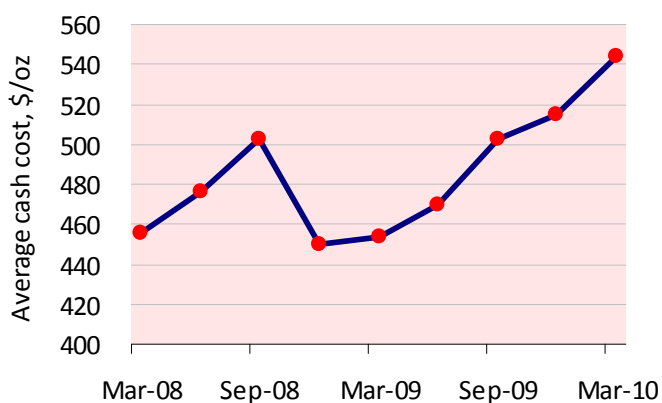


Gold Mine Cost Report – Q1 2010

June 2010

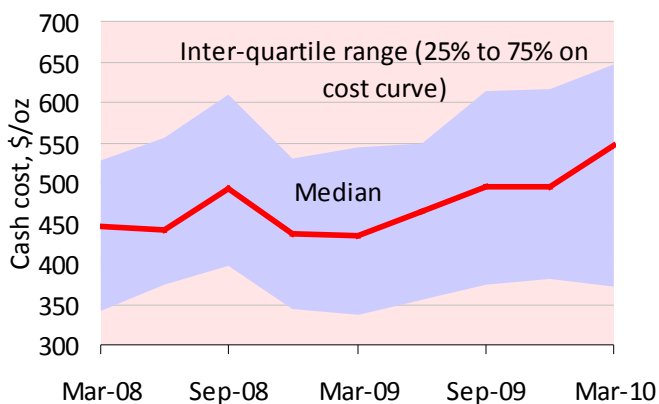
Fortis Bank Nederland

Average gold mine quarterly cash costs, Q1 2008 to Q1 2010, \$/oz



Q1 10 average gold mine cash costs hit \$544/oz, up \$29/oz compared with Q4 09.

Inter-quartile and median cash costs, Q1 2008 to Q1 2010, \$/oz



Q1 10 median costs rise to \$547/oz, from \$435/oz a year earlier and \$447/oz in Q1 08.

Inter-quartile range widens to \$274/oz in Q1 10, from \$206/oz in Q1 09.

VM GROUP

About the report

The **Gold Mine Cost Report** is produced as part of a joint venture between Fortis Bank Nederland and VM Group in conjunction with Haliburton Mineral Services. It augments our other gold reports especially the Yellow Book and the Gold Hedging Report.

As a benchmark for comparing the fortunes of individual mining companies relative to each other, the cost curve is an important analytical tool for mine management and their shareholders as well as for the banks, equity brokers and investors.

Accounting and the reporting of production costs can vary from company to company and for this reason it is vital to compare like with like. This comparison requires not just in-depth analysis and attention to detail but an understanding of company accounts and accounting practices.

The quarterly **Gold Mine Cost Report** is published on an open access basis and as with all our work, we would welcome feedback and comments.

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Q1 2010 cost roundup

Average gold mine cash costs hit \$544/oz, up \$29/oz from Q4 2009 and 20% higher year-on-year

The average cash cost of gold mine production was \$544/oz¹ in Q1 10, the highest average cash cost² yet in our data series, and \$29/oz higher than the previous high last quarter. Over the past 12 months average cash costs for producing gold have risen 20%, or \$91/oz, from \$453/oz in Q1 09.

There was some divergence between low-cost mines and those with higher costs. The average cash cost at the first quartile, the point where 25% of production is of lower cost, fell to \$372/oz from \$382/oz. But at the third quartile, where 75% is of lower cost, costs rose to \$646/oz from \$616/oz, meaning the inter-quartile costs range³ widened to \$274/oz, compared with \$234/oz in Q4 2009 and \$206/oz in the same period last year. Costs at the 9th decile soared even higher, to \$818/oz from \$738/oz.

Miners would have nevertheless benefited from an average gold price (London pm fix) of \$1,109/oz in Q1 10, which is some \$565/oz higher than average cash costs during this period. This spread is down however from \$585/oz between the average gold price and average cash costs in Q4 09, and is the first narrowing of this gap since Q2 09. As the gold price is currently above \$1,200/oz this gap should widen again in Q2 10, but gold miners in South Africa in particular would suffer if there were a gold price correction towards \$1,000/oz levels.

Gold cash costs by year and quarter, \$/oz unless stated

	2005	2006	2007	2008	2009	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09	Q3 09	Q4 09	Q1 10
Average cost	280	323	394	470	484	476	503	450	453	470	503	515	544
Average gold price	444	604	695	872	972	896	872	795	908	922	960	1,100	1,109
<i>Difference</i>	<i>164</i>	<i>281</i>	<i>302</i>	<i>402</i>	<i>488</i>	<i>420</i>	<i>369</i>	<i>345</i>	<i>455</i>	<i>452</i>	<i>457</i>	<i>585</i>	<i>565</i>
Cost at various positions on curve													
25%	223	255	307	390	385	374	398	344	338	355	375	382	372
Median -50%	277	311	385	460	473	443	493	437	435	464	495	495	547
75%	338	394	458	560	574	555	610	530	544	549	614	616	646
90%	402	448	556	673	685	694	704	644	643	684	720	738	818
Costed production (Moz)	43.4	43.1	42.3	42.7	43.8	10.4	11.0	11.4	10.4	10.7	11.1	11.6	10.8
Costed production (tonnes)	1,351	1,340	1,315	1,327	1,361	324	344	356	324	332	346	361	335

Source: VM Group/Haliburton Mineral Services. Note sums and differences might not match individual numbers due to rounding.

Our *Gold Mine Cost Report Q1 10* is based on 226 gold mines (for the period Q1 10), which collectively produced 10.8 Moz of gold. This is higher than our

¹ All costs are in US dollars per troy ounce unless otherwise indicated.

² The average cash cost of mine was calculated as follows: each mine's cash cost is multiplied by its production. This is determined for all 226 mines, and then divided by the total production of 10.8 Moz. For Q1 10 this gives a lower figure for *average* cash costs, \$544/oz than the *median*, \$547/oz, in contrast to every other quarter since our data series begins in Q1 08.

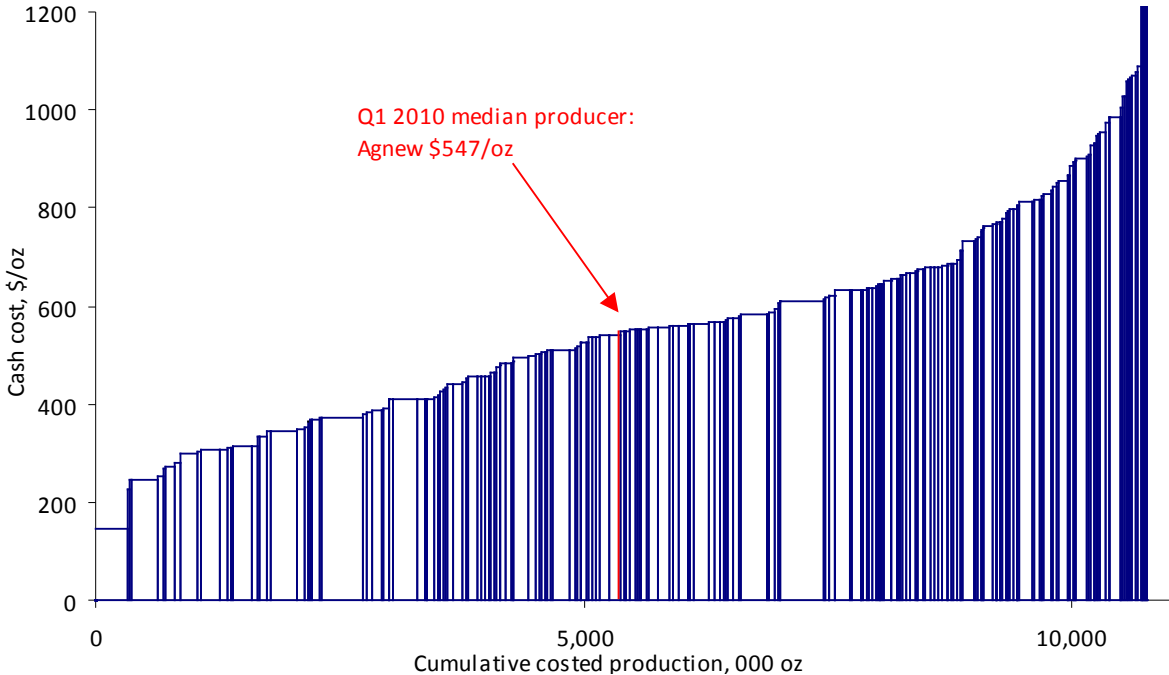
³ The difference between lowest quartile cash costs and highest quartile cash costs.

measured costed production in Q1 09 of 10.3 Moz, but lower than that seen in Q4 09 of 11.6 Moz, which is one factor behind the rising costs. Out of the 226 mines, 222 were also included in Q4 09 and of those 132 mines, or about 59%, saw their costs increase quarter-on-quarter, while the balance had flat or falling costs. This compares with 55% of mines that saw costs rise in Q4 2009 v. Q3 2009.

The "cost curve"

On a distributional basis the following chart shows the cost curve for Q1 10, with each mine in our database ranked in order of costs from low to high⁴. The width of the bar measures their output of gold (in 000s of ounces) and the height of the bar their cash cost per ounce. The average size of production from the mines in our database in Q4 09 was 50,958 oz, with the median mine producing just 31,450 oz of gold; for Q1 10 the average size fell to 47,614 oz and median mine to 27,609 oz. These mine costs are indicated on the chart as barely more than a vertical blue line, while there are some much larger mines, such as Newmont's integrated Nevada operations, which produced 433,000 oz in Q1 10, from 565,000 oz in Q4 09, and Yanacocha in Peru, which produced 423,000 oz in Q1 10 v. 499,000 oz in Q4 09.

Cost curve for gold mines worldwide: Q1 10, \$/oz



Source: VM Group/Haliburton Mineral Services

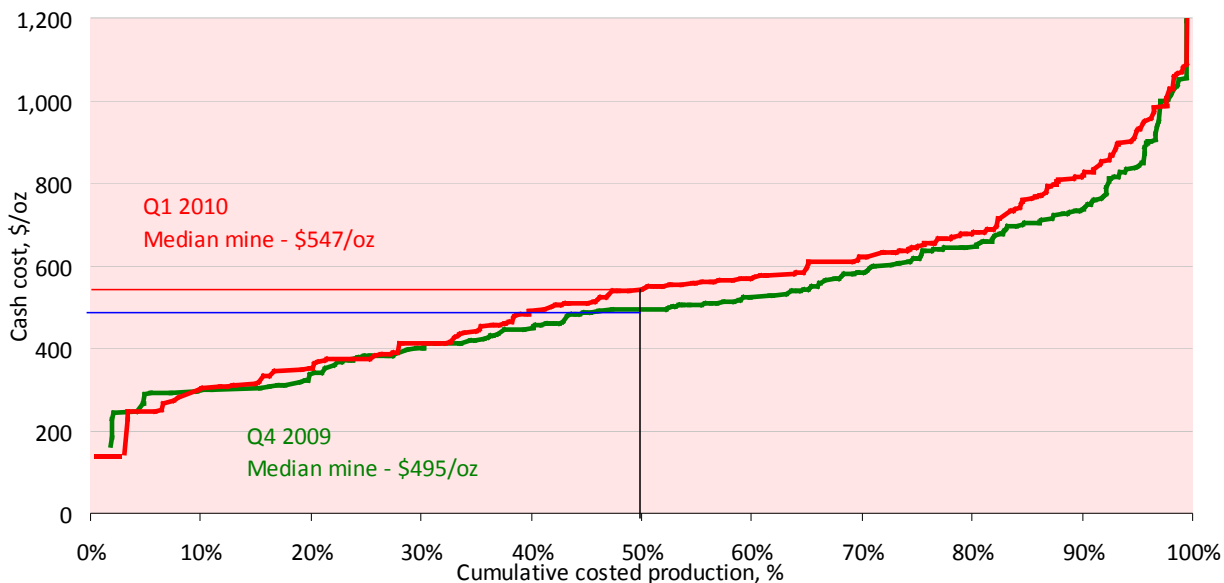
The **median cost ounce** is the one that falls halfway along the horizontal axis, which - as total production from these mines was 10.76 Moz during the quarter - is calculated from the mine that produced the 5.38 millionth cheapest ounce. Gold Field's Agnew mine in Australia happens to be the median cost operator, with cash costs of \$547/oz. In Q4 09 it was Newmont's Nevada operations, with a cash cost of \$495/oz. Similar to the medians, other positions on the cost curve can be determined, most obviously quartiles (at 25% and 75% of production) or

⁴ There are a few mines that have extremely high costs, which is normally because they are either starting-up, closing-down, or have major operational problems - in Q1 10 there were 7 mines with cash costs of over \$1,200/oz, of which three had cash costs of over \$2,000/oz. These are indicated on our chart but the tops of these bars are truncated as the scale of the vertical axis has been fixed at \$1,200/oz in order to ensure that the other mines are more clearly shown.

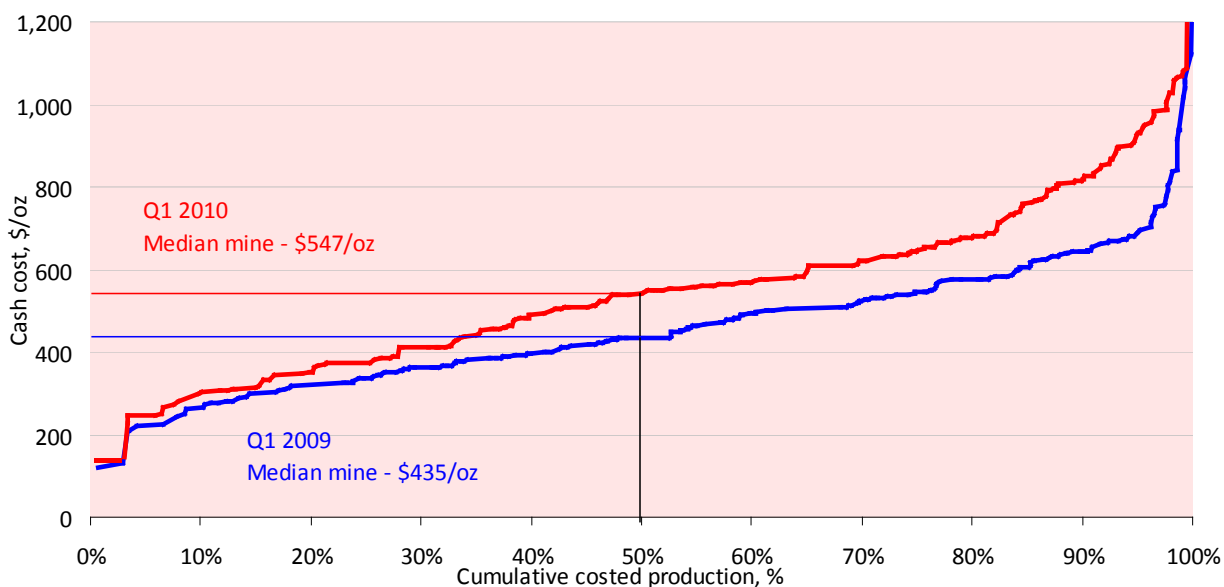
even deciles (10%, 20%, 30% etc). In Q1 10 where costs are indicated at the 9th decile, the mine which is more expensive than 90% of mines, produces at a cost of \$818/oz, and costs are up \$80/oz on the previous quarter.

One can also compare cost curves. For example the charts below compare costs in Q1 10 with those in Q4 09 and Q1 09. It can be seen that the median mine in Q1 10 has higher costs than the median mine in both Q4 09 and Q1 09 - \$547/oz compared with \$495/oz and \$435/oz respectively.

Cost curve, % of production: Q1 10 and Q4 09, \$/oz



Cost curve, % of production: Q1 10 and Q1 09, \$/oz



Source: VM Group/Haliburton Mineral Services

Regional cost analysis

In our regional breakdown we compare costs across several regions of the world. We have split our mines into seven regions, ranging from the largest, Latin America (2.3 Moz production in Q1 10) to the smallest, Asia (0.7 Moz).

Gold mine production: cash costs by region, Q1 10, \$/oz unless stated

	South Africa	Oceania	Other Africa	North America	Asia	CIS/Europe	Latin America
Average cost (\$/oz)	798	635	599	549	482	406	371
Cost at various positions on curve							
25%	585	539	542	387	429	314	247
Median -50%	811	631	567	581	493	410	372
75%	956	763	653	610	510	410	453
90%	1,029	900	739	681	551	463	558
Costed production (Moz)	1.2	1.9	1.6	2.1	0.7	1.1	2.3
Costed production (tonnes)	39	58	50	64	21	33	72

Source: VM Group/Haliburton Mineral Services

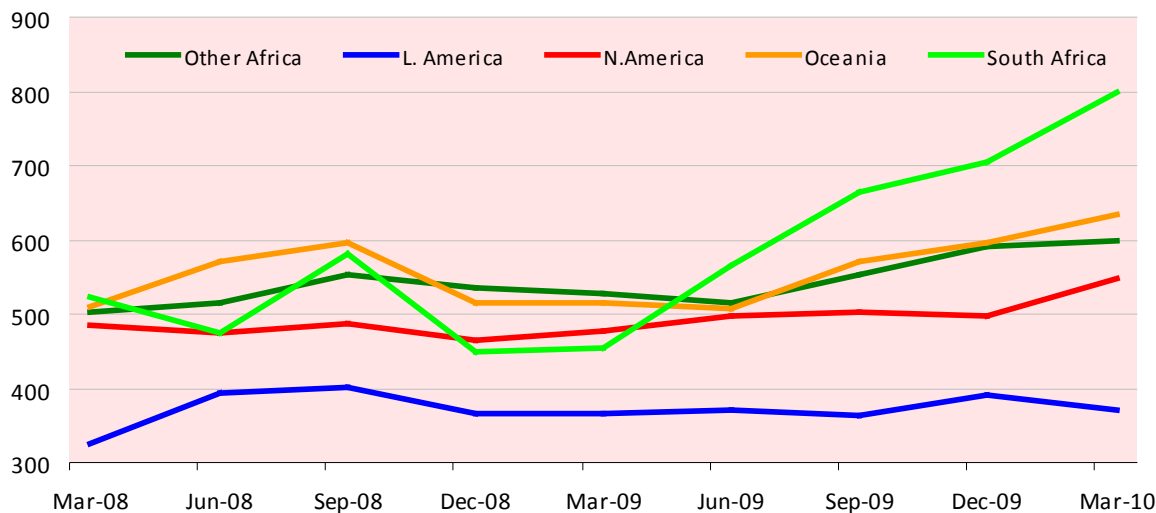
Average exchange rates of producer currencies vs US\$

	Q1 09	Q4 09	Q1 10
US\$/rand	9.89	7.47	7.49
US\$/A\$	1.50	1.10	1.11
US\$/C\$	1.10	1.06	1.04

The region with the highest gold mine cash costs in Q1 10 was South Africa, with an average cash cost of \$798/oz, up \$92/oz on Q4 09 and \$343/oz from Q1 09. The lowest cost region was Latin America, at just \$371/oz, down \$10/oz on the previous quarter. The same is true for median costs, where South Africa's have risen sharply to \$811/oz, from \$696/oz; only Latin America has seen average and median costs fall quarter-on-quarter.

The chart below tracks the changes in cash costs in the five largest regions. All except Latin America saw their average cash costs increase in Q1 10 compared with Q4 09, with the largest percentage increases in South Africa and North America. Over the 12 months from Q1 09 to Q1 10, when the global average rose 20%, South Africa's average cash costs rose 75%, far in advance of any of the other five major regions (Oceania's rose 23%), partly because of a 32% appreciation in the rand over that period.

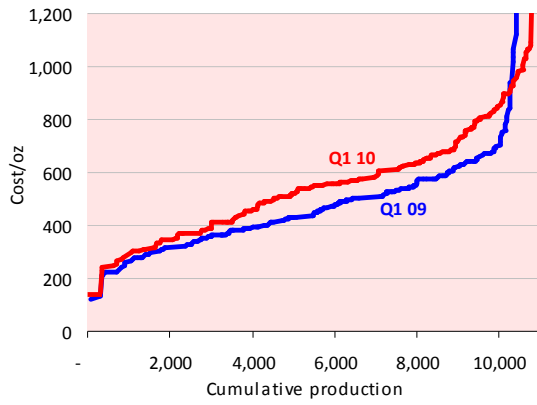
Average cash costs of gold mine production by region over time, \$/oz



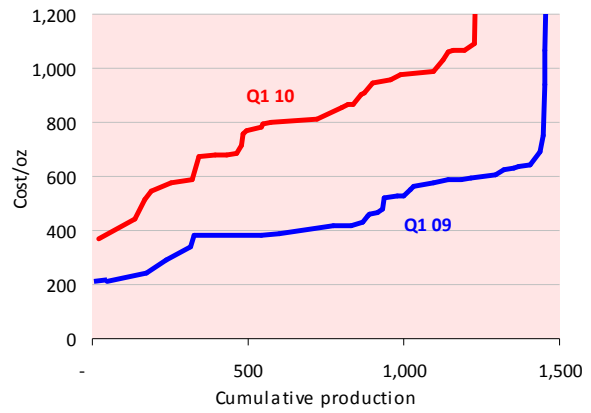
Source: VM Group, Haliburton Mineral Services

Cost curves by region

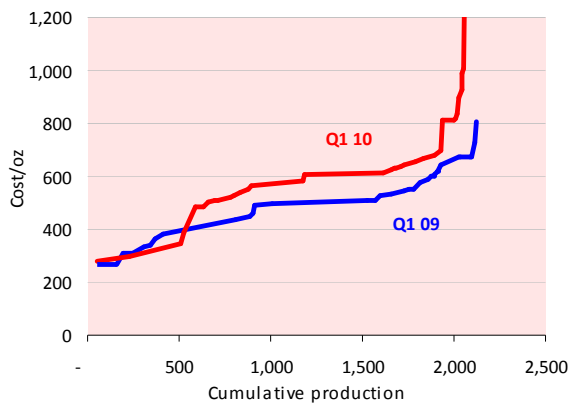
World



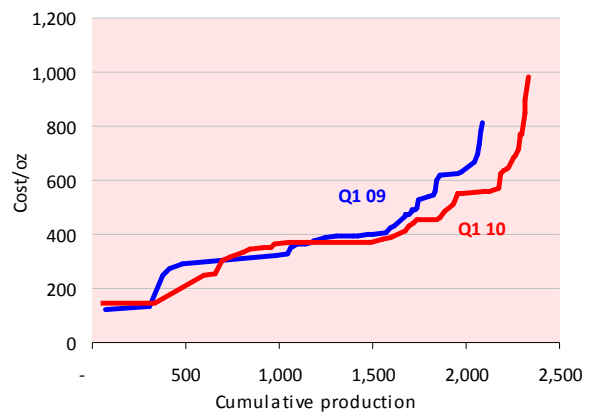
South Africa



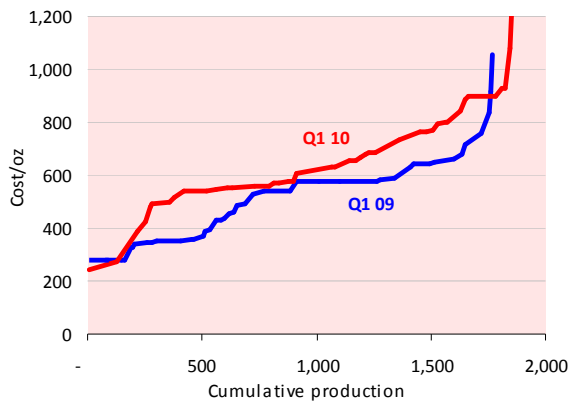
North America



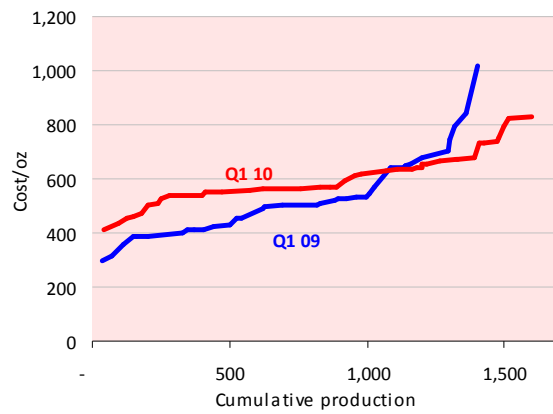
Latin America



Oceania



Other Africa



Methodology

The mine cash costs per ounce of production in this report are based on cost reporting by more than 80 gold mining companies with a total of approximately 226 mines in the most recent quarter. Although there is some variability in how companies report cash cost per ounce, most utilise the “Gold Institute Gold Cost Standard”. These costs include direct mining and processing expenses, other onsite charges, third party smelting and refining charges as well as royalties and production taxes net of by product credits. Where reporting is at variance with the Gold Institute Standard recalculations have been made and in some cases estimates have been used where reliable data has not been available. In our analysis we have excluded mines where gold produced is not the principal source of revenue.

The reader is cautioned that cash costs are only one component of total costs which in addition to cash costs would include depreciation, depletion, amortisation, reclamation and closure costs. Additionally at the corporate level there would be general and administrative expenses, as well as exploration expenses, etc.

About the authors

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VM Group is a commodities research consultancy that covers not just precious metals, but base metals, conventional energy, renewable energy, carbon and agricommodities. The VM Group comprises a uniquely skilled team that is highly experienced in the analysis of the fundamentals of commodities and their geopolitical impact and contexts.

VM Group analysts excel in the research and reporting of macro-economic data, the generation of supply and demand scenarios, cost analyses, derivative research and price forecasting. Confidentiality, experience and independence are key elements in this advisory capacity. We deliver a high level of research excellence to those in need of external or outsourced expertise, as well as to businesses and financial entities who wish to supplement their own in-house resources. Our extensive network of international contacts, established over many years, enable us to span the globe in order to maintain our databases and provide our clients with the most up to date and cutting edge market research.

To see further how we can meet your research and consulting requirements, please email: info@vmgroup.co.uk

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Founded in 2002 Haliburton Mineral Services is a private mining research and advisory business based in Toronto, Canada. The company's President, Ted Reeve, has a background as a mining analyst and has published quarterly gold producer hedge surveys since 1990.

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