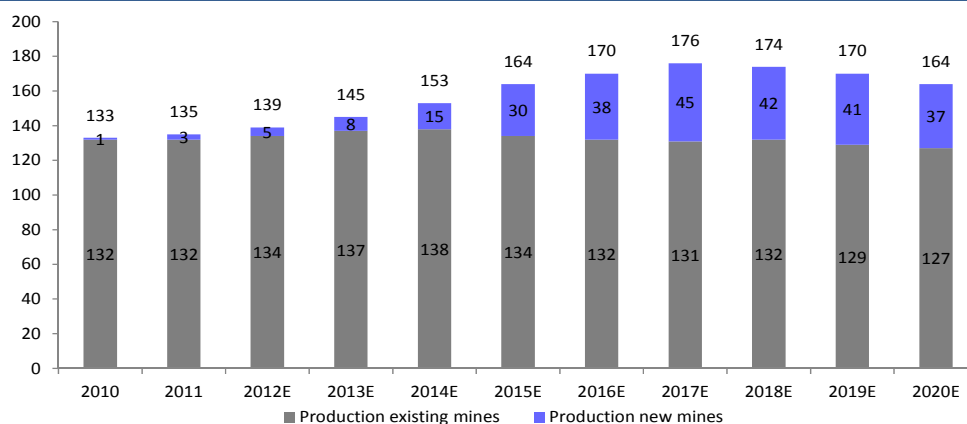
Figure 130: Potential visible new mine supply over the next 10 years

Project	Company	Location	Potential start-up	Potential output mctpa	Potential life of mine
BK11	Firestone Diamonds	Botswana	2010	0.8	9
AK06	Lucara Diamond 100%	Botswana	2012	1	12
Liqhobong	Firestone Diamonds 75%	Lesotho	Phase 2 in 2013	0,5 – 1	17
Grib	LUKoil	Russia, Arkhangelsk	2H13	4	> 20
Kao	Namakwa 70%	Lesotho	Phase 2 in 2015	0,3 – 0,7	40
Lace mine	Diamond corp. 74%	South Africa	2013	0.5	
Gahcho Kue	De Beers 51%	Canada	2014	2 – 4	15
Gope	Gem Diamonds	Botswana	2013		30
Renard	Stornoway 100%	Canada	2013	1	20
Star/Orion	Shore Gold	Canada	2015	0,8 – 1,6	
Mothae	Lucara Diamond 75%	Lesotho	2015	1 – 2	
Severalmaz	Alrosa	Russia, Arkhangelsk	2013-2018	4.5	> 30
Bunder	Rio Tinto	India	2016	3.5	> 8
Total/average				22mctpa	20

Source: Deutsche Bank, Company reports; Kimberley Process; Bain analysis

While, on an aggregate basis, we could potentially see as much as much as 25mctpa in additional production capacity over a 10-year period, we believe some projects are of marginal economics and face uncertainties about completion.

Figure 131: We expect net supply to grow by 2-7% over the next few years, to reach pre-crisis levels by 2017E, but not to keep pace with rising demand



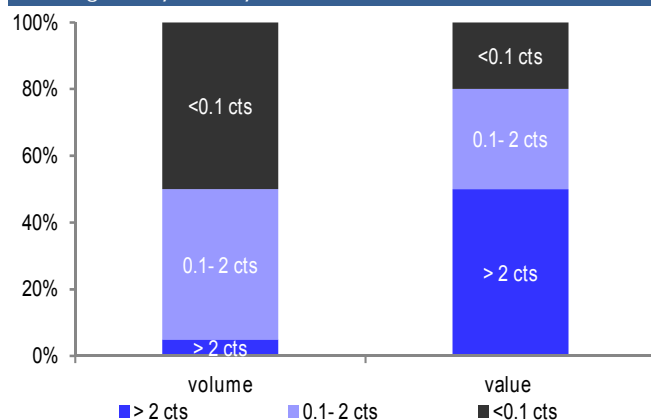
Source: Deutsche Bank estimates, Alrosa, company data

While diamond market trends will also clearly depend on the relative size and quality of future production, industry experts and company representatives suggest that there is little reason to expect the size or quality of stones to change significantly over time.

We note that with the growth of the global HNW segment, larger diamonds tend to benefit disproportionately from rising prices. In constant relative weight production, the >1 carat production segment has been a key driver of higher diamond prices.

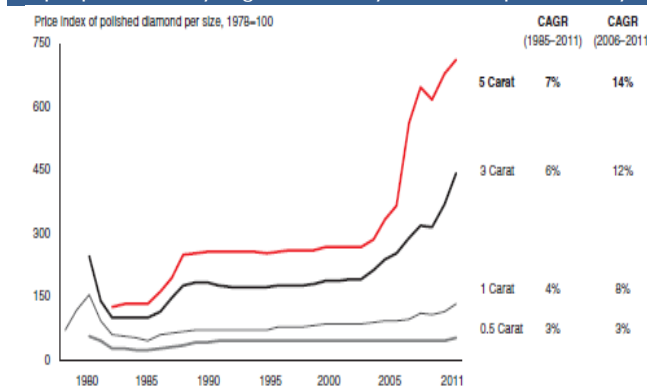


Figure 132: Diamond output size is likely to stay relatively stable globally and by mine, 2009



Source: Deutsche Bank estimates, Cormark securities

Figure 133: ...with larger stones priced disproportionately higher and key to overall profitability



Source: Rapaport Group, www.Diamonds.net, Copyright 2012 Martin Rapaport. All rights reserved

Other supply sources and threats

Offshore mining, the next frontier

Diamond exploration is increasingly moving offshore, with the potential to mine alluvial mines off the ocean floor. This is an interesting trend if only because it illustrates the relative scarcity of new finds and available resources to develop, arguably a constructive signal for the industry and for owners of current resources.

Marange – could Zimbabwe unsettle the global supply-demand balance?

On the supply side, one major new find is the Marange diamond field in Zimbabwe. Some regard the Chiadzwa fields as the world's biggest diamond find in more than a century, potentially with much of Zimbabwe's 300mnct resources.

Since the early 1980s, De Beers held an Exclusive Prospecting Order (EPO) over Marange. However, the EPO expired in 2006 and exploration rights were taken up by British-registered African Consolidated Resources (ACR). In December 2006, ACR was preparing trial mining operations when the Government of Zimbabwe took over the rights via the Zimbabwe Mining Development Corporation, despite ACR winning a court case, which allowed it to continue mining.

The government takeover resulted in a diamond rush of small alluvial miners. Military force was used to remove these illegal miners and claims of human rights violations followed. During 2009-2010, up to 4m carats are believed to have had been mined at the fields. In 2010, the Zimbabwe government reported Chiadzwa production of 2.7m carats with another 300,000 carats from River Ranch and Murowa.

Kimberley Process review

The reports of human rights violations led to calls for Zimbabwe to be suspended from the Kimberley process. Although this was proposed in 2009, it was instead decided to monitor the diamonds from the Marange fields and in a Kimberley Process review in July 2010, Zimbabwe was allowed to export Marange diamonds in a supervised manner.

Subsequent to this intermediate step, the Kimberley Process Chairman, Mr Mathieu Yamba, issued a green light for Zimbabwe to export its Marange diamonds. Yamba's



decision was criticised by the EU, US, Canada, and Australia, who claimed that it was not taken in accordance with Kimberley Process regulations, which stipulate that all policy be determined by consensus.

The US has warned that a government website will publish the names of any diamond companies trading in Marange goods, and the EU has called for an emergency meeting of the Kimberley Process Working Group on Monitoring, to discuss Yamba's move. Meanwhile, the World Diamond Council advised all member organisations to refrain from trading in Zimbabwe's diamonds until the matter is resolved.

Marange could add 5-10mctpa to global supply; more unlikely, quality low

As Marange has been largely artisanally mined and is not in public hands, it is not possible to estimate the extent of new supply should this mining area be exploited effectively. We estimate 5-10m carats of production are possible. Given the value of this resource and its politically-sensitive nature, is it likely that development will take longer time and not be as large scale as otherwise possible.

A delegation from Alrosa visited Zimbabwe and the Marange diamond fields. The conclusion of the working group was that the threat of increased diamond supply from Marange was exaggerated. Alrosa estimated the maximum production from Marange at 5-10mctpa and noted a low average quality of \$50/ct, implying a maximum value of \$0.5m (4-8% of the global market by volume), or about 4% of the current rough diamond market; insufficient to unsettle the global balance. Alrosa was also unconvinced about the possibilities to scale and mechanize production over a shorter window of time.

Synthetic supply threat: a phantom menace?

Synthetic diamonds are created by a technological process that mimics the conditions of high pressure (60,000 atmospheres) and high temperature (2,500 degrees centigrade) that shaped natural diamonds over 1-3bn years (25-75% of the earth's age) at a 150km depth in the earth's mantle.

There are two main methods to produce synthetic diamonds. The older high-pressure, high-temperature (HPHT) was introduced on a commercial level by General Electric in 1954. HPHT uses small seed diamonds with graphite powders to create bigger carats with the downside that most diamonds emerge in shades of yellow due to contamination from nitrogen. A more modern approach, chemical vapour deposition (CVD), creates diamond crystals in a low pressure environment using carbon-bearing gases which deposit carbon vapour onto a substrate to grow the stones. Manufacturers can control the diamond composition and produce colourless gem-quality diamonds up to two carats in size. Overall, HPHT is better for industrial purposes as it consumes less input materials and produces bigger volumes over shorter time. CVD has more potential for gem applications, as it produces stones of higher quality. In addition to fabricated diamonds, there are synthetic substitutes like cubic zirconium and moissanite, which bear visual resemblance, but have a different molecular structure with differences and qualities easily detected.

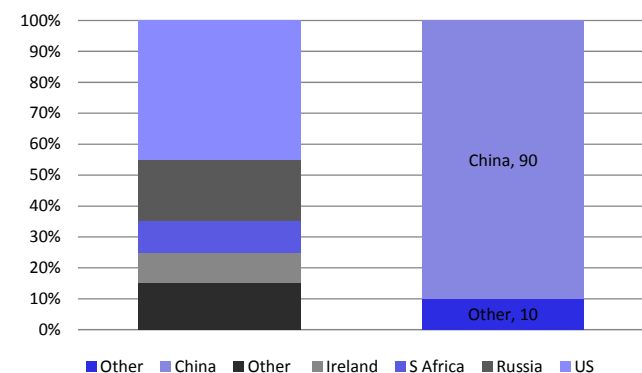
According to Bain & Co's industry analysis, about 5bn carats are synthetically produced annually, accounting for 98% of diamonds consumed for industrial purposes. According to the same source, synthetic products account for less than 1% of carat consumption for gem stone purposes.

Due to the diamond crystal's characteristics of hardness, thermal (but not electrical) conductivity and luminescence, industrial diamonds serve as drill bits for machinery, as



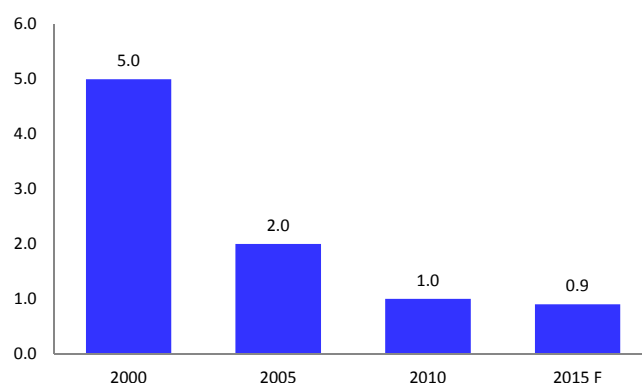
abrasive slurries to cut and polish other materials, as tools in the production of microchips and computer processors, and as components in lasers and high-tech optical appliances.

Figure 134: Sources of synthetics: China (90%) and others



Source: Deutsche Bank

Figure 135: Cost index of synthetic diamonds (201 = 1)



Source: Deutsche Bank

Figure 136: Synthetic manufacturers are concentrated in China

Company	Country	Technology	Industrial production	High-tech
Element Six	China, Europe, South Africa	CVD, HPHT	YES	YES
Sumitomo Electric	Japan	CVD, HPHT	YES	YES
Henan Huanghe Whirlwind Co	China	CVD, HPHT	YES	NO
Zhengzhou Sino-Crystal Diamond	China	HPHT	YES	NO
Henan Sifang Super Hard Material Co.	China	HPHT	YES	NO
Diamond Innovations	United States, Ireland	CVD	YES	NO
Apollo	United States	CVD	NO	YES

Source: Deutsche Bank, Company websites; Bain & Co

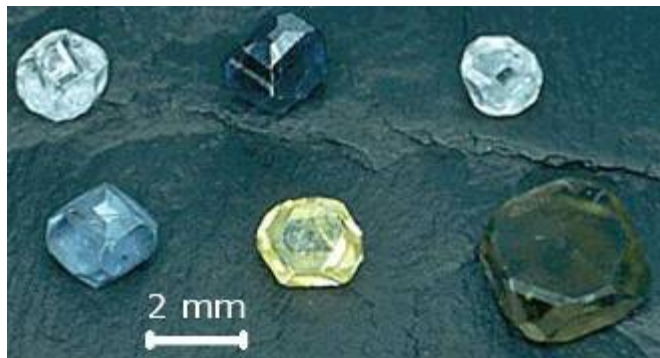
With high and rising prices of mined diamonds, against falling prices of synthetics, some manufacturers of gem-quality synthetic stones have expected consumers to turn to synthetics as a lower-cost alternative. The “entry barrier” is likely partly another consequence of De Beers’ The “A diamond is forever” marketing slogan, with synthetic diamonds being perceived as fake and cheap, especially for a romantic gift. On the supplier side, the manufacturers have tried to lower this perception barrier by rebranding synthetic diamonds to “grown” or “cultivated”, in an effort to replicate the success of the pearl industry in changing the positioning and creating a market for artificially cultivated pearls. In response to this initiative, natural diamond miners have pushed for full disclosure to end-consumers and synthetics being labelled “synthetic,” “artificial” or the even less romantic “laboratory-grown”. Meanwhile, De Beers (which in Element Six has its own HPHT and CVD production unit to monitor the business development) began its marketing program to stress the “purity” and “naturally created beauty” of mined diamonds, to uphold the barrier towards the synthetics. De Beers has also developed equipment that is able to identify synthetics, thus reducing the substitution threat.

With limited consumer demand, most industrial producers are not pushing towards the gem segment for several reasons: i) Reconfiguring production from industrial to gem stone would imply meaningful capex and increasing opex, ii) Not all industrial capacity can be shifted towards gem stone production, in fact only the US. Apollo applies a CVD technology that it claims is able to mass-produce colourless gems. iii) Due to new and



complex technology, the opex per carat to produce large high quality gem stones may, at \$2,500/ct (Bain & Co), be as much as 50x higher than the mined averages of \$40-60/ct.

Figure 137: Synthetic diamonds produced with HPHT



Source: Deutsche Bank, Kimberley process

Figure 138: Apollo CVD produced colourless diamond



Source: Deutsche Bank, Apollo.com

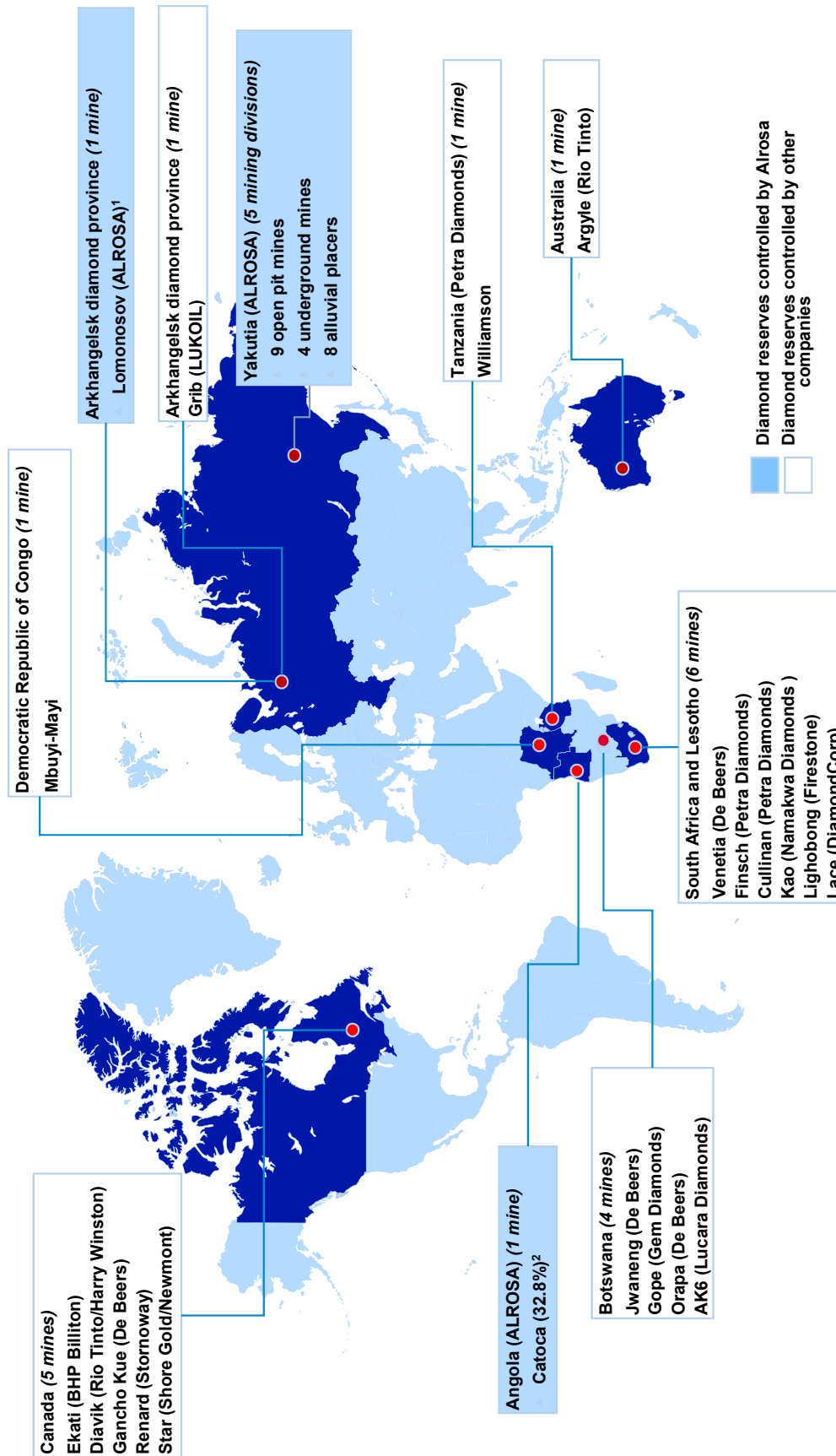
While the synthetic market may not pose an imminent threat, technology has produced some of the biggest changes in business trends in the past and we would exclude synthetics as a discrete risk to the diamond market in the future, either improving in quality/price metrics to gradually gain consumer acceptance, and/or by diluting the value of natural stones and eroding confidence in their special market position and a "natural" mark-up.

Space diamonds – black swan supply

Scientific evidence indicates that white dwarf stars have a core of crystallized carbon, including diamond, and oxygen nuclei. The largest of them, BPM 37093, is located 50 light years away in the Centaurus constellation. In August 2011, Australian astronomers discovered a planet, orbiting a neutron star 4,000 light years from the earth, five times the size of the earth but with a mass higher than Jupiter, with weight and optical characteristics suggesting the planet may completely consist of diamond crystals. While high density makes transportation costs small in diamond mining, space diamonds appear a project for future generations (probably travelling in spaceships made with synthetic! diamonds). That said, a type of diamond called carbonado that is found in South America and Africa is believed to have been deposited there via asteroids. Very small deposits of diamonds have also been found in craters impacted by meteorites. Such impact events create shock zones of high pressure and temperature suitable for diamond formation.



Figure 139: Significant global diamond mines



Source: Deutsche Bank, Alrosa, Company data



Demand outlook

Growth driven by emerging market consumption

Living in a material world, with faith in love and growth in emerging markets

Although natural diamonds are mined like other commodities such as gold, copper or nickel, they are in our view less of a commodity and more of a luxury good. Consumers buy natural diamonds for their aesthetic, symbolic and status value. Beside the stones' qualities of hardness, luminescence and shine, an extensive industry marketing campaign has positioned natural diamonds as extremely rare and valuable, as the ultimate luxury good as well as a symbol of pure and everlasting love and commitment.

As a luxury good, diamonds can be viewed as a late-cycle product with disproportionate demand growth expectation off wealth creation and growth of the middle class, especially after a period of democratization of this market in the 90s. Ultimately, demand growth will be driven by the payability and affordability by these middle classes as well as by further expansion of HNW wealth. With this in mind, the future growth in demand for diamonds will in our view much depend not only on the rise of the Chinese and Indian luxury consumers (which is largely a fact) but also on his, and crucially her, perception of diamond jewellery.

While industrial diamond demand far outpaces consumption demand in the diamond jewellery sector by volume (~5bnct), this demand is predominantly (98%) met by synthetic diamonds, most of which are produced in China. Only about 2% of all industrial diamonds are natural, and these are typically the smallest and lowest-value stones among natural diamonds. Consequently, while 50% of natural diamonds are used in industrial applications, they make up only 5% of the value of natural diamonds. As the key value driver for the diamond miners, our focus goes to the other 95%.

To understand the demand for gem quality rough diamonds, we believe one needs to take a longer-term view on the end-product jewellery market, as well as a shorter-term view on the supply chain pipeline fundamentals.

Built on the \$12bn rough diamond market, the ~\$60bn diamond retail sales market, of which we estimate about 50% is wedding related in one way or other (engagement, wedding, anniversary, etc), is part of the ~US160bn jewellery market, which in turn is part of the \$230bn broader luxury goods market.

Drilling down – from luxury goods trends to the institution of marriage

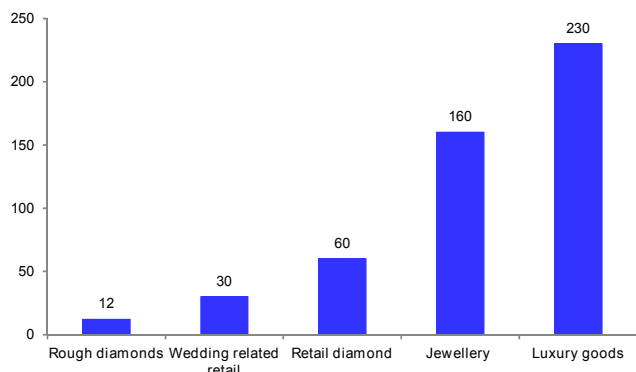
Luxury goods market growth driven by emerging markets

The broader luxury goods market has developed over five stages over the past two decades. 1995-2000 saw a period of boom partly driven by democratization, as the industry experienced a period of strong 11% CAGR expansion as a broader strata of consumers started to buy luxury items and demand grew from emerging markets. 2001-04 was a period of consolidation with more stable sales, while 2005-07 saw renewed expansion on strong global GDP growth and especially growing emerging market wealth. In the 2008-09 crisis, luxury goods declined more than the overall economy, while post-crisis 2010 saw a robust 12% recovery as consumer confidence returned. Fast growth in greater China is one of the most noteworthy features of the overall period and is likely to become a key growth driver in 2010-20E.

The broader luxury goods market has developed over five stages over the past two decades

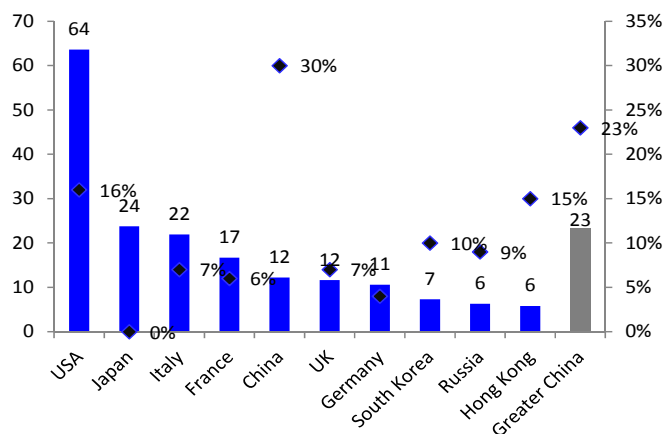


Figure 140: Widening the circles: from rough to luxury goods markets, estimated 2011 market sizes, \$bn



Source: Deutsche Bank estimates, Bain & Co

Figure 141: The global luxury goods market: the US has the biggest share (30%), China the biggest growth (30%)



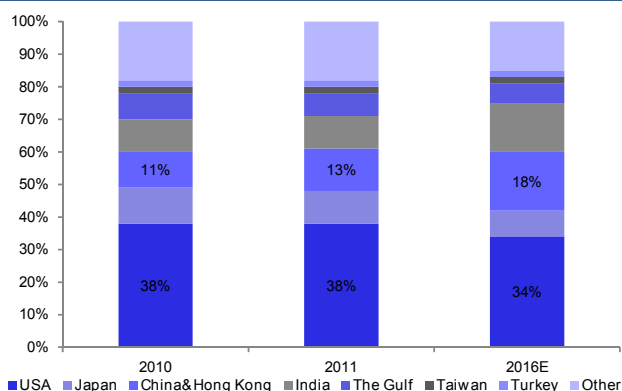
Source: Deutsche Bank, Bain "Luxury Goods Worldwide Market Study"

Jewellery to follow the broader luxury goods market

The jewellery market has followed the trend of the luxury goods market but saw bigger relative regional adjustment, with India and China growing their share from 27% to 35% 2007-09. The jewellery market is likely to grow by 6% annually through 2014 with a higher 8-10% growth rate for high end absolute luxury (which would include >1.8ct stones), while the US' share declined. With the US holding both the biggest share in global jewellery demand (~30%) and having the biggest diamond consumption as part of the jewellery market (52%), a slowdown in US consumption feeds through to rough demand.

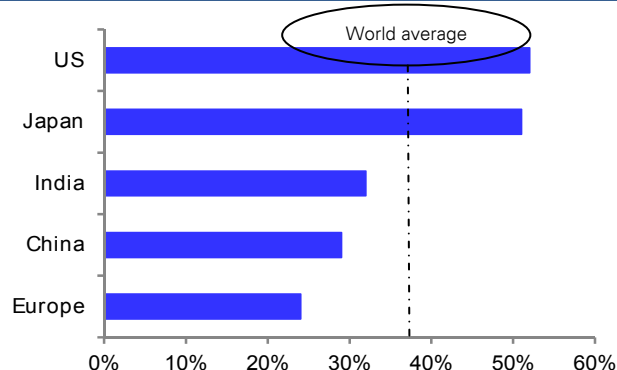
The jewellery market has followed the trend of the luxury goods

Figure 142: Share in global jewellery market; US has declined while China and India has grown



Source: Deutsche Bank, Alrosa

Figure 143: ... with diamonds as share of luxury goods moving higher in emerging markets



Source: Deutsche Bank estimates

Diamond jewellery benefiting from regional, marketing and cultural trends

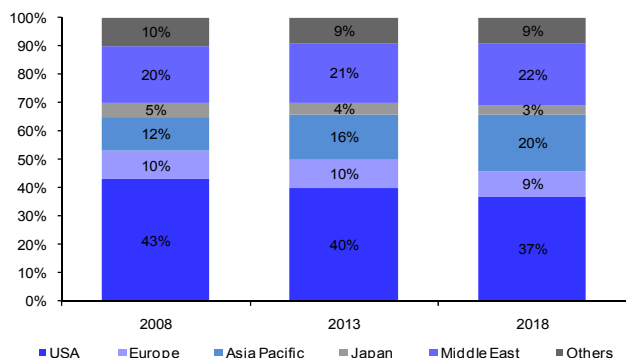
The US represents around 40% of global diamond demand. Of this, as a rule of thumb, 50% is sold between Thanksgiving in late November and New Year's Day. Thus, diamond sales have traditionally been weighted towards the first half of the year to feed the pipeline of cutters, polishers and jewellers to be in stores before Thanksgiving. Demand patterns are changing, however, with the emergence of strong demand from emerging markets, particularly China. While we expect, HNWI consumption to continue to grow globally, Alrosa expects (and we would concur) that Asia Pacific demand will

The US represents around 40% of global diamond demand



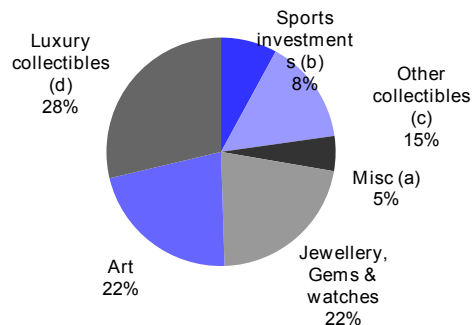
grow from 12% to 20% over a 10-year period, as their economies continue to outpace the developed markets and its consumers seek new exposure to luxury goods.

Figure 144: Demand breakdown for cut diamonds; trending east



Source: Deutsche Bank, Airosa

Figure 145: What's the competition? Synthetics, sports cars, art or tablet computers?



Source: Capgemini Merrill Lynch 2011 World Wealth Report
a "Miscellaneous" includes club memberships, travel, guns, musical instruments, etc.
b "Sports Investments" includes sports teams, sailing, race horses, etc.
c "Other Collectibles" includes coins, wine, antiques, etc.
d "Luxury Collectibles" includes automobiles, boats, jets, etc.

Demand growth in emerging market demand will, in our view, be driven by i) strong economic growth and wealth creation, which tend to result in a higher beta demand effect on the luxury goods segment. Within luxury goods we also believe that ii) active marketing can expand demand for luxury goods in general and diamonds in particular. Luxury brand marketing efforts in China are significant. De Beers have run a 20 year marketing campaign in the country, which may contribute to further improving the positioning and perception of diamonds. We also believe iii) globalization of cultural trends and traditions can increase the share of diamond consumption within the jewellery market.

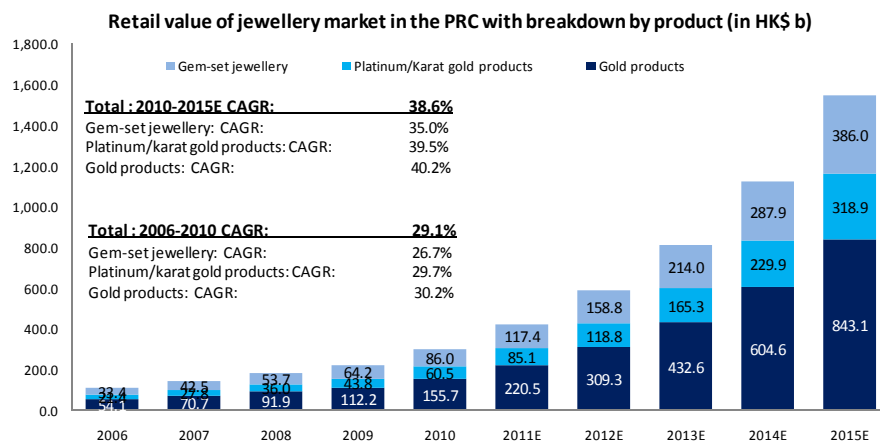
Strong Chinese real GDP growth to pull luxury goods demand

Deutsche Bank forecasts real GDP to expand at 7.9% and 8.4% in 2012E and 2013E, respectively, with growth in tier 2 and tier 3 cities likely to be faster than tier 1 cities. CPI is likely to increase by a CAGR of 2.8% and 3.5% in 2012E and 2013E, respectively. The rapid growth of the middle class should have a positive impact on consumption trends.

In 2006-10, China's retail sales of consumer goods recorded a CAGR of 19.7%, while jewellery retail sales were up 29.1%. In addition, one of the key GDP drivers for China's 12th Five-Year Plan is to boost domestic consumption (MoC's target growth rate is c.15% per year during this period). Frost & Sullivan expects gold and jewellery sales to expand by a CAGR of 38.6% in FY10-15E.



Figure 146: China jewellery market



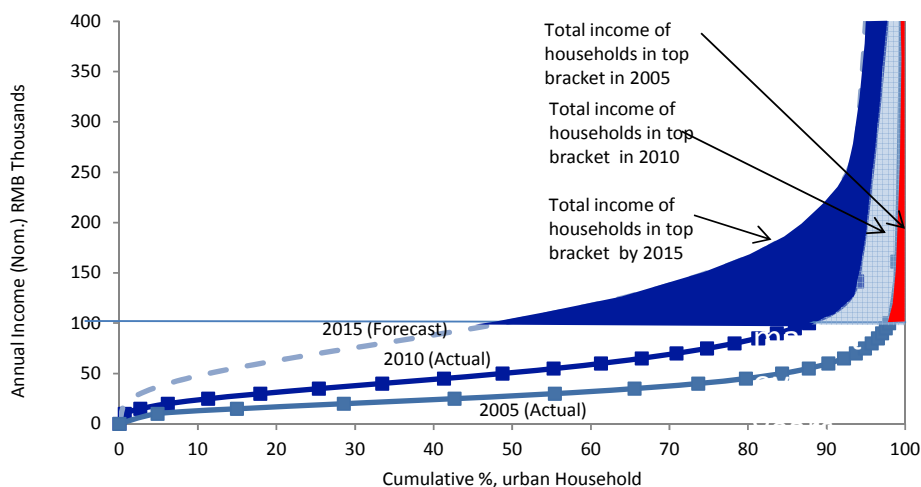
Source: Deutsche Bank, Chow Tai Fook IPO report, Dec 2011

Urbanization to drive further luxury good pull

Meanwhile, Deutsche Bank forecasts urbanisation to reach 54% by 2014, from 51.3% in 2011 (690m urban population, according to NBS) and 43% in 2005.

The number of very wealthy households in China with household income of more than RMB1m (approximately \$159,000) and typically owning assets greater than RMB10m (approximately \$1.6m) is likely to grow by approximately 20% per annum, to reach 1m households from 2010 to 2015E. The increase in wealth, combined with continued rapid urbanization, should double the number of cities with sizeable pools of luxury goods consumers to 60 over the next five years (source: McKinsey Insights China — *Understanding China's Growing Love for Luxury*). According to McKinsey, some 350m people will move to urban China over the next 15 years, resulting in 221 Chinese cities with a population of over 1m people by 2025 vs 107 in Europe, Japan and the US combined. De Beers estimates that, 15 years from now, if the Chinese urban per capita income increases to the level of Taiwan today and if urban Chinese consumers acquire diamonds at the same per capita rate as the Taiwanese do today, the diamond industry would need to nearly double the supply of diamonds annually just to meet this demand.

Figure 147: Total mid-income/hold income (income >RMB100k) to grow 25%



Source: Deutsche Bank estimates, OECD



The fast-paced expansion luxury brands' retail networks to push jewellery

Most leading global jewellery players are focused on the China market. Leading luxury brands have opened stores since 1996 and have rapidly expanded their presence in China.

Meanwhile, a leading local player, the Chow Tai Fook jewellery company, had 1,000 stores in mainland China (including franchisees and its own outlets) in September 2010. Continuing a rapid expansion, it currently runs 1,400 stores and plans to open another 2,000 chain stores in mainland China by the year 2020.

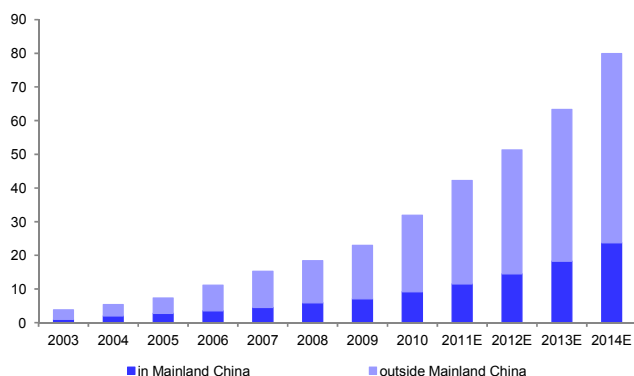
Figure 148: Luxury store number in China by end-February 2012

	Store number of as of end-Feb 2012	New opening vs. end-Jan 2011
Prada	17	3
LVMH	40	3
Gucci	42	12
Chanel	9	na
Hermes	21	na
*Hengdeli	332	46
*Emperor Watch	59	15

Source: Company data

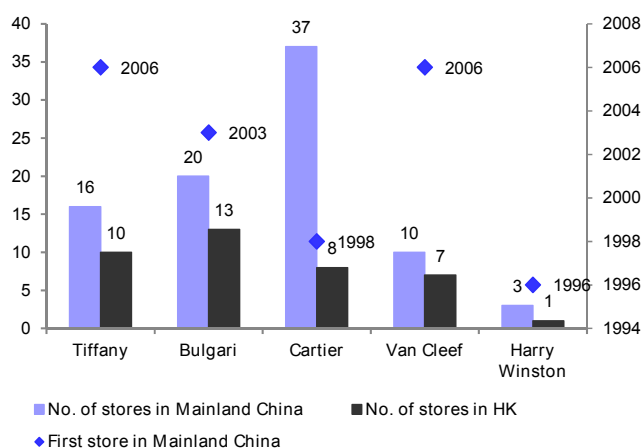
According to De Beers, China and Hong Kong represent around 10% of the world market for diamonds with China growing at somewhere between 20-30% over the last few years. De Beers believes that China and India will together account for more than 50% of incremental demand or growth in the world diamond markets over the next five years

Figure 149: Chinese luxury demand (\$bn)



Source: Deutsche Bank estimates on company data, Bain & Co

Figure 150: Working for the miners; downstream China



Source: Deutsche Bank, Company data

Demographics and globalization of cultures may further boost demand

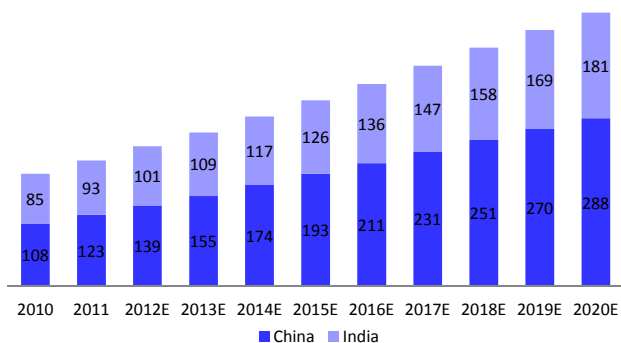
The demographics of economic growth may support demand for luxury goods. Between 2010 and 2015 the middle class in both China and India will nearly double in size, with each country having a middle class larger in size than the next six developing countries combined⁵. In this process Chinese middle class may reach 193m households

⁵ BCG



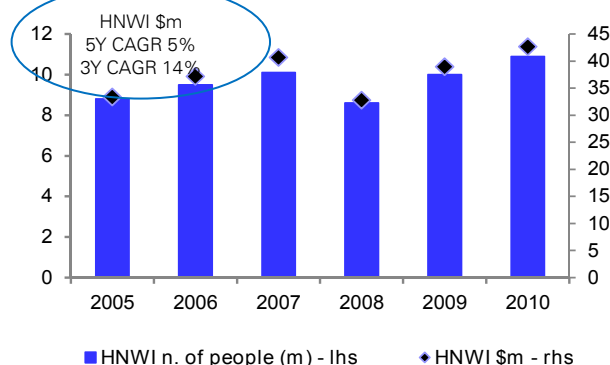
and the upper middle class 76m households by 2015. According to McKinsey, the Chinese upper middle class (people with \$30,000+ incomes), already outspend European and American consumers with similar incomes by seven times when it comes to luxury goods on a per capital basis.

Figure 151: China/India middle classes (m households)



Source: Deutsche Bank, OECD

Figure 152: HNWI m, wealth (\$m), historical trends



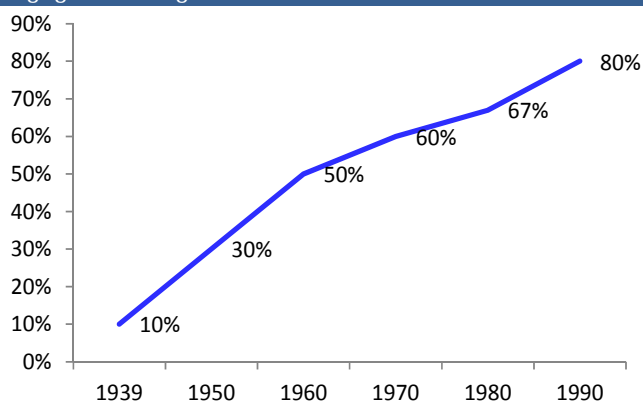
Source: Deutsche Bank estimates, OECD

The Chinese and Indian markets have also shown tendencies for greater cultural acceptance of luxury goods, which in our view is something that could support the demand trend going forward. Meanwhile, according to De Beers, diamonds in both India and China, rank in the top three discretionary luxury products women aspire to own.

Investing in the institution of marriage

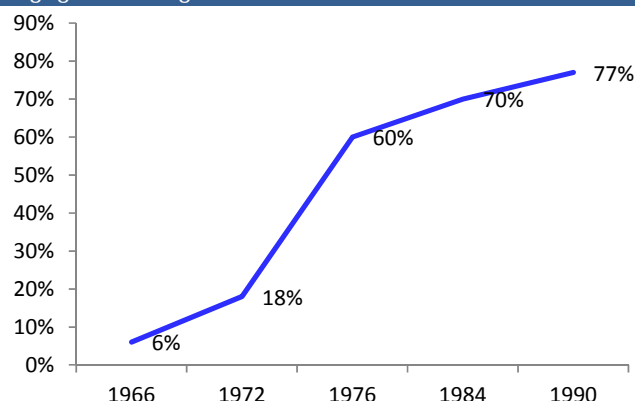
Within the wedding segment of diamond jewellery sales, China may follow similar trends as the US and Japan. In China, there are over 11m marriages every year. In India, there are 10m marriages every year (McKinsey).

Figure 153: Share of brides in the US receiving a diamond engagement ring



Source: Deutsche Bank, Bain & Co

Figure 154: Share of brides in Japan receiving a diamond engagement ring



Source: Deutsche Bank, Bain & Co

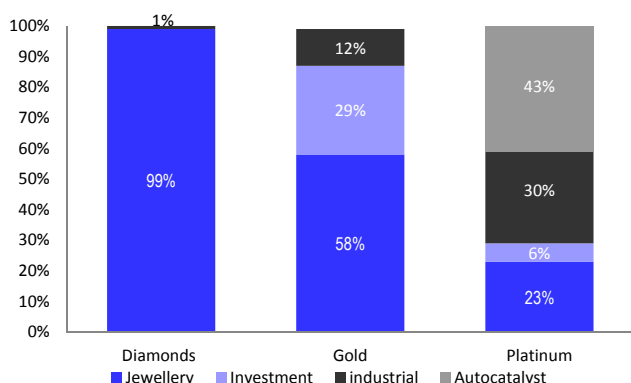


The investment angle – low expectations

While diamonds may seem like an interesting investment alternative, increasingly like gold, silver and PGMs, the heterogeneous nature of diamonds (sorted into some 12,000 categories), difficulties related to valuation and the lack of a standard benchmark, the possibility to manufacture diamonds, as well as the absence of a liquid quoted market reduce the appeal for diamonds as a store of value for direct investors and investment vehicles like ETFs.

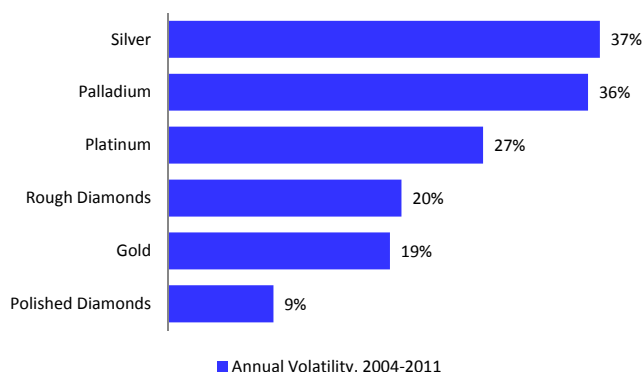
We also note that diamond sales and rough prices, rather than offering a safe haven, have been sensitive to the economic cycle (as witnessed in 2009). Meanwhile, retail polish prices have, in our view due to price stickiness, working capital management and marketing strategy, remained relatively stable at retail level, with volatility in volumes rather than prices.

Figure 155: Investment is a fraction of current demand



Source: Deutsche Bank estimates, Bain & Co

Figure 156: Asset volatility over time, a measure of beta?



Source: Deutsche Bank, Datastream

In terms of luxury goods, on some characteristics diamonds may be seen as falling closer to assets like traded art than liquid precious metals like gold.

Figure 157: Diamonds more like traded art than gold?

Specific Features	Gold	Diamonds	Tangible art
Homogeneous qualities	Yes	No	No
Divisible	Yes	No	No
Standard unit value	Yes	No	No
Objective and direct valuation	Yes	No	No
Easy transportation and efficient storage	Yes	Yes	No
Volume sufficient for use as currency	Yes	No	No
Relatively high liquidity	Yes	No	No
Exchange quoted	Yes	No / Auction	No / Auction
Limited reserves	Yes	Yes	No
Impossible to manufacture	Yes	No	Yes/No
Aesthetic value	Yes	Yes	Yes
Low or negative beta	Yes	No	Yes

Source: Deutsche Bank, Bain & Co

However, there are initiatives to offer investment access to diamond appreciation. Diamond Circle Capital launched a closed-ended diamond fund on the LSE in 2007,



with a portfolio of high-quality cut diamonds worth more than \$1m per stone. The Fund targeted to raise \$400m but reached only \$74m. KPR Capital Diamond Fund and the Diamond Asset Advisors are other examples but none of the attempts have reached meaningful scale. We would not factor in investment as a meaningful demand factor in near-term forecasts.

Inventory management

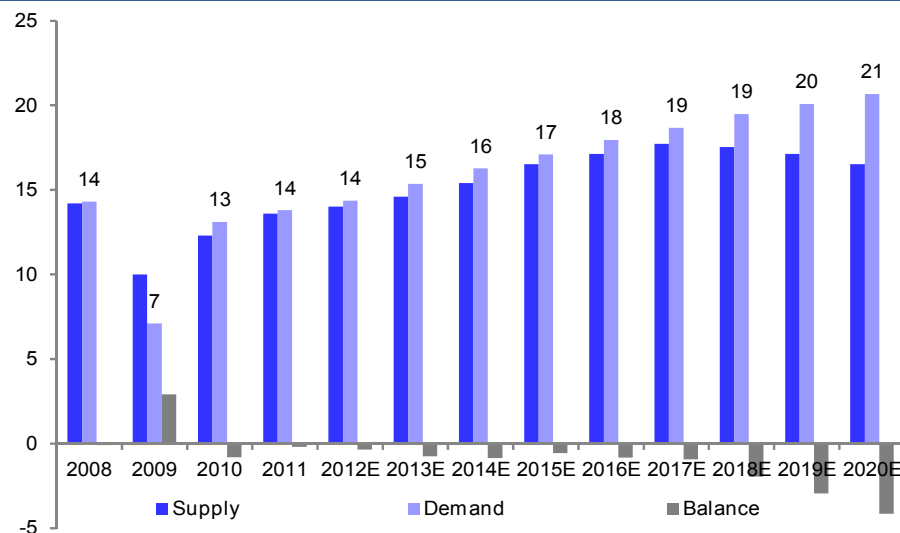
While we do not expect meaningful investment demand, we do not exclude continued shorter-term industry inventory management by players like De Beers or, more recently, Russia's Gokhran. The Russian repository stepped in and took \$900m worth of rough off Alrosa as the company faced a heavy debt and a weak market in the post-crisis 2009. The diamonds are up 60% in price since, but Gokhran has made no signal of putting the stones back on the market. The government entity remains secretive about its intentions and does not disclose its full stock level, which, as for platinum and other precious metals, is a government secret. According to Alrosa, Gokhran would purchase diamonds for approximately \$100m per annum under normal market conditions. As with many other features of the diamond market, this one is unpredictable; in March 2012 Gokhran bought diamonds for \$110m but in 2010-11 they bought nothing.

Demand set to outpace supply

Based on the current market trends, while we recognize uncertainty driven by current macroeconomic instability, we take a positive view on the diamond market. After a slowdown in 2012, we expect demand to expand 6% CAGR 2012-14 to outpace supply over the near- and medium term.

If new diamond deposits are not discovered, new sources (like ocean floor) do not bring new source feed and the supply of synthetics remains effectively excluded from the gem market, long-term imbalances could continue to diverge, in our view.

Figure 158: On current forecasts, we expect demand to outpace supply for rough (\$bn)



Source: Deutsche Bank estimates, Alrosa, Bain & Co



Threats to demand – economics and brand

Economics

In terms of threats to the demand outlook for diamonds, the key risk is in our view embedded in the cyclical and secular economic growth that is supposed to expand the HNW strata and broaden the middle classes, especially in emerging economies. The 2008-09 crisis demonstrated that the jewellery market and diamond segment within it was far from immune. While prices were relatively stable in the retail segment, lower volumes fed through lower demand and prices in the rough segment.

Brand dilution – crowding out, synthetics and conflicts

While industry leaders and high-end retail chains are spending significant money to further elevate the position of diamonds in current and prospective consumers' perceptions, we believe brand dilution represents a risk to future demand.

- **Demand growth to cap demand growth:** The first brand risk in our view comes from the demand growth itself. As diamonds popularize, both over regions and between social groups, the perception of the diamond as a rare, exclusive and unique jewellery could deteriorate. Current growth could in that sense "cannibalize" on future growth or see middle classes "crowding out" HNW consumers. However, we believe that this would rather up the stakes and push consumers towards ever larger stones and better quality.
- **Synthetics and substitutes:** A second brand (and direct substitution) risk comes from the continued progress of synthetics and substitutes. Even if these products can never replace the natural diamonds, they could cap the upside on natural diamond pricing as the marginal consumer becomes increasingly inclined to substitute as prices of one rise while the other falls and product quality (not brand) converges. Meanwhile, improved technology can reduce the differences in characteristics to a level where synthetics proliferate and, in line with the above, dilute the perceived exclusivity and scarcity of natural stones, just as a widely fake luxury bag could reduce the appeal of the original⁶. We do not view this as a near-term risk but recognize it as a longer-term threat.
- **Conflict or reconciliation⁷ stone:** A third brand risk comes from increased attention to conflict diamonds. Against the marketing push of high-end retailers, NGOs and human rights organization are making increasing use of Internet and other channels to educate the global consumer of the controversial origin of some diamonds. Notably, the conflict between RUF and government troops and the civilian victims in Sierra Leone has received much negative attention. For a product driven by fashion and brand perception, we view this as a serious threat. Rather than a symbol of pure love and unity, a diamond could be associated with war, greed and atrocities. That said, for all its possible imperfections, the Kimberley Process has done much to limit this negative fallout and the contamination of conflict diamonds on natural stones. Moreover, the problem with conflict diamonds could also benefit miners and producers that can guarantee that they do not source conflict diamonds.

⁶ In this context we note that many luxury brands and exclusive car manufacturers deliberately limit sales to preserve a perception of exclusivity

⁷ The diamond have also been labeled the reconciliation stone, presumed to have powers to reconcile quarrelling couples. One can probably find examples of situations where the diamond was the source of the quarrel.



Price forecast – 4.5% CAGR after a flat 2012E

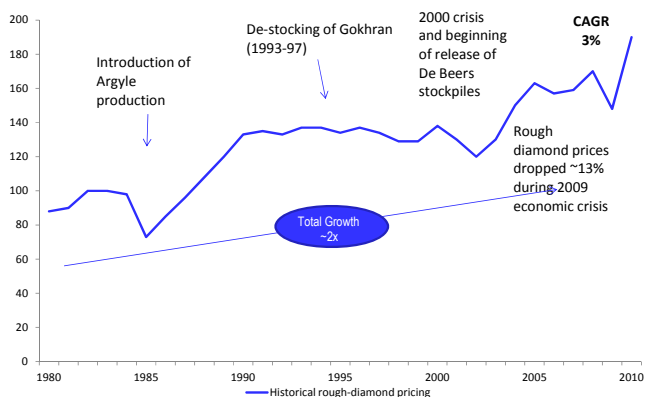
Unlike precious metals and base metals, diamonds are not an exchange traded commodity. There is no liquid market or frequently quoted prices and we must rely on industry sources to provide pricing points from sights, auctions and occasional spot trades.

Rough-diamond prices have grown about 3% per year over the last 30 years (a time of close to current level volumes), with the trend interrupted by i) macroeconomic developments and ii) industry dynamics.

The economic crises of the early 1980s and 2000s and 2009 resulted in declines in rough prices as weak consumer demand raised leverage levels on players in the middle of the value chain and de-stocking of pipeline inventory. Historically, rough prices have recovered relatively quickly while polished have been more stable (while volumes have fluctuated).

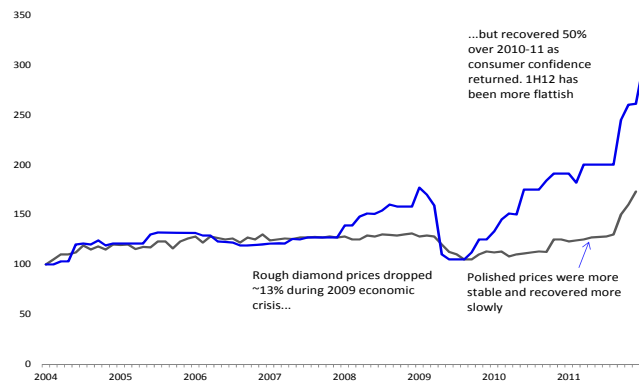
Prices were depressed in the 80s by the volume boost provided by the launch of Rio's Argyle mine, and held back in the 90s as Russia's Gokhran added supply to the market to support a fragile Russian budget balance. The dot.com crisis coincided with De Beers inventory. The most recent financial crisis saw a particularly sharp drop in rough prices despite meaningful industry efforts to manage supply; De Beers has (through divestments and production cuts) cut production from a 51mct peak in 2006 to only 25mct in 2009, while Alrosa offloaded 40% of its 2009 output management

Figure 159: Historical rough diamond pricing (182=100)



Source: Deutsche Bank, Deutsche Bank, Bain & Co, DTC rough price index

Figure 160: A closer look at recent pricing trends



Source: Deutsche Bank, Deutsche Bank, Bain & Co, DTC rough price index

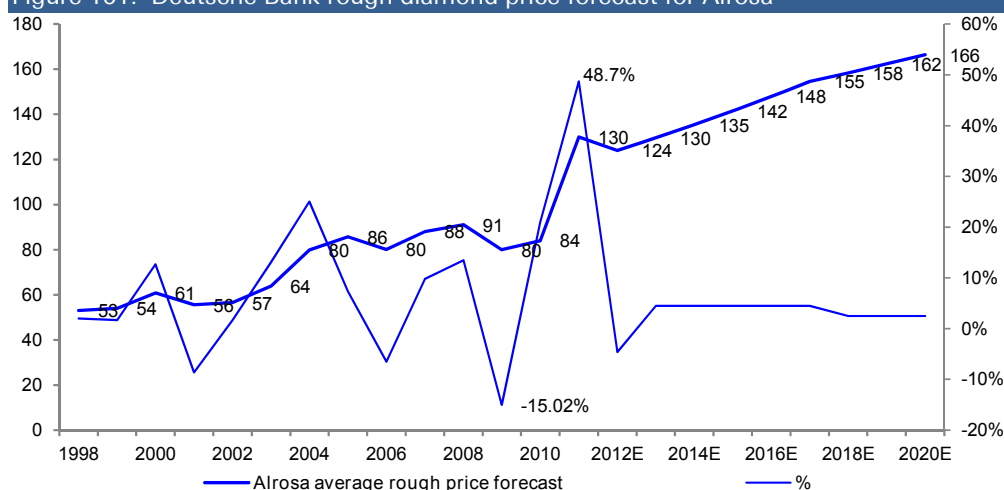
In terms of cost push on prices, we believe that mining inflation (with labour, oil and diesel, energy, materials and equipment/spare parts as key drivers) may remain slightly above global inflation, while the global trend of going underground will add extra cost pressure. That said, we believe diamonds are primarily priced on the demand side and less off marginal cost of production. The latter says more about the lower floor for prices in our view. Average global production costs are estimated between \$40-60ct in 2010.

Given the macroeconomic risks and current uncertain outlook, as well as the current signs of flat rough pricing in 2012, we expect prices to remain stable in 2012 (versus



our global inflation forecast of 3.4%). Thereafter, on the back of recovery in the global economy (at least in nominal terms) and supported by what we expect to be a supply imbalance, we expect prices to rise by 4.5% nominal CAGR (or 1% above our current 2013E global inflation forecast) before slowing down to level with global inflation by 2018. Our forecast is shy of Alrosa's expectation of 7% growth in prices per annum. As implied by the year-on-year changes in Alrosa's average realized price, the future is unlikely to be as smooth as predicted by our base case forecast

Figure 161: Deutsche Bank rough diamond price forecast for Alrosa



Source: Deutsche Bank

A word on industry structure, games, gems and pricing

Looking at the diamond industry and finding two leading players (De Beers and Alrosa) with close to half of volume supply and three quarters of total value, which previously shared a distribution agreement, while two other key producers are signalling exit from the industry, we start to think about what model may apply for the industry to forecast pricing behaviour. In game theory, there are two main duopoly models: Cournot, in which the incumbents compete on capacity, and Bertrand, in which the incumbents compete on price. As often in economics, the models make a number of assumptions and simplifications that render their practical usefulness limited to any specific industrial context. That said, they can sometimes provide some insights and angles.

The Bertrand model lends insights to markets with homogeneous products (would apply on an industry level), flexible capacities (not applicable) and prices are set independently and simultaneously (probably not fully). Each player tries to capture the full market by pricing just below competition until prices are just below the highest marginal cost producer; a competitive outcome and the only Nash equilibrium if the firms cannot collude.

In the Cournot game, firms set capacities independently and, (incorrectly) believing that residual capacity will remain unchanged and (correctly) that consumers are price takers off total supply, each player sets capacity like monopoly, producing until marginal cost (MC) equals marginal revenue (MR) rather than price (P). Price is a commonly known decreasing function of total output. As the number of firms (without fixed costs) increase, the price goes towards marginal cost and a competitive outcome. In a duopoly, output is lower and the price is higher than in a competitive outcome. Firms have an incentive to collude, explicitly or (if illegal) tacitly by, eg, credibly committing to a certain output volume, announcing certain capex plans or to the contrary, by divesting or closing capacity.



An interesting extension of the Cournot model is the Stackelberg leadership game, which is a multi-period game in which firms, and in the duopoly case players A and B, take each other's strategic choices in consideration. (Roughly) knowing firm B's cost structure and therefore reaction function (volume capacity to maximize its profit at $MC = MR$), firm A takes this behaviour, and firm B's output, into consideration when, as a first mover, setting its capacity. The sum of capacities against the known demand curve determines the industry price, which in turn and as expected, determines the profit of the players. The game rests not only on the leader being able to credibly commit to the first mover's capacity strategy (eg, by pre-signing expansion contracts or setting quantity on a social utility function that maximizes jobs rather than profit or basing capacity decisions on a non-profit political function) but also for the follower to respond in a rational and predictable Stackelberg way. If the follower would commit to a non-Stackelberg strategy, the leader would become the follower. The Stackelberg game tends to produce greater output at a lower price than the Cournot game.

All models ignore the issues of a volatile demand function that shifts with sentiment and global economic growth, while being managed by marketing and advertising programs. In the models, the elasticity of demand is known and fixed, information is restricted or perfect, while strategies tend to be independent and discrete rather than indirectly collaborative and mixed.



Appendix A

The 4 Cs

A diamond's cut refers to the quality of the tiny surfaces, or facets, polished onto its surface. A well-cut diamond reflects light internally from one mirror-like facet to another and disperses it through the top of the gem. The facets, known as the crown, culet, table, girdle and pavilion, are arranged with precise, mathematical proportions to maximise a diamond's fire, life and brilliance. The cut, the only element of the 4Cs influenced by the human hand, is often considered the most important. A well-cut diamond may be given a higher quality or value than one that is larger or of a better colour.

Carat is a measure of weight, not size. One carat is equal to 200 milligrams. The term is derived from the word carob; carob seeds were used as a reference for diamond weight in the ancient world. Because larger diamonds are rare, they are more valuable than the equivalent weight in several smaller diamonds. A 1-carat diamond will generally cost more than two 1/2 carat diamonds, assuming all other qualities are equal.

White or colourless diamonds actually occur in a range of shades – from truly colourless to off-white. They are graded on a colour scale from D (colourless) to Z. The differences between one shade and the next are very subtle, so grading is done under controlled lighting, using a master diamond sample set for comparison and accuracy. Natural diamonds also occur in shades of blue, green, yellow, orange, pink, red, and even black. Known as 'coloured fancies', these stones are extremely rare and valuable. They are graded according to the intensity of their colour.

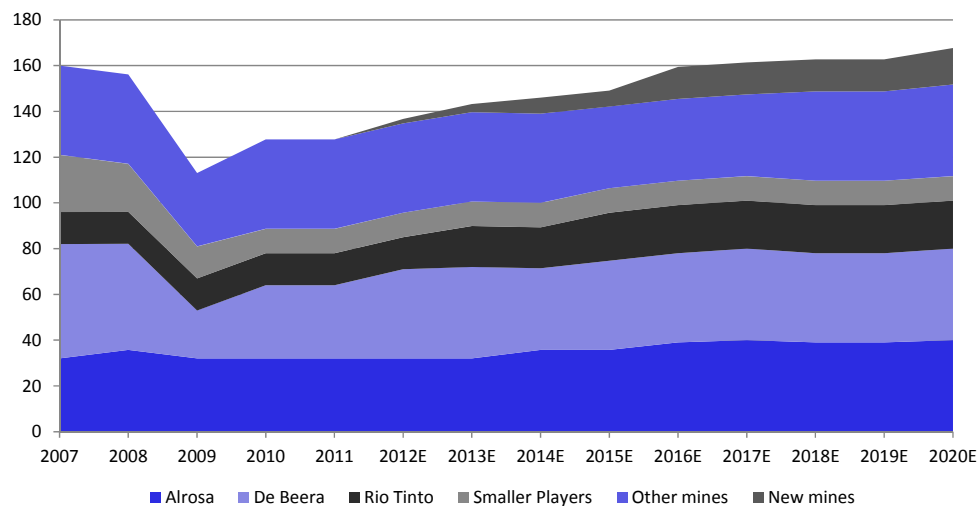
Clarity refers to the presence of inclusions in a diamond. These are naturally occurring features – wisps of minerals, uncrystallized carbon, tiny fractures – formed deep within the diamond when it was first created. Though usually invisible to the naked eye, they can influence the way light is reflected and refracted. A gemmologist will examine a diamond under 10x magnification before assigning a clarity grade from F (Flawless) to I (Included). The grade may also indicate whether the inclusion is near the centre of the stone or along its girdle, or outer edge.



Appendix B

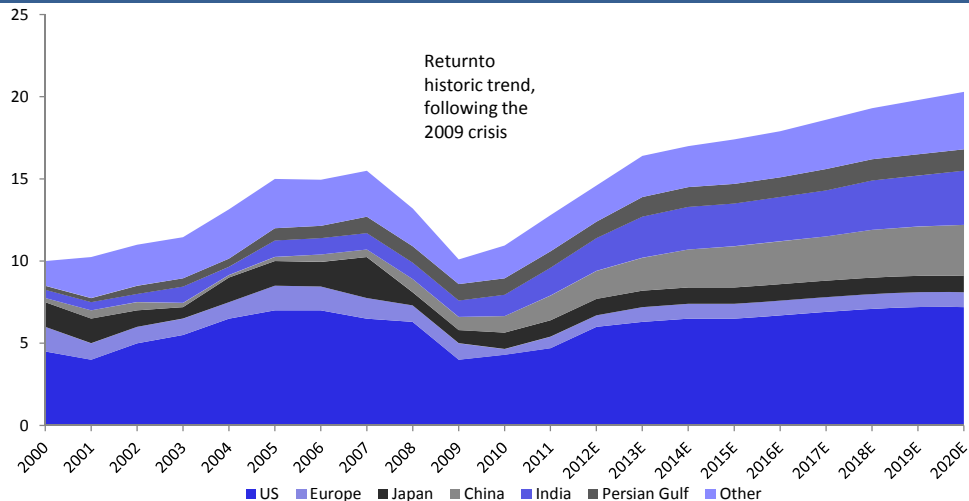
Supply and demand trends

Figure 162: Rough diamond output expansion likely at 3% CAGR



Source: Deutsche Bank, Company data

Figure 163: Rough diamond demand trend likely at 6% CAGR



Source: Deutsche Bank estimates, Bain & Co



Appendix C: Diamond companies

Figure 164: Diamond mining companies description (as of May 2011)

Company name	Company profile	Website
De Beers	De Beers is the largest diamond mining company in the world with sales of 38m carats in 2010 and 33mnct in 2011. De Beers has mines around the world, though chiefly in Southern Africa including: ■ Debswana: Jointly owned by De Beers and the Government of Botswana, this is the world's largest diamond producer by value with four diamond mining operations at Jwaneng, Orapa, Lethakane and Damtshaa. ■ Namdeb: A joint venture between De Beers and the Government of Namibia holding licences at: Bogenfels, Elizabeth Bay, Douglas Bay, Orange River and Atlantic 1. ■ De Beers Canada: Snap Lake and Victor mines. ■ De Beers Consolidated Mines: Six operations in South Africa (Kimberley and Namaqualand mines, Venetia, Voorspoed and South African sea areas. The DTC is De Beers' distribution arm. Growth: In 2010, Debswana commenced the Cut-8 extension project at Jwaneng. The project represents a huge investment and will extend the life of the mine to 2025 and yield 100m carats in total.	http://www.debeersgroup.com/
Alrosa	Alrosa is a Russia based company principally involved in ■ Exploration, extraction and distribution of diamonds. ■ Active in domestic market and operates through Moscow and Mirny branches. ■ Accounts for 25% in the global diamond production 'in terms of value'; accounts for 96% of Russia's overall diamond output. ■ Probable resource base accounts for one-third of global diamond resources. ■ 65% of output is gem or near gem quality. ■ 2011 production: 34.5m carats or US\$4,266m in sales. Growth: Expanding production in International, Mir and Aikhal underground mines and constructing an underground mine in Udachny scheduled in 2015. Exploration: Available reserves are sufficient to maintain production for next 35 years, Alrosa is engaged in active prospecting in Sakha (Yakutia), other Russian regions and abroad. For the last five years, the company has annually allocated from RUR2.5-3.5bn for exploration. Distribution network: Rough diamond distribution across Russia. Long term contracts with world's main consumers and trading affiliates in Belgium, Israel, Hong Kong, UAE and the USA. Ownership: 51% Russian government, 32% Sakha Republic, 8%, local municipalities, 4%, institutional owners. Mines: Mining divisions In Yakutia, Mirnyi, Aikhal, Udachny and Nyurba. Largest diamond mining company in Angola, Catoca Ltd, mines: Mir, International and Aikhal; Udachny, Jubilee and Nurba. Construction of three new underground mines: Mir (1mt, 2012), Aikhal (0.5mt, 2012) and Udachny (4mt, start 2014 with 1.3mtpa). US\$2.5bn allocated and spent over 10 years to increase capacity to 6mtpa of ore. Alrosa participates in diamond exploration and mining in Angola, DRC, Sierra Leone, South Africa, Canada and other countries.	http://eng.alrosa.ru/
BHP Billiton	The cornerstone of BHP Billiton's diamonds business is the Ekati diamond mine. Ekati is located in Canada's Northwest Territories and produces approximately 3m carats of rough diamonds annually. Ekati represent c.3% of current world rough diamond supply by weight and 5% by value. BHP Billiton's Ekati diamond mine is Canada's first surface and underground diamond mine. The diamonds are shipped to BHP Billiton's sorting and valuation facility in Yellowknife for cleaning, sizing, basic sorting and government valuation. The current rough diamond marketing programme involves sales through several channels. Approximately 10% by value, in specified sizes and qualities, is made available to manufacturing operations located in the Northwest Territories. The remaining production is sold through the Antwerp office to international manufacturers and traders. Most of the sales from the Antwerp office are made in broad assortments to a limited number of regular customers on a five-week cycle.	www.bhpbilliton.com



Figure 164: Diamond mining companies description (as of May 2011)

Company name	Company profile	Website
Rio Tinto	Rio Tinto's diamond mining operations have evolved to encompass production from diamond mines in Canada, Australia and Zimbabwe, sorting and valuation activities in Antwerp, cutting and polishing in Perth and market support activities in India, the USA and Hong Kong. Through its Argyle Mine (OP, 100%), Diavik diamond mine (60%) in Canada and Murowa mine (78%) in Zimbabwe, Rio Tinto produces around 20% of the world's diamonds by volume. Rio Tinto's global diamond exploration portfolio currently encompasses exploration in Canada, India, southern and western Africa, Brazil, Russia and Australia. Rio Tinto has spent more than US\$25m over the last five years on diamond exploration in India. A brownfield project in Argyle mine will extend the life of mine to at least 2019. Following a transition from the current open pit operation to underground mining, the underground mine will be fully operational in 2013. The resource in Murowa mine has the potential to expand to 6-7 times current production. The feasibility study is under way.	http://www.riotinto.com
Gem Diamonds	Gem Diamonds Ltd is a diamond mining company comprising kimberlite and lamproite mines in Lesotho and Australia, as well as operations, development projects and exploration assets in Angola, Botswana, the Central African Republic and Indonesia. It produces white diamonds from its Letseng mine and yellow diamonds from its Ellendale mine, and a range of coloured diamonds from its Cempaka mine.	http://www.gemdiamonds.com/
Petra Diamonds	Petra Diamonds Ltd (Petra) is an independent diamond mining company and supplies rough diamonds to the international market. Petra has a diversified portfolio, with controlling interests in seven producing mines: six in South Africa (Cullinan, Koffiefontein, Kimberley underground, Helam, Sedibeng and Star) and one in Tanzania (Williamson). In addition, Petra has an exploration division in Botswana. As of 30 June 2010, Petra had a 74% interest in Cullinan, 70% in Koffiefontein, 74% in Kimberley underground, 74.5% in Sedibeng, 74% in Star, 100% in Helam and 75% interest in Williamson. It has two segments: Mining, which is engaged in the extraction and sale of rough diamonds from mining operations in South Africa and Tanzania, and exploration, which is engaged in the exploration activities in Botswana. On 4 May 2010, it disposed of Kono kimberlite fissure project in Sierra Leone. On 19 May 2010, it acquired Kimberley underground mines from De Beers.	http://www.petradiamonds.com
Mountain Province Diamonds	Mountain Province Diamonds Inc (MPV) is a natural resource property exploration and development company. It has interests in several natural resource properties, the principal property being a 49% interest (including the 4.9% interest in the property held by Camphor Ventures Inc) in the AK Property, also known as the Gahcho Kué project, located in Canada's Northwest Territories. Its subsidiaries include Baltic Minerals BV, Baltic Minerals Finland OY and Camphor.	http://www.mountainprovince.com
Trans Hex	Trans Hex has well-established land operations in South Africa with expanding Angolan mining activities. ■ Land operations: Trans Hex's land operations involve: ■ Baken: A South African operation that produces c.50,000 carats with an average stone size of 1.05 carats. ■ Richtersveld: Another South African operation producing stones averaging 1.6 carats. ■ The Luarica (35% ownership) and Fucauma (32% ownership) projects are in Angola. Fucauma Association has granted Trans Hex the operational responsibility of the Fucauma project for four years. ■ Marine operations: Earlier marine operations included shallow water operations, MV Ivan Prinsep and the MV Namakwa. MV Ivan Prinsep and the MV Namakwa operations were discontinued at 31 March 2008. ■ Exploration: Exploration activities conducted by Luarica Association have resulted in the addition of 510,000 carats to the inferred resource. Significant upside exists to expand and upgrade this resource. Limited exploration has been undertaken in South Africa due to the challenging financial condition. ■ Polishing factory: A small-scale black economically empowered joint venture polishing factory, Urembo Diamonds (Pty) Ltd, has been established in Johannesburg.	http://www.transhex.co.za/
Harry Winston Diamond Corp	Harry Winston is a diamond enterprise with premium assets in the mining and retail segments of the diamond industry. The company supplies rough diamonds to the global market from its 40%-owned Diavik diamond mine, located in Canada's Northwest Territories. The retail segment includes sales from Harry Winston's 13 salons, located in New York, Honolulu, Bal Harbour, Beverly Hills, Las Vegas, Dallas, Paris, London, Geneva, Tokyo (Ginza and Omotesando), Osaka and Taipei. Aber now owns 100% of Harry Winston after acquiring the remaining 47.17% on 29 September 2006.	www.harrywinston.com/



Figure 164: Diamond mining companies description (as of May 2011)

Company name	Company profile	Website
North Australian Diamonds Ltd	North Australian Diamonds Ltd is an Australia-based company. Its principal activity is diamond exploration in the North Kimberley project areas and the Northern Territory. Its projects include the Merlin and Seppelt projects, Arnhem Land and Yambarra. The company focuses its activities on its wholly-owned Merlin project in the Northern Territory, which comprises 14 kimberlite pipes. In addition, it has a farm-in agreement with Rio Tinto to earn a 100% interest for diamonds in tenements which comprise 9,134,m ² in the Daly River area. These tenements are considered to have potential for diamonds and other minerals. In the fiscal year ended 30 June 30 2010, its wholly-owned subsidiaries included Striker Diamonds Pty Ltd and Merlin Diamonds Pty Ltd. In February 2010, North Australian Diamonds increased its interest in Top End Uranium Ltd to 28%. North Australian Diamonds is majority-owned by Legend International Holdings, Inc.	http://www.nadl.com.au/
Stornoway Diamond Corp	Stornoway Diamond Corp (Stornoway) is a Canada-based diamond exploration and development company. Projects are Renard, a development track diamond project with the potential to become Quebec's first diamond mine, three advanced projects in eastern Nunavut at the minibulk sampling stage and several early stage. At 15 July 2010, the company held interests, directly or through joint ventures, in a property portfolio of 21 properties representing approximately 3.1m acres that can be roughly subdivided into 168,000 acres of development stage projects (the Foxtrot property, which includes the Renard diamond project), 1.6m acres of advanced exploration properties (Aviat, Qilalugaq, Churchill and Timiskaming) and 3.1m acres of early stage projects (Hammer property). Its wholly owned subsidiary is Les Diamants Stornoway (Canada) Inc.	http://www.stornowaydiamonds.com/
Alkane Exploration	Alkane Exploration engages in mining and exploration for gold and other minerals and metals in Australia. The company explores on its properties in New South Wales and Western Australia. Its properties in New South Wales include a 100% interest in the Tomingley gold project and the Dubbo zirconia project. It also owns interest in Molong and Moorilda gold-copper tenements. Its other properties in New South Wales include Cudal (gold-copper), Wellington (copper-gold), and Bodangora (gold-copper) properties. Alkane Exploration's properties in Western Australia comprise a 60% interest in Nullagine diamond project and a 49% interest in Leinster region (nickel-gold) joint venture. The company is based in Perth, Australia.	www.alkane.com.au
Almaden Minerals	Almaden Minerals, an exploration stage company, engages in the acquisition, exploration, and development of mineral properties primarily in Canada, the USA, and Mexico. The company has interests in five principal properties, which include the Elk gold and silver property, comprising the Canadian Siwash Gold deposit and Skoonka Creek gold property, the Caballo Blanco gold, silver, and copper prospect, the Fuego copper and gold prospect, and the San Carlos copper, gold, and silver prospect, all in Mexico. Its secondary property interests in Canada include the Ram prospect; the ATW diamond prospect; the Rock River Coal project; the PV prospect; the Logan property; and the MOR, Tim, Merit, and Nicoamen River prospects, as well as the Yago prospect, the Guadalupe prospect, the Santa Maria prospect, the Campanario prospect, and the Tropico prospect in Mexico. Almaden Minerals was incorporated in 1980 and is headquartered in Vancouver, Canada.	www.almadenminerals.com
A-Cap Resources	A-Cap Resources Ltd engages in the exploration of mineral properties in primarily in Botswana and China. It produces gold, nickel, uranium, platinum group metals, copper, zinc, lead, and diamonds. The company holds interests in the Jim's Luck gold prospect, the Maibele North nickel-copper deposit, the Mmamanaka gold and nickel prospect, the Makhantlele gold prospect, the Magogaphate gold prospect, and the Kalula North prospect. A-Cap Resources also has interests in the Airstrip copper prospect; the Dibete copper-gold prospect; the Crescent zinc-lead prospect; the Mmatsiane, Jumbo, and Makhantlele zinc-lead prospects; the Sampowane nickel prospect; the Mokobaesi uranium prospect; and the Bobonong diamond prospect. The company is based in Hawthorn, Australia.	www.acap.com.au/
Adamus Resources	Adamus Resources Ltd operates in the mineral exploration and development industry with a focus on gold exploration and mine development in West Africa and Australia. Its principal project includes the Southern Ashanti Gold project, located approximately 300km west of Ghana's capital, Accra, West Africa. The Southern Ashanti Gold project comprises the Salman and Anwia deposits. It also owns interests in the Anwia South project, located adjacent to the Anwia deposit. In addition, it holds interests in the Bollinger diamond project, some located 200km north-west of Kununurra in the Kimberley region of Western Australia; and the Nabberu project located in the eastern Nabberu Basin of Western Australia approximately 920km north-east of Perth. Adamus Resources is based in West Perth, Australia.	www.adamusresources.com.au
Adroit Resources	Adroit Resources Inc engages in the exploration of mineral properties in Canada. It is prospecting for gold and base metals in central Italy; and diamonds, precious, and base metals in the Temagami area of Ontario, Canada. The company is based in Vancouver, Canada.	www.adroitresources.ca/
African Consolidated Resources	African Consolidated Resources plc provides mineral exploration and mining services. The company focuses on minerals including gold, platinum, diamonds, nickel, and chromium. African Consolidated Resources was incorporated in 2005 and is headquartered in Maidstone7, United Kingdom with an additional office in Harare, Zimbabwe.	www.acrplc.com/
African Metals Corp.	African Metals Corporation, an exploration stage company, engages in the exploration and development of mineral properties in Africa. It focuses on diamond and gold properties. The company holds interest in Soumala, Kenieba Nord, Kenieba Sud, Comifa gold, Medinandi Sud, and Fatako concessions located in western Mali, West Africa. African Metals Corporation is based in Vancouver, Canada.	www.africanmetals.com/
Allyn Resources	Allyn Resources Inc. engages in mining and exploration of mineral properties in Canada. It is involved in the exploration of base and precious metals, primarily diamonds, in Nunavut and the Northwest Territories, and uranium in Saskatchewan. The company owns an interest in the West Arm project with 14 individual claim blocks totaling 22,364.45 acres located 75km west of Yellowknife, Northwest Territories, Canada. Allyn Resources is headquartered in Tobaccoville, North Carolina.	www.allynresources.com



Figure 164: Diamond mining companies description (as of May 2011)

Company name	Company profile	Website
Archon Minerals	Archon Minerals Ltd, a development stage company, explores for diamonds in the Northwest Territories of Canada. It has an interest in three property groups that include the Buffer Zone joint venture, WO Block, and the Monument diamond project. The company holds a participating interest in the Buffer Zone joint venture, which has 197 mineral claims in the Northwest Territories. Its WO Block includes a 13.275% interest in certain mineral claims located in the Lac de Gras area, Mackenzie mining division, Northwest Territories. It has a 20.4% interest in the Monument diamond project located in the south-west shore of Lac de Gras. Archon Minerals is based in Vancouver, Canada.	
Arctic Star Diamond Corp.	Arctic Star Diamond Corp, headquartered in Vancouver, Canada, engages in the exploration of diamond properties in Canada. It holds an option to acquire a 100% interest in Credit Lake property, located in the Lac de Gras region of the Northwest Territories, and its Slave Province kimberlite royalties and Slave Province proprietary database. It also holds an option to acquire a 20% working interest in Attawapiskat mineral claims and an 18% working interest in Dumont mineral claims, both located in the James Bay area of Ontario; and a 50% interest in Temagami North mineral claims located in the Larder mining division, Ontario. In addition, the company holds an option to acquire a 20% interest in Kyle Lake mineral claims, also located in the James Bay area; a 25% interest in Enigma mineral claims located in Wawa, Ontario; a 42.5% interest in Hayes mineral claims located in northern Manitoba; and 30% interest in Legend mineral claims located in Buffalo Hills, Alberta. It also holds a 100% interest in Dymond Lake and New Bigg mineral claims located near Fort Smith, Northwest Territories.	www.arcticstardiamond.com
Atlantic Gold	Atlantic Gold NL engages in the exploration and development of gold projects in Australia and Canada. It develops the Touquoy gold project in Nova Scotia on Canada's Atlantic coast. The company also has a 50% interest in mining leases in the eastern goldfields, which secure indicated resources of 62,000 ounces gold in four deposits including Diamantina, Clark, Redlake, and Admiral underground; and an exploration license adjoining the mine property. Atlantic Gold, formerly known as Diamond Ventures NL, is headquartered in Crov's Nest, Australia.	www.atlanticgold.com.au
AusQuest	AusQuest Ltd engages in the exploration and mining of mineral properties principally in western Australia. It primarily focuses on nickel sulphide and gold deposits. The company has interests in the Nameless iron project, Rocklea iron project, Sylvania iron prospect, Drummond gold project, Horsetrack gold project, and Plenty River diamond project. AusQuest also holds interests in various nickel, copper, and platinum group element projects, which include the Table Hill project, Antrim project, Beasley project, and Bellary project. The company was co-founded by Graeme Drew and John Ashley. AusQuest was incorporated in 2000 and is based in Ardross, Australia.	www.ausquest.com.au
	Bandera Gold Ltd. engages in the exploration and development of mineral properties in north and south America. Its properties include the Brockington diamond project in Saskatchewan; the Belmira gold-silver project in Columbia, and Cinco Minas and Gran Cabrera gold-silver projects in Mexico. The company was incorporated in 1993 and is based in Edmonton, Canada.	www.banderagold.com
Bayfield Ventures Corp	Bayfield Ventures Corp engages in the acquisition, exploration, and development of coal, copper/gold, and diamonds properties in Mongolia and Canada. It has a 100% interest in five claim leases, totalling 1,568 hectares located in the Forte à la Corne area, central Saskatchewan; a 100% interest in three mineral exploration licenses, consisting of approximately 300,000 hectares located in the Gobi region of south central Mongolia; and a 24.5% interest in the Red Lake Baird property comprising six mineral claims located in the Baird Township, Ontario. The company also has an option agreement to acquire a 100% interest in the Bannockburn gold property located in Madoc Township, Hastings County in south eastern Ontario. The company is based in Vancouver, Canada.	www.bayfieldventures.com
Belmont Resources	Belmont Resources Inc engages in the exploration and development of resource properties in Canada. It holds a 100% interest in seven diamond prospect claims, known as Tolmie Properties, located in James Bay Lowlands, north-eastern Ontario. The company also owns an option to acquire a 100% interests in a claim comprising 256 hectares and a 50% interest in two claims, which are located in Bateman Township, Red Lake mining division, north-western Ontario. In addition, Belmont Resources owns a 100% interest in certain claims located in Beatty Township, Larder Lake mining division, north-eastern Ontario. The company was incorporated in 1978 and is based in Vancouver, Canada.	www.belmont-resources.com
Big Red Diamond Corp	Big Red Diamond Corp is a junior exploration company with exploration projects in the West Timmins Gold camp and rare earth elements property near Sept-Iles, Quebec. The Company is also a joint venture partner with Metalex Ventures and Arctic Star in the Attawapiskat diamond project in the James Bay Lowlands, close to De Beers' Victor diamond deposit.	www.bigreddiamond.com/
Blina Diamonds NL	Blina Diamonds NL engages in the diamond exploration and mining within the Ellendale diamond field located in the north of Western Australia. The company's exploration projects include three advanced alluvial operations at Terrace 5, Ellendale 9 North, and the J-Channel. It also has interests in other projects, including K1-K2 Lamproite project and A-Channel project, as well as in the Northern, Central and Southern Reconnaissance projects. The company, formerly known as Blina Diamonds Ltd, was founded in 1976 and is based in West Perth, Australia. Blina Diamonds NL is a subsidiary of Kimberley Diamond Company NL.	www.blinadiamonds.com.au

Source: Deutsche Bank, Company websites, Company data



Appendix 1

Important Disclosures

Additional information available upon request

Disclosure checklist

Company	Ticker	Recent price*	Disclosure
Alrosa	ALRS.MM	25.15 (RUB) 9 Aug 12	NA

*Prices are sourced from local exchanges via Reuters, Bloomberg and other vendors. Data is sourced from Deutsche Bank and subject companies

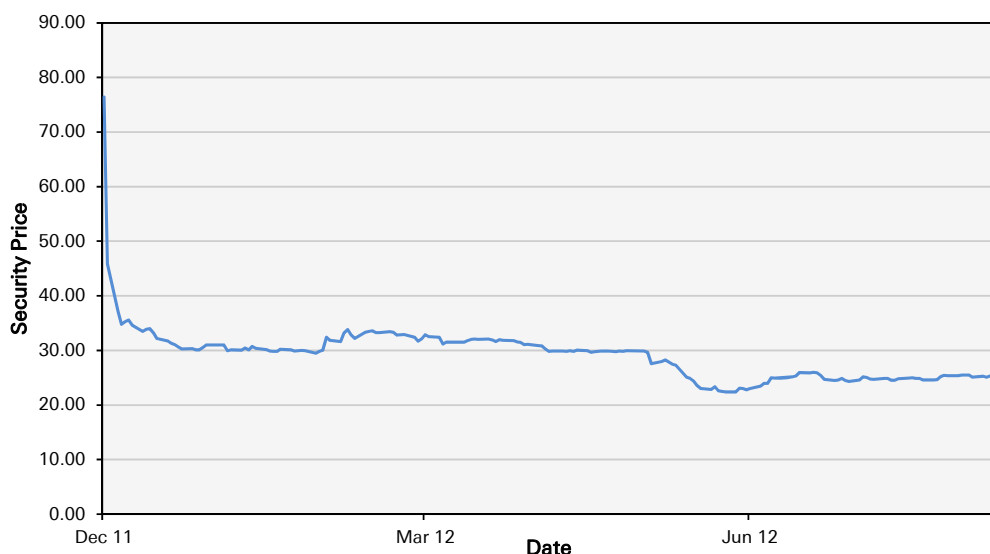
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Historical recommendations and target price: JOINT STOCK COMPANY ALR (ALRS.MM)

(as of 8/9/2012)



Previous Recommendations

Strong Buy
Buy
Market Perform
Underperform
Not Rated
Suspended Rating

Current Recommendations

Buy
Hold
Sell
Not Rated
Suspended Rating

*New Recommendation Structure
as of September 9, 2002



Equity rating key

Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus projected dividend yield) , we recommend that investors buy the stock.

Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock

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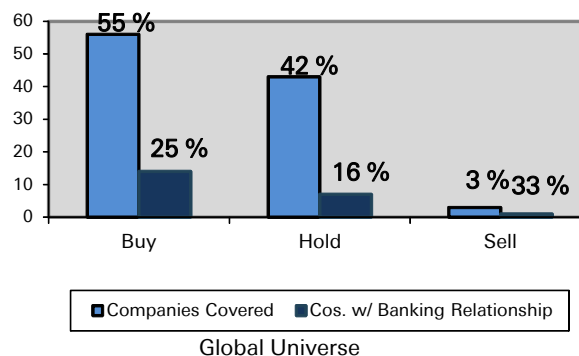
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Sell: Expected total return (including dividends) of -10% or worse over a 12-month period

Equity rating dispersion and banking relationships





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Deutsche Bank AG, Turkey Eski Buyukdere Cad. Tekfen Tower No:209 Kat:17-18 TR-34394 Istanbul Tel: (90) 212 317 01 00	Deutsche Bank AG, Greece 23A Vassilissis Sofias Avenue 6th Floor 10674 Athens, Greece Tel: (30) 210 72 56 150		

International locations

Deutsche Bank Securities Inc. 60 Wall Street New York, NY 10005 United States of America Tel: (1) 212 250 2500	Deutsche Bank AG London 1 Great Winchester Street London EC2N 2EQ United Kingdom Tel: (44) 20 7545 8000	Deutsche Bank AG Große Gallusstraße 10-14 60272 Frankfurt am Main Germany Tel: (49) 69 910 00	Deutsche Bank AG Deutsche Bank Place Level 16 Corner of Hunter & Phillip Streets Sydney, NSW 2000 Australia Tel: (61) 2 8258 1234
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