GLENCORE

NEWS RELEASE
Baar, 18 February 2020

Preliminary Results 2019

Highlights

Glencore's Chief Executive Officer, Ivan Glasenberg, commented: "Our performance in 2019 reflected the prolonged and uncertain trade deal negotiations, generally weaker prices for our key commodities and some operational challenges experienced at our ramp-up/development assets. Adjusted EBITDA declined 26% to $11.6 billion.

"Our Marketing business finished 2019 on a strong note, generating Adjusted EBIT of $2.4 billion, in line with 2018, with an excellent performance from oil and a stronger second half metals' contribution, helping to offset the cobalt headwinds experienced in the first half.

"In relation to our ramp-up/development assets, performance is steadily improving, in particular at our flagship Katanga operation, which met its second half production targets for both copper and cobalt.

"We are again recommending to shareholders a 2020 base distribution of $0.20 per share, payable in two equal instalments, which is comfortably covered (c.1.5x) by current annualised business free cashflow generation, even applying the presently weakened coronavirus discounted commodity prices.

"We are also pleased to report progress against our commitments to the transition to a low-carbon economy. We are on track to achieve a near doubling of our first GHG target with a reduction in Scope 1 and 2 emissions intensity of c.10% since 2016. Also, in line with our commitment to a Paris consistent strategy, we project a c.30% reduction in absolute Scope 3 emissions by 2035, including natural depletion of our coal and oil resource base over time.

"Looking ahead, in the short-term, we are closely watching coronavirus developments and potential scenario impacts on global growth and markets. As shown over many cycles, our business has various defensive cashflow characteristics, stemming primarily from marketing activities, but also material exposure to precious metals and infrastructure and expected countercyclical working capital inflows. Our priorities for 2020 remain being focused on delivering sustainable long-term returns for all stakeholders, including via delivering a step-change in safety performance, realising the potential of our ramp-up assets, seizing further operational efficiencies, strengthening our balance sheet and managing the transition to Glencore's next generation of leadership."

US$ million	**2019**	2018	Change %
Key statement of income and cash flows highlights[1]:			
Adjusted EBITDA[◊]	11,601	15,767	(26)
Adjusted EBIT[◊]	4,151	9,143	(55)
Net (loss)/income attributable to equity holders	(404)	3,408	(112)
(Loss)/earnings per share (Basic) (US$)	(0.03)	0.24	(112)
Funds from operations (FFO)[2◊]	7,865	11,595	(32)
Cash generated by operating activities before working capital changes	10,346	13,210	(22)
Net purchase and sale of property, plant and equipment[2◊]	4,966	4,899	1

US$ million	**31.12.2019**	31.12.2018	Change %
Key financial position highlights:			
Total assets	124,076	128,672	(4)
Net funding[2,3◊]	34,366	32,138	7
Net debt[2,3◊]	17,556	14,710	19
Ratios:			
FFO to Net debt[2◊]	44.8%	78.8%	(43)
Net debt to Adjusted EBITDA[◊]	1.51	0.93	62

1 Refer to basis of presentation on page 5.

2 Refer to page 10, also noting that 2019 FFO materially impacted by the lag of income taxes paid in 2019, in respect of 2018 profitability (reduction in balance sheet income tax payable of $755 million), as well as $238 million of taxes paid in 2019, expected to be offset against future taxes due or refunded.

3 Adoption of the new lease accounting standard, effective 1 January 2019, resulted in $865 million (non-cash) of new lease liabilities being recognised (see note 1), while $582 million of additional new leases (non-cash) were booked as capital expenditures and debt in 2019, that previously would have been classified as operating leases.

◊ Adjusted measures referred to as Alternative performance measures (APMs) which are not defined or specified under the requirements of International Financial Reporting Standards; refer to APMs section on page 112 for definition and reconciliations, to note 2 of the financial statements for reconciliation of Adjusted EBIT/EBITDA and to page 17 for reconciliations of Mining Margins.

Highlights
continued

Healthy cash generation despite significantly lower commodity prices

- 2019 Adjusted EBITDA of $11.6 billion, down 26%
- Net loss attributable to equity holders of $0.4 billion, after $2.8 billion of impairment charges
- Cash generated by operating activities before working capital changes of $10.3 billion, down 22%
- Net capex cash flow of $5 billion

Solid margin and cost performance for our key commodities

- Impact of lower prices on EBITDA margins somewhat moderated by solid cost control performance in our key commodities: EBITDA mining margin◊ (excluding ramp-up/development assets) of 37% (40% in 2018). Coal EBITDA mining margin of 36% (46% in 2018)
- Full year unit cost performance in our key commodities: copper (ex African copper) 81c/lb, zinc 13c/lb (47c/lb ex-gold), nickel (ex Koniambo) 277c/lb and thermal coal $45/t ($26/t margin)

Marketing underpinned by oil's performance

- Marketing Adjusted EBIT of $2.4 billion, down 2% year-on-year. Strong second half metals' performance and robust oil results largely offset the cobalt headwinds experienced in the first half

Balance sheet / cash flow coverage in good shape

- Available committed liquidity of $10.1 billion; bond maturities capped around $3 billion in any given year
- Net debt of $17.6 billion, after $1.25 billion of IFRS 16 related lease liabilities
- 2020 focus on reducing Net debt/Adjusted EBITDA ratio closer to 1x and Net debt towards the c.$14-15 billion range, excluding Marketing related lease liabilities ($0.6 billion as at 31 December 2019). Some return of cash margin calls in respect of Marketing's hedging activities and monetisation of select non-core long-term assets could aid in this process.
- Recommended 2020 base distribution of $0.20 per share ($2.6 billion), payable in two equal instalments.

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Notes for Editors

Glencore is one of the world's largest global diversified natural resource companies and a major producer and marketer of more than 60 responsibly-sourced commodities that advance everyday life. The Group's operations comprise around 150 mining and metallurgical sites and oil production assets.

With a strong footprint in over 35 countries in both established and emerging regions for natural resources, Glencore's industrial activities are supported by its global marketing network.

Glencore's customers are industrial consumers, such as those in the automotive, steel, power generation, battery manufacturing and oil sectors. We also provide financing, logistics and other services to producers and consumers of commodities. Glencore's companies employ around 160,000 people, including contractors.

Glencore is proud to be a member of the Voluntary Principles on Security and Human Rights and the International Council on Mining and Metals. We are an active participant in the Extractive Industries Transparency Initiative.

Chief Executive Officer’s Review

A challenging market backdrop for commodities

Rising trade barrier tensions and associated uncertainty weighed on sentiment and activity during 2019. In China and elsewhere, this amplified certain cyclical and structural slowdowns already under way, limiting 2019 global economic growth.

While price performances for our key commodities’ benchmarks were largely lower year over year, with average copper price down 8%, zinc 13%, cobalt 57%, thermal coals 27% and ferrochrome 14% (nickel and gold were up), underlying fundamental market supply / demand balances for most commodities remained reasonably healthy. In particular, copper, zinc and nickel markets were tightly balanced, with global visible inventories falling to multi-year lows. Cobalt was weak and oversupplied in H1, however conditions improved towards year end, as the market rebalanced, while coal saw continued growth in Asian thermal demand, more than offsetting declining imports into Europe.

Transitioning to a low-carbon economy

In many markets, there continues to be a major drive and efforts underway to significantly reduce carbon emissions in energy supply, which is expected to require substantial growth in mobility electrification and the development of battery-backed energy storage systems to support meaningful renewables’ market share. Getting to this point requires a seismic shift in how we power the world and that shift will, in part, only be enabled by the metals and minerals that the mining industry produces.

Our industry needs not only to ensure that the metals and minerals required are produced and sourced responsibly, but also that we are at the forefront of technology and process innovation, supporting further productivity gains and emissions abatement going forward. In this way, we can achieve a reduction in our own environmental footprint.

Glencore is well positioned to play a key role in aiding the various transitions to a low carbon economy, with our responsible approach to producing and sourcing a diversified portfolio of commodities, some of which, are absolutely critical in enabling the shift to a low-carbon world.

We also believe that high quality coal will continue to be part of the overall energy mix well into the future. Population growth, urbanisation and rising living standards are expected to contribute to increased global energy requirements in the coming decades. The need for affordable and stable baseload power generation is expected to underpin coal demand growth, primarily in Asia, even as it declines in Europe and the US. Our modelling, and indeed that of the International Energy Agency’s (IEA) Stated Policies Scenario, indicates that thermal coal demand is expected to continue to grow to 2030, however, naturally given faster growth elsewhere, its share of primary energy demand is expected to fall to c.24% in 2030, from around 27% in 2018.

2019 Financial Scorecard

Weaker year-on-year commodity prices were largely responsible for a 26% reduction in Adjusted EBITDA to $11.6 billion. Net income, before significant items, declined 58% to $2.4 billion, while significant items generated a Net loss attributable to equity holders of $0.4 billion, mainly due to $2.8 billion of impairment charges, largely related to our Colombian coal, Chad oil and African copper assets.

Our marketing business reported a steady year on year Adjusted EBIT result of $2.4 billion, reflecting a strong performance from oil, partially offset by the previously reported and recorded cobalt losses in relation to inventory writedowns on material sourced from Glencore mines in earlier periods. We maintain our long-term Marketing Adjusted EBIT guidance range of $2.2 to $3.2 billion

Industrial Adjusted EBITDA of $9.0 billion was down 32% compared to 2018, primarily reflecting the lower commodity prices noted above, particularly coal and cobalt. The benefit of a stronger US dollar against many of our key producer currencies provided some price offset. While most of our assets performed within expected ranges during 2019, earnings were also negatively impacted by operational and cost challenges in our African copper business and a poor production performance at our Koniambo ramp-up asset, in conjunction with a change to its accounting categorisation, whereby until the end of 2018, ramp-up development costs were still being capitalised.

Across these copper and nickel ramp-up/development assets, we have implemented detailed action plans targeting material improvement, with the aim of achieving consistent, cost-efficient production at design capacity. Performance at Katanga and Mutanda progressed to plan during the second half of the year, with the latter transitioning to care and maintenance in December.

Corporate governance and sustainability

At Glencore, we are committed to operating in a responsible manner across all aspects of our business.

Glencore upholds the dignity, fundamental freedoms and human rights of our employees, contractors and the communities in which we live and work, as well as others affected by our activities. Glencore is committed to working in line with the United Nations Universal Declaration on Human Rights and the UN Guiding Principles on Business and Human Rights.

The safety and security of our workforce and the communities living around our assets is a priority recognised in all of our operational activities.

We have taken far-reaching action to address the underlying issues that led to the tragic loss of 17 lives at Glencore’s managed operations in 2019. This performance is unacceptable and we have implemented an enhanced and sharper focused fatality reduction programme, including safety interventions at our Mopani and Kazzinc operations during 2019. This programme builds on our investment in SafeWork, with the goal of achieving a step-change in performance. We are determined to be a fatality-free business.

Chief Executive Officer's Review
continued

Glencore is committed to supplying commodities in a transparent and responsible manner. To improve supply chain traceability, transparency and integrate good practice, with some of our industry partners, we joined the Responsible Sourcing Blockchain Network, covering cobalt initially and key battery materials over time.

We were delighted to appoint Kalidas Madhavpeddi to the Board as an Independent Non-Executive Director on 4 February 2020. Kalidas has over 30 years of experience in the international mining industry coupled with business experience across all continents, including over 10 years as the CEO of China Moly. His experience and insights will be of great benefit to us.

Climate change

We are pleased to report good progress over the past year against our commitments on the transition to a low-carbon economy.

Firstly, we are on track to exceed our current GHG target of reducing Scope 1 and 2 emissions intensity by at least 5% by 2020 compared to a 2016 base line. We expect to achieve a reduction of close to 10%.

New longer-term Scope 1 and 2 reduction targets that support the Paris goals are being finalised and we expect to release these during 2020.

We have also, for the first time, disclosed our absolute Scope 3 emissions projections i.e. those arising from the sale and use of our own production, notably coal and oil. We project an approximately 30% reduction in these emissions by 2035, including the natural depletion of our underlying resource base (oil and coal). In this regard, our Colombian, and to a lesser extent, South African and Australian coal resource bases exhibit depletion profiles. Our high quality product Australian business, however, is expected to maintain a longer and flatter production profile as a key supplier to Asia's growing steel and energy industries.

In terms of capital priorities, our capital expenditure in 2019 was heavily weighted towards energy transition materials, including copper and cobalt in Africa and nickel in Canada. Our coal capex was mainly aimed at maintaining existing assets.

Shareholder returns

In line with healthy operating cash flow generation in 2019, we completed $4.7 billion of distributions and buybacks, comprising a $0.20 per share ($2.7 billion) base distribution (in respect of 2018 cash flows) and $2 billion of share buy-backs.

We are again recommending to shareholders a 2020 base distribution of $0.20 per share (c.$2.6 billion), payable in two equal instalments in 2020.

The continuing dislocation between our share price and the prospects, strength and embedded optionality in our business means that we continue to favour buybacks as a means of returning excess cash to shareholders. As and when cash flow generation and balance sheet allow, potentially aided by some return of cash margin calls in respect of Marketing's hedging activities and monetisation of select non-core long-term assets, we will seek to implement a new buyback program. In this regard, we would like to see our Net debt/Adjusted EBITDA ratio moving closer to 1x, and our Net debt reaching the c.$14-15 billion range, excluding Marketing related lease liabilities, before considering the same.

Looking ahead

We remain focused on our strategy to sustainably grow total shareholder returns while operating in a responsible manner across all aspects of our business. Clearly in the shorter term, we are closely watching coronavirus developments and potential scenario impacts on global growth and markets and what adjustments, if any, are appropriate in our business planning.

Ivan Glasenberg

Chief Executive Officer

Financial and Operational Review

Basis of presentation

The financial information in the Financial and Operational Review is on a segmental measurement basis, including all references to revenue (see note 2) and has been prepared on the basis as outlined in note 1 of the financial statements, with the exception of the accounting treatment applied to relevant material associates and joint ventures for which Glencore's attributable share of revenues and expenses are presented. In addition, the Peruvian listed Volcan, while a subsidiary of the Group, is accounted for under the equity method for internal reporting and analysis due to the relatively low economic interest (23%) held by the Group.

During the period, key members of the Group's Metals and minerals and Energy products segments retired and a new position with oversight and responsibility for all of Glencore's industrial assets (Head of Industrial Assets) was created. Internal reporting lines and organisational structures were amended such that Glencore's industrial activities report to the Head of Industrial Assets and all of its marketing activities report to the Head of Marketing (being the Group CEO). The change in oversight and responsibility for the two differing parts of our business (marketing and industrial) and associated remuneration has resulted in a change in the 'chief operating decision makers' reporting and accountability structures and, with it, our reportable segments. Aligning with the new executive structure and respective operational oversight and responsibility, the new reportable segments are – 'Industrial' and 'Marketing' activities.

Comparative 2018 information has been restated for the change in reportable segments.

The Group's results are presented on an "adjusted" basis, using alternative performance measures (APMs) which are not defined or specified under the requirements of IFRS, but are derived from the financial statements, prepared in accordance with IFRS, reflecting how Glencore's management assess the performance of the Group. The APMs are provided in addition to IFRS measures to aid in the comparability of information between reporting periods and segments and to aid in the understanding of the activities taking place across the Group by adjusting for Significant items and by aggregating or disaggregating (notably in the case of relevant material Associates accounted for on an equity basis) certain IFRS measures. APMs are also used to approximate the underlying operating cash flow generation of the operations (Adjusted EBITDA). Significant items (see reconciliation below) are items of income and expense, which, due to their nature and variable financial impact or the expected infrequency of the events giving rise to them, are separated for internal reporting, and analysis of Glencore's results.

Alternative performance measures are denoted by the symbol ◊ and are further defined and reconciled to the underlying IFRS measures in the APMs section on page 112.

Market variables

Select average commodity prices

	2019	2018	Change %
S&P GSCI Industrial Metals Index	326	362	(10)
S&P GSCI Energy Index	199	224	(11)
LME (cash) copper price ($/t)	6,005	6,527	(8)
LME (cash) zinc price ($/t)	2,548	2,919	(13)
LME (cash) lead price ($/t)	1,999	2,239	(11)
LME (cash) nickel price ($/t)	13,944	13,118	6
Gold price ($/oz)	1,393	1,269	10
Silver price ($/oz)	16	16	–
Metal Bulletin cobalt standard grade, in-warehouse Rotterdam ($/lb)	16	37	(57)
Ferro-chrome 50% Cr import, CIF main Chinese ports, contained Cr (¢/lb)	77	90	(14)
Iron ore (Platts 62% CFR North China) price ($/DMT)	90	66	36
Coal API4 ($/t)	72	98	(27)
Coal Newcastle (6,000) ($/t)	78	107	(27)
Oil price – Brent ($/bbl)	64	72	(11)

Currency table

	Spot 31 Dec 2019	Spot 31 Dec 2018	**Average 2019**	Average 2018	Change in average %
AUD : USD	0.70	0.70	0.69	0.75	(7)
USD : CAD	1.30	1.36	1.33	1.30	2
USD : COP	3,287	3,254	3,283	2,956	11
EUR : USD	1.12	1.15	1.12	1.18	(5)
GBP : USD	1.33	1.28	1.28	1.33	(4)
USD : CHF	0.97	0.98	0.99	0.98	1
USD : KZT	383	381	383	345	11
USD : ZAR	14.00	14.35	14.45	13.25	9

Financial and Operational Review
continued

Financial results

Net income attributable to equity holders decreased from $3,408 million in 2018 to a loss of $404 million in 2019 and EPS reduced from $0.24 per share to negative $0.03 per share, driven largely by lower commodity prices compared to prior year, and various impairment charges across our portfolio, mainly relating to our Colombian coal, Chad oil and African copper portfolios, owing, respectively, to a lower forecasted Atlantic steam coal price environment, the expiration of certain oil exploration licenses and revisions to the Mutanda mine plan. At the total comprehensive income level, the net 2019 loss reduces to $118 million, due mainly to positive mark-to-market valuation adjustments on various Group investments.

Adjusted EBITDA was $11,601 million and Adjusted EBIT was $4,151 million in 2019, down 26% and 55% respectively compared to 2018, as the average price benchmarks for most of our key commodities were lower year-over-year, namely cobalt (57%), coal (GC Newc 27%), copper (8%), ferrochrome (14%) and zinc (13%), as noted in the above table. Particularly weak were cobalt, which experienced material oversupply, and the Atlantic steam coal market, heavily impacted by low competing gas prices. In addition to these negative price factors, Adjusted EBITDA/EBIT were impacted by the operational challenges in our African copper portfolio and the slow ramp-up of our Koniambo nickel operation. Noting these variables, Adjusted EBITDA mining margins were 28% (37%, excluding African Copper and Koniambo) in our metal operations and 37% in our energy operations, compared to 38% (41%, excluding African Copper and Koniambo) and 46% respectively during 2018. See page 17.

Adjusted EBITDA/EBIT◊

Adjusted EBITDA by business segment is as follows:

US$ million	**2019** Marketing activities	**2019** Industrial activities	**2019** Adjusted EBITDA	2018 Marketing activities	2018 Industrial activities	2018 Adjusted EBITDA	Change %
Metals and minerals	1,169	5,555	6,724	1,767	8,478	10,245	(34)
Energy products	1,515	3,854	5,369	795	5,312	6,107	(12)
Corporate and other[1]	(47)	(445)	(492)	(70)	(515)	(585)	(16)
Total	**2,637**	**8,964**	**11,601**	**2,492**	**13,275**	**15,767**	**(26)**

Adjusted EBIT by business segment is as follows:

US$ million	**2019** Marketing activities	**2019** Industrial activities	**2019** Adjusted EBIT	2018 Marketing activities	2018 Industrial activities	2018 Adjusted EBIT	Change %
Metals and minerals	1,089	1,016	2,105	1,742	4,053	5,795	(64)
Energy products	1,324	1,274	2,598	742	3,209	3,951	(34)
Corporate and other[1]	(47)	(505)	(552)	(70)	(533)	(603)	(8)
Total	**2,366**	**1,785**	**4,151**	**2,414**	**6,729**	**9,143**	**(55)**

1 Corporate and other Marketing activities includes $58 million pre-significant items (2018: $21 million) of Glencore's equity accounted share of Glencore Agri.

Marketing activities

Marketing Adjusted EBITDA increased by 6% to $2,637 million and Adjusted EBIT decreased by 2% to $2,366 million, the former benefiting from the new lease accounting standard, requiring the capitalisation of various previously reported operating lease expenses, including many of our chartering and storage commitments (see note 1). Such previously reported lease expenses are now split over time between depreciation and interest expense. Marketing Adjusted EBIT was broadly in-line with 2018 as lower contributions from Metals and minerals were offset by increased contributions in Energy products. Metals and minerals Adjusted Marketing EBIT was down 37% primarily on account of the challenging cobalt markets in H1 and resulting inventory write down on material sourced from Glencore mines in earlier periods, as discussed previously, and some overall softening in end-user demand due to global trade tensions, which prevailed through most of 2019. Energy products Adjusted EBIT was up 78%, owing to oil, which delivered particularly strong results on the back of supportive physical commodity marketing conditions.

Industrial activities

Industrial Adjusted EBITDA decreased by 32% to $8,964 million (Adjusted EBIT was $1,785 million, compared to $6,729 million in 2018). As noted above, the decrease was primarily driven by lower average year-over-year commodity prices and, to a lesser extent, some production / operational / cost challenges in our African copper portfolio (Mutanda's copper production was 49% lower than 2018, as it scaled down operations, Katanga, although recording higher cobalt production, had limited sales as it manages through a period of excess uranium content and delays in required drying capacity commissioning, while Mopani's copper metal production was 64% lower as, in June, it accelerated its major triennial smelter shut down (from the 2020 schedule) and brought forward various planned other maintenance activities to address safety-related issues).

Earnings

A summary of the differences between reported Adjusted EBIT and income attributable to equity holders, including significant items, is set out in the following table:

US$ million	**2019**	2018
Adjusted EBIT◊	4,151	9,143
Net finance and income tax expense in relevant material associates and joint ventures[1]	(337)	(529)
Proportionate adjustment Volcan[1]	(106)	(72)
Net finance costs	(1,713)	(1,514)
Income tax expense[2]	(369)	(1,761)
Non-controlling interests	816	498
Income attributable to equity holders of the Parent pre-significant items◊	**2,442**	**5,765**
Earnings per share (Basic) pre-significant items (US$)◊	0.18	0.41
Significant items◊		
Share of Associates' significant items[3]	(292)	(40)
Movement in unrealised inter-segment profit elimination[4]	468	237
Net loss on disposals of non-current assets[5]	(43)	(139)
Other expense – net[6]	(173)	(764)
Impairments[7]	(2,843)	(1,643)
Income tax expense[2]	(249)	(302)
Non-controlling interests' share of significant items[8]	286	294
Total significant items	**(2,846)**	**(2,357)**
(Loss)/income attributable to equity holders of the Parent	**(404)**	**3,408**
(Loss)/earnings per share (Basic) (US$)	(0.03)	0.24

1 Refer to note 2 of the financial statements and to APMs section for reconciliations.
2 Refer to other reconciliations section for the allocation of the total income tax expense between pre-significant and significant items.
3 Recognised within share of income from associates and joint ventures, see note 2 of the financial statements.
4 Recognised within cost of goods sold, see note 2 of the financial statements.
5 Refer to note 4 of the financial statements and to APMs section for reconciliations.
6 Recognised within other expense – net, see note 5 of the financial statements and to APMs section for reconciliations.
7 Refer to note 6 and 10 of the financial statements and to APMs section for reconciliations.
8 Recognised within non-controlling interests, refer to APMs section.

Significant items

Significant items are items of income and expense, which, due to their nature and variable financial impact or the expected infrequency of the events giving rise to them, are separated for internal reporting, and analysis of Glencore's results to provide a better understanding and comparative basis of the underlying financial performance.

In 2019, Glencore recognised a net expense of $2,846 million (2018: $2,357 million) in significant items comprised primarily of:

- Expenses of $292 million (2018: $40 million) relating to Glencore's share of significant expenses recognised directly by our associates, notably impairments and gains on revaluations of investments in Glencore Agri (net $73 million), impairments in Trevali ($65 million) and Oil vessels' entities ($62 million).
- Net loss on disposals of non-current assets of $43 million (2018: $139 million) see note 4. In 2019, the loss primarily relates to the revaluation of our existing interest in Polymet, prior to acquisition of a controlling stake. In 2018, the loss primarily related to the disposal of our interest in the Mototolo PGM joint venture in South Africa, mainly on account of recycling foreign currency translation reserves to the statement of income.
- Income tax expense of $249 million (2018: $302 million) – see income taxes below.
- Other expenses – net expenses of $173 million (2018: $764 million) see note 5. Balance primarily comprises:
  - $47 million (2018: $139 million) of mark-to-market gains on equity investments / derivative positions accounted for as held for trading.
  - $70 million net loss (2018: $58 million) on foreign exchange movements.
  - $159 million (2018: $86 million) relating to certain legal matters - $117 million (2018: $24 million) in respect of various investigations (legal, expert and compliance) related costs (see note 31) and $42 million (2018: $62 million) of costs related to ongoing dispute with the Strategic Fuel Fund Association of South Africa.
  - $173 million (2018: $Nil) of closure and severance costs related to transition of the Mutanda operation to temporary care and maintenance, ongoing mine optimisation review at Katanga and closure of the Brunswick lead smelter.
  - $325 million gain (2018: loss of $325 million) relating to settlement of an outstanding claim, through the effective sale of previously recognised liabilities that the Group assumed in 2018, following termination of a 50:50 consortium with Qatar Investment Authority and its associated investment in OSJC Rosneft.
  - $Nil (2018: $270 million) relating to the costs incurred in settling Katanga's capital deficiency and various historical commercial disputes with Gécamines ($248 million) and settlement with the Ontario Securities Commission ($22 million). Also see note 33.
  - $6 million (2018: $142 million) of acquisition related expenses incurred in connection with the acquisition of HVO and Hail Creek (see note 24). The expenses are primarily stamp duty / property transfer related taxes.
- Impairments of $2,843 million (2018: $1,643 million), see note 6 and 10. The 2019 charge primarily relates to the:
  - Prodeco coal operations ($514 million) owing to global LNG oversupply with resultant low spot gas prices, and to a lesser extent, higher carbon prices, which placed considerable pressure on the API2 European coal market, the primary price reference market for Colombian coal. In addition, a $435 million impairment was recognised within share of income from associates relating to our investment in Cerrejón, our 33.3% interest in a Colombian coal operation (see note 10).
  - Chad oil operations ($538 million) resulting from the expensing of historical cost allocation to certain oil exploration licences acquired via Caracal in 2014. In advance of the expiry date of these Chad East licences, Glencore held discussions with the Government with the aim of extending them on terms acceptable to both parties, however no agreements were reached.
  - Mutanda copper operations ($300 million) owing to the decline in cobalt prices and the transition to temporary care and maintenance in November.
  - Oxidos and Cerro de Pasco operations (separately identifiable zinc and silver processing areas within the Volcan group - $378 million), following reclassification of these operations to 'held for sale' pending their expected disposal during 2020.
  - $162 million of VAT impairments in respect of long overdue claims, predominantly in Zambia.

  The 2018 impairments related primarily to the Mopani copper operations in Zambia ($803 million), the Mutanda copper operations in the DRC ($600 million) and loans extended under prepayment and other arrangements ($191 million).

Net finance costs

Net finance costs were $1,713 million during 2019, a 13% increase compared to $1,514 million in the comparable reporting period, primarily attributable to moderately higher average gross debt balances, along with additional lease interest costs

($73 million), following the introduction of the new lease accounting standard on 1 January 2019. Interest expense for 2019 was $1,940 million, up 11% over 2018 and interest income was $227 million, consistent with prior year.

Income taxes
An income tax expense of $618 million was recognised during 2019, compared to $2,063 million in 2018. Adjusting for $249 million (2018: $302 million) of net income tax expense related to significant items (primarily impairments and tax losses not recognised), the 2019 pre-significant items income tax expense was $369 million (2018: $1,761 million). The 2019 effective tax rate, pre-significant items, was 30.5%, consistent with the 30.3% in 2018.

Statement of financial position
Current and non-current assets
Total assets were $124,076 million as at 31 December 2019, compared to $128,672 million as at 31 December 2018. Current assets decreased from $44,268 million to $41,552 million, due to a reduction in fair values of our derivatives / hedging instruments (other financial assets), on account of movements in commodity prices and foreign exchange rates, as well as settlement of the Astron exchangeable loan (2018: $1,044 million), following the closing of this acquisition in April 2019. Non-current assets decreased from $84,404 million to $82,238 million, primarily due to impairments to property, plant and equipment of $1,885 million. This decrease was partially offset by capitalisation of lease assets as a result of the adoption of IFRS 16 (see note 1) and mark-to-market adjustments with respect to our investments carried at fair value through other comprehensive income (see below).

Current and non-current liabilities
Total liabilities were $84,840 million as at 31 December 2019, compared to $83,289 million as at 31 December 2018. Current liabilities decreased from $40,372 million to $39,448 million, primarily due to a reduction in income tax payable of $755 million and current borrowings of $594 million, offset by an increase in fair values of our derivatives / hedging instruments (other financial liabilities), on account of movements in commodity prices and foreign exchange rates. Non-current liabilities increased from $42,917 million to $45,392 million, primarily due to increases in non-current borrowings of $2,643 million (including $1,158 million of lease liabilities under IFRS 16), an increase in provisions of $478 million, mainly due to the updated rehabilitation estimates (primarily due to lower risk-free discount rates), offset by a decrease in deferred tax liabilities of $865 million, primarily due to the tax-effect of impairments noted above.

Movements relating to current and non-current borrowings are set out below in the net funding and net debt movement reconciliation.

Equity
Total equity was $39,236 million as at 31 December 2019, compared to $45,383 million as at 31 December 2018, owing primarily to share buybacks of $2,318 million and shareholder distributions of $3,015 million.

Other comprehensive income/(expense)
A gain of $285 million was recognised during 2019, compared to a loss of $1,518 million in 2018 primarily relating to mark-to-market adjustments with respect to our investment in EN+ and Russneft (see note 10) and exchange gains on translation of foreign operations.

Cash flow and net funding/debt
Net funding

US$ million	**31.12.2019**	31.12.2018
Total borrowings as per financial statements	37,043	34,994
Proportionate adjustment – net funding[1]	(778)	(810)
Cash and cash equivalents	(1,899)	(2,046)
Net funding◊	**34,366**	**32,138**

1 Refer to APMs section for definition and reconciliations.

Financial and Operational Review

continued

Cash and non-cash movements in net funding

US$ million	2019	2018
Cash generated by operating activities before working capital changes	10,346	13,210
Proportionate adjustment – Adjusted EBITDA[1]	1,522	1,893
Non-cash adjustments included within EBITDA	13	(6)
Net interest paid[1]	(1,368)	(1,200)
Tax paid[1]	(2,814)	(2,406)
Dividends received from associates[1]	166	104
Funds from operations◊	**7,865**	**11,595**
Net working capital changes[2]	2,175	1,526
Acquisition and disposal of subsidiaries – net[2]	(117)	(2,834)
Exchangeable loan provided for the acquisition of Astron Energy	–	(1,044)
Purchase and sale of investments – net[2]	(6)	(3)
Purchase and sale of property, plant and equipment – net[2]	(4,966)	(4,899)
Net margin receipts/(calls) in respect of financing related hedging activities	529	(507)
Acquisition of non-controlling interests in subsidiaries	(24)	(58)
Distributions paid and transactions of own shares – net	(5,327)	(5,144)
Cash movement in net funding	**129**	**(1,368)**
Net funding acquired in business combinations	(225)	(138)
Impact of adoption of IFRS 16	(865)	–
Change in finance lease obligations	(582)	(90)
Foreign currency revaluation of borrowings and other non-cash items	(685)	511
Total movement in net funding	**(2,228)**	**(1,085)**
Net funding◊, beginning of the year	(32,138)	(31,053)
Net funding◊, end of year	**(34,366)**	**(32,138)**
Less: Readily marketable inventories[2]	16,810	17,428
Net debt◊, end of year	**(17,556)**	**(14,710)**

1 Refer to APMs section for definition and reconciliations.

2 Refer to Other reconciliations section.

The reconciliation in the table above is the method by which management reviews movements in net funding and net debt and comprises key movements in cash and any significant non-cash movements in net funding items.

Net funding as at 31 December 2019 increased by $2,228 million to $34,366 million and net debt (net funding less readily marketable inventories) increased by $2,846 million over the period to $17,556 million. A major contributor to the increase in both metrics was the adoption of the new lease accounting standard, effective 1 January 2019, which resulted in $865 million (non-cash) of new lease liabilities being recognised (see note 1), while $582 million of additional new leases (non-cash) were booked as capital expenditures and debt in 2019, that previously would have been classified as operating leases. Funds from operations were down 32% compared to 2018, owing in large part to the reduction in commodity prices (particularly coal and cobalt) and cashflow underperformance from the African copper portfolio as noted above. Funds from operations was also materially impacted by the lag of income taxes paid in 2019, in respect of 2018 profitability (note the reduction in balance sheet income tax payable of $755 million, mainly attributable to the Australian operations and Mutanda), as well as $238 million of taxes paid in 2019, expected to be offset against future taxes due or refunded. Despite such impacts, funds from operations along with a net release of working capital, more than covered the $4,966 million of net capital expenditure, $147 million of net acquisitions of subsidiaries and investments and $5,327 million of distributions to shareholders and non-controlling interests.

Business and investment acquisitions and disposals

Net outflows on acquisitions / investments were $147 million (2018: $2,895 million) over the year, comprising primarily minority buy-outs within existing operations (additional 10% in Ulan and 2.7% in Hail Creek). The net outflow in 2018 was primarily due to the acquisition of a 49% interest in the HVO coal mine, an operation neighbouring many of our existing New South Wales operations, and an 82% interest in the Hail Creek coking coal mine in Queensland. In October 2018, Glencore advanced $1,044 million to acquire the Astron Energy business in South Africa.

Liquidity and funding activities

In 2019, the following significant financing activities took place:

- In March 2019 (effective May 2019), Glencore signed new one-year revolving credit facilities of $9,775 million, refinancing the $9,085 million one-year revolving facilities signed in March 2018. Funds drawn under the facilities bear interest at US$LIBOR plus a margin of 40 basis points. Glencore also voluntarily reduced the medium term facility size from $5,115 million to $4,650 million, extended the facility to five-years, and replaced the two one-year extension options.

As at 31 December 2019, the facilities comprise:

- a $9,775 million one year revolving credit facility with a 12 month borrower's term-out option (to May 2021) and a one-year extension option; and
- a $4,650 million medium-term revolving credit facility (to May 2024), with two one-year extension options.

- In March 2019, issued a 5 year $1,000 million, 4.125% coupon bond
- In March 2019, issued a 10 year $750 million, 4.875% coupon bond
- In March 2019, issued a 7 year GBP 500 million 3.125% coupon bond
- In April 2019, issued a 7 year EUR 500 million 1.50% coupon bond
- In September 2019, issued a 6 year CHF 250 million 0.35% coupon bond
- In September 2019, issued a 5 year EUR 600 million 0.625% coupon bond

As at 31 December 2019, Glencore had available committed undrawn credit facilities and cash amounting to $10.1 billion.

Credit ratings

In light of the Group's extensive funding activities, maintaining investment grade credit rating status is a financial priority. The Group's credit ratings are currently Baa1 (stable outlook) from Moody's and BBB+ (stable) from Standard & Poor's. Glencore's publicly stated objective, as part of its overall financial policy package, is to seek and maintain strong Baa/BBB credit ratings from Moody's and Standard & Poor's respectively. In support thereof, Glencore targets a maximum 2x Net debt/Adjusted EBITDA ratio through the cycle, augmented by an upper Net debt cap of c.$16 billion, excluding Marketing related finance lease liabilities ($0.6 billion as at 31 December 2019, representing primarily charted vessels and various storage facilities, where the majority of such commitments expire within 2 years). As noted earlier in 2019, in the current uncertain economic cycle backdrop, Glencore aims to limit the Net debt/Adjusted EBITDA ratio to closer to 1x, which will require some targeted management over the next 12 months.

Value at risk

One of the tools used by Glencore to monitor and limit its primary market risk exposure, namely commodity price risk related to its physical marketing activities, is the use of a value at risk (VaR) computation. VaR is a risk measurement technique, which estimates the potential loss that could occur on risk positions as a result of movements in risk factors over a specified time horizon, given a specific level of confidence. The VaR methodology is a statistically defined, probability based approach that takes into account market volatilities, as well as risk diversification by recognising offsetting positions and correlations between commodities and markets. In this way, risks can be measured consistently across all markets and commodities and risk measures can be aggregated to derive a single risk value. Glencore has set a consolidated VaR limit (1 day 95%) of $100 million representing some 0.2% of equity, which was not exceeded during the period. Glencore uses a one-day VaR approach based on a Monte Carlo simulation with a weighted data history computed at a 95% confidence level.

Average market risk VaR (1 day 95%) during 2019 was $27 million, representing less than 0.1% of equity. Average equivalent VaR during 2018 was $34 million.

Recommended distribution

The Directors have recommended a 2019 financial year cash distribution of $0.20 per share amounting to $2.6 billion, accounting for own shares held as at 31 December 2019. Payment will be effected as a $0.10 per share distribution in May 2020 and a $0.10 per share distribution in September 2020 (in accordance with the Company's announcement of the 2020 Distribution timetable also made on 18 February 2020).

The distribution is to be effected as a reduction of the capital contribution reserves of the Company. As such, this distribution would be exempt from Swiss withholding tax. As at 31 December 2019, Glencore plc had CHF 27 billion of such capital contribution reserves in its statutory accounts. The distribution is subject to shareholders' approval at its AGM on 6 May 2020.

The distribution is ordinarily paid in US dollars. Shareholders on the Jersey register may elect to receive the distribution in sterling, euros or Swiss francs, the exchange rates of which will be determined by reference to the rates applicable to the US dollar around this time. Shareholders on the Johannesburg register will receive their distribution in South African rand. Further details on distribution payments, together with currency election and distribution mandate forms, are available from the Group's website (www.glencore.com) or from the Company's Registrars.

Marketing activities

Highlights

Marketing Adjusted EBITDA increased by 6% to $2,637 million and Adjusted EBIT decreased by 2% to $2,366 million, the former benefiting from the new lease accouting standard, requiring the capitalisation of various previously reported operating lease expenses, including many of our chartering and storage commitments (see note 1). Such previously reported lease expenses are now split over time between depreciation and interest expense. Marketing Adjusted EBIT was broadly in-line with 2018, as lower contributions from Metals and minerals were offset by increased contributions in Energy products. Metals and minerals Adjusted Marketing EBIT was down 37%, primarily on account of the challenging cobalt markets in H1 and resulting inventory writedown on material sourced from Glencore mines in earlier periods, as discussed previously, and some overall softening in end-user demand due to global trade tensions, which prevailed through most of 2019. Energy products Adjusted EBIT was up 78%, owing to oil, which delivered particularly strong results on the back of supportive physical commodity marketing conditions.

US$ million	**Metals and minerals**	**Energy products**	**Corporate and other[1]**	**2019**	Metals and minerals	Energy products	Corporate and other[1]	2018 Restated[2]
Revenue◊	73,561	120,627	–	194,188	72,744	129,930	–	202,674
Adjusted EBITDA◊	1,169	1,515	(47)	2,637	1,767	795	(70)	2,492
Adjusted EBIT◊	1,089	1,324	(47)	2,366	1,742	742	(70)	2,414
Adjusted EBITDA margin	1.6%	1.3%	n.m.	1.4%	2.4%	0.6%	n.m.	1.2%

1 Corporate and other Marketing activities includes $58 million (2018: $21 million) of Glencore's equity accounted share of Glencore Agri.

2 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).

Selected marketing volumes sold

	Units	**2019**	2018	Change %
Copper metal and concentrates[1]	mt	4.1	4.5	(9)
Zinc metal and concentrates[1]	mt	3.1	3.2	(3)
Lead metal and concentrates[1]	mt	1.1	0.9	22
Gold	moz	2.1	2.0	5
Silver	moz	68.3	81.4	(16)
Nickel	kt	181	199	(9)
Ferroalloys (incl. agency)	mt	9.5	9.0	6
Alumina/aluminium	mt	11.0	10.2	8
Iron ore	mt	65.5	79.6	(18)
Thermal coal[2]	mt	86.7	94.4	(8)
Metallurgical coal[2]	mt	6.5	3.6	81
Coke[2]	mt	0.3	0.6	(50)
Crude oil	mbbl	973	944	3
Oil products	mbbl	779	760	3

1 Estimated metal unit contained.

2 Includes agency volumes.

Copper

During 2019, the copper price averaged $6,005/t, 8% lower than 2018. Throughout much of 2019, demand growth and sentiment was negatively impacted by uncertainty on trade and tariffs. Mine supply contraction, including production disruptions appeared to have had little meaningful impact on copper market sentiment. Demand in China, which accounts for approximately 50% of global refined copper consumption, improved markedly towards the end of the year on prospects of a trade agreement between China and the US and targeted monetary policy easing, resulting in world refined copper demand increasing in 2019, albeit at a lower rate than seen in recent years.

Refined copper inventories progressively reduced, reaching multiyear lows in H2, while competition for concentrates was driven by smelting capacity growth in China. China imported record volumes of concentrates which more than offset an anticipated decline in refined copper imports. As a result, spot treatment / refining charges in H1 reached the lowest level since 2013 which, supported by stricter Chinese scrap import regulations, remained at low levels through H2. Cathode premiums also improved during H2, although decreased towards year-end, given seasonal lower demand ahead of Chinese New Year.

For 2020, annual treatment / refining charges settled at their lowest levels in nearly 10 years and benchmark annual cathode premiums were rolled over at 2019 levels, signalling a positive demand outlook and anticipated restocking through the supply chain.

In the longer term, we expect copper markets to grow at solid rates, driven by population growth and rising living standards in emerging economies. In addition, climate change policies are likely to be a driver for key copper growth sectors going forward, from renewable power generation and distribution, to energy storage and electric vehicles. Longer term, mine supply growth is likely to be constrained by ageing assets, declining ore grades and a diminished project pipeline.

Marketing activities
continued

Cobalt
During 2019, the cobalt price averaged $16/lb, 57% lower than 2018. The price decline in H2 2018 continued into 2019, with continuation of destocking across the supply chain. Prices fell from $27/lb in January to a low of $12/lb in late July. The resultant pressure on margins across the cobalt mining and refining complex prompted supply responses, with a reduction seen in artisanal sourced cobalt and a number of industrial projects being delayed. Within our own operations, we announced the transition to care and maintenance of Mutanda due to various factors including the weak cobalt price. The supply response saw prices recover to $18/lb. Prices gave up some gains into year-end, with sentiment negatively impacted by weaker than anticipated Chinese electric vehicle sales. Nevertheless, the market found price support at c.$15/lb, given lower stock levels across the cobalt supply chain and expectations of improved demand conditions in 2020.

2020 marks the start of significant electric vehicle model releases by global automakers, which should underpin electric vehicle sales growth in key markets including Europe. While Chinese EV sales were lower in H2 2019, the scale of continued investment, the strategic status of the industry within China and the continued roll-out of models, points to strong future demand. Sentiment in the mobile phone market, a major cobalt demand segment, has also improved with the onset of 5G handset sales.

Zinc
The anticipation of large increases in both zinc concentrate and metal supply, plus the global macroeconomic uncertainty, weighed negatively on zinc market sentiment during 2019. Despite recording another metal deficit year in 2019, resulting in historically low visible zinc metal stocks, the zinc price averaged $2,549, 13% lower than 2018. Concentrates supply, ex China, grew YoY, but the effect was considerably lower than initially expected, increasing by only 150-200kt. Delays in project ramp-ups, operational issues and labour strikes were the primary drivers of such underperformance. In China, per the National Bureau of Statistics (NBS), mine production decreased 1% on the prior year.

Metal production in China (per NBS) did respond in H2 2019. Smelters resumed partially idled production, following additional environmental controls imposed in 2018, with such capacity filled with imported concentrates. Chinese metal production is reported to have grown by 526kt (9.2%) (to November 2019). In the rest of the world however, negative growth of 130k (-1.7% year on year) has been reported. Despite the increase in reported global metal production, visible zinc metal stocks continued to be drawn. Compared to December 2018, LME and SHFE stocks dropped by 60% and 40% respectively to 51kt and 28kt at December 2019, signalling that zinc demand was sufficient to absorb the additional units.

Looking ahead, zinc mine supply is expected to continue growing, given the current project pipeline. However, the current combination of low prices and high treatment charges is pressuring mining profitability, which may result in supply disruption in the short to medium term. We believe that metal production increases are necessary for the market to restock from the current multi-year lows.

Lead recorded an average price of $1,998 in 2019 (down by 11% vs 2018). The metal price has been under pressure throughout the year as demand growth has been soft, while metal production in China, as well as from secondary sources, has continued to grow.

Nickel
In 2019, primary nickel consumption exceeded supply for a fourth consecutive year, showing a deficit of around 25kt, with a resultant 4-year cumulative deficit of approximately 395kt. A significant deficit developed in H1 2019, which was partially reversed in H2, basis weaker demand growth and a significant increase in Nickel Pig Iron (“NPI”) production in both China and Indonesia.

Nickel demand from stainless steel manufacturing in China was strong all year, driven by increased production of high nickel content 300-series steel. Stainless production across other regions was relatively weak. Nickel usage in specialist steels and alloys was below expectations, mainly due to ongoing weakness in the automotive sector, and to a lesser extent, oil and gas. Growth of primary nickel demand in batteries remained strong, albeit slower in H2 after China substantially cut subsidies for New Energy Vehicles. Overall, we estimate primary nickel demand in 2019 of 2.45Mt, representing a 2.7% increase on 2018.

Meanwhile, Chinese and Indonesian NPI increased by 23% and 50% respectively on the prior year, driving a significant increase in overall supply, despite the continued underperformance from non-NPI suppliers. Overall, global nickel output in 2019 is estimated at 2.425Mt, marking a 10% increase on 2018.

A critical development during 2019 was Indonesia’s decision to advance the ban on nickel ore exports to the beginning of 2020 rather than 2022, as originally scheduled, which should result in a reduction of NPI production in China. Nevertheless, we forecast such decline to be offset by the continued ramp up of NPI capacity in Indonesia. Overall, we project a balanced market in 2020.

Ferroalloys
Chinese stainless steel production grew 13% during 2019, contrasting a 5% decline in ROW melt rates. Ferrochrome production in China increased 13% year-on-year, supported by a 20% increase in chrome ore exports from South Africa. On the other hand, South African smelted ferrochrome exports declined 4% during 2019, owing to the relatively high costs of smelting in South Africa (versus China) exacerbated by power shortages in H2 2019. Ferrochrome demand ex China was weak. The environment for ferrochrome producers in South Africa is expected to remain challenging, with further capacity additions expected in China.

Vanadium prices continued to decline throughout 2019 as a result of weaker demand from Western steel markets and continued substitution from niobium. In China, increased output from vanadium-bearing slag was met by stronger domestic demand from the construction sector (rebar).

Marketing activities

continued

Alumina/Aluminium

2019 saw an easing of nearly all the tensions that drove the market during 2018, including Rusal sanctions being lifted in January and the Alunorte production embargo ending in May.

The aluminium price in 2019 traded in its narrowest range since 2002, between $1,704/t and $1,952/t. This contrasts sharply with the price volatility seen in 2018, which saw the widest price range (~$700/t) since the 2008/09 Global Financial Crisis.

In the U.S., the delivered Midwest premium declined throughout the year from 19c/lb at the beginning of the year to 14.5c/lb at the end of the year, following the relaxation of tariffs on Canadian imports.

Alumina prices declined over the year, finding a floor in H2 at just below $280/t (FOB Australia), supported by Chinese buying interest. The decline in alumina prices provided some relief for aluminium smelters after a challenging alumina/aluminium price ratio prevailing during the preceding 2 years.

Iron ore

Supply disruptions, primarily the Brumadinho dam failure, affected the market throughout 2019. From around $70/t at the start of 2019, prices peaked around $120/t in July, before a sharp sell-off in August, as the market reassessed the extent of disruptions. After a volatile few months, prices settled in the high 80's. High grade premiums reduced significantly in H1 as steel margins decreased, basis the higher iron ore prices, however once prices began to fall, and with the Chinese steelmaking market in good health, high grade premiums then stabilised and improved.

Coal

In 2019, global seaborne thermal coal demand was characterised by continuation of the strong growth trend in Pacific markets and demand decline in the Atlantic, principally Europe. This trend was accelerated by surplus global LNG supply, resulting in enhanced competition from low spot gas prices in European markets. Together with higher EU CO_2 prices and increased renewables power generation, some thermal coal supply was displaced from the Atlantic market into the Pacific and sub-continent.

Global 2019 seaborne thermal coal demand is estimated to have grown some 1.5% versus 2018, with strong Pacific demand growth of 5.9% or 47Mt, more than offsetting an 18% or 30Mt demand decline in the smaller Atlantic market. Seaborne thermal coal supply growth came principally from Indonesia and Russia, with Australia being almost flat YoY. Supply declined from Colombia and the US, where prices fell below costs and from South Africa where strong domestic demand reduced export availability.

In 2019, Vietnamese imported thermal coal volumes increased 95% or 15Mt YoY, India was up 5.3% or 9Mt, while China was up 13% or 24Mt. The Asia Pacific (excl. China) market is expected to see 29GW of coal fired generation capacity enter service through 2020/2021, which will continue to support coal demand growth across the region.

The various coal indices/qualities responded in distinct ways to changing market dynamics over 2019. High European CO_2 prices and low LNG prices resulted in the API2 coal price index declining 34% from the January 2019 high to December. While prices for high quality South African thermal coal declined substantially through to mid-year, Indian demand strength in Q4 saw API4 prices recover strongly to end 2019 only 8% below January levels. The Newcastle globalCoal index ended the year 33% below January levels, while prices for Australian high ash coals declined 16% over the course of 2019.

Global pig iron production was up 2.4% YoY, with China and India up 5.3% and 3.6% respectively. Metallurgical coal import countries, excluding China, reported a 2.1% reduction in pig iron production with declines in Europe (-4.3%), South America (-8.0%) and Japan (-4.8%) being most significant. Reflecting such, global seaborne coking coal demand is estimated to have declined just over 1% in 2019. The weaker coal demand saw spot HCC prices fall during H2 2019, to end 32% below January's price levels.

Oil

Most commodity and capital markets, including oil, responded through 2019 to the US-China trade tensions and the perceived impact it may have on global growth expectations and oil demand. Initial optimism on the trade front, coupled with signs of tightening supply, saw oil prices stage a strong recovery at the start of 2019 from $50/bbl for Brent in late December 2018 to almost $75/bbl by April. However, markets subsequently sold off as trade tensions intensified, with Brent dropping below $60/bbl. It was only towards the end 2019, where renewed optimism on trade issues and OPEC+ signalling deeper production cuts, that oil prices rose to close the year above $65/bbl.

During the year, geopolitical tensions in the Middle East escalated with sporadic attacks on vessels and infrastructure, causing oil price and volatility spikes, none more so, than the drone strikes on Saudi Arabia's oil producing facilities in September, which interrupted equivalent to 5% of the world's oil production. Brent surged almost 20% and implied volatility jumped to over 45%, however swift action to restore production in the following weeks, calmed markets and oil sold off again.

The oil curve structure flipped from contango into backwardation at the start of 2019, signalling tightening markets. Refining margins recovered from the lows registered in late 2018. With the advent of the IMO 2020 international fuel standard for shipping, it was a year with significant changes in refinery configurations, resulting in large divergences of realised margins for those refineries able to upgrade or adapt to produce lower sulphur fuels. Towards the end the year, refining margins weakened across most regions, owing to various factors, including milder weather, lower demand and a surge in freight rates.

The rally in freight rates in H2 was driven by multiple forces. One important factor was US sanctions being imposed on two subsidiaries of China's state-owned Cosco Shipping in September, placing nearly 300 oil carriers off-limits for traders. Although rates stabilised somewhat since then, it remains a relatively tight tanker freight market.

Industrial activities

Highlights

Industrial Adjusted EBITDA decreased by 32% to $8,964 million compared to $13,275 million in 2018. The decrease was primarily driven by lower commodity prices, notably various coal markets, primarily impacted by weaker European demand / low gas price competition and ferrochrome and cobalt, where these markets were in oversupply throughout much of the year. Further to these negative price factors, Adjusted EBITDA/EBIT was impacted by the operational challenges in our African copper portfolio, which recorded an Adjusted EBITDA of negative $349 million, a significant drop from the $1,323 million contribution in 2018 (57% cobalt price reduction was the key driver, however material negative volume and cost variances also prevailed). Mutanda's copper production was 49% lower than 2018, as it scalled down operations, Katanga, although reporting higher cobalt production, had limited sales as it manages through a period of excess uranium content and delays in required drying capacity commissioning, while Mopani's copper metal production was 64% lower as, in June, it accelerated its major triennial smelter shut down (from 2020 schedule) and brought forward various other planned maintenance activities to address safety related issues. Adjusted EBITDA from Coal assets was $1,535 million lower than 2018, as lower coal prices (Benchmarks GC Newc down 26%, API4 down 28% and API2 down 38%) compared to 2018, outweighed the increased production contribution from the interests in the HVO and Hail Creek, acquired in late H1 2018 and H2 2018, respectively.

Reflecting the above challenges, Adjusted EBITDA mining margins were 28% in our metals operations (37% excluding African Copper and Koniambo) and 37% in our energy operations, down from 38% (41% excluding African Copper and Koniambo) and 46% respectively, in 2018. See page 17.

Reported capex at $5.3 billion was up 5% over the comparable period reflecting the impact of the new leasing standard ($295 million) and incremental capex from the HVO, Hail Creek and Astron acquisitions ($213 million). Two key ongoing projects advanced through the year (Kazzinc's Zhairem and INO Nickel), offsetting the reported decline at Koniambo, as it ceased capitalising its development costs at the end of 2018.

US$ million	**Metals and minerals**	**Energy products**	**Corporate and other**	**2019**	Metals and minerals	Energy products	Corporate and other	2018
Revenue◊	27,672	15,067	4	42,743	31,385	12,660	24	44,069
Adjusted EBITDA◊	5,555	3,854	(445)	8,964	8,478	5,312	(515)	13,275
Adjusted EBIT◊	1,016	1,274	(505)	1,785	4,053	3,209	(533)	6,729
Adjusted EBITDA mining margin	28%	37%			38%	46%		

Production from own sources – Total[1]

		2019	2018	Change %
Copper - excl. African Copper	*kt*	*1,001.3*	*1,043.0*	*(4)*
Copper - African Copper, in development/optimisation phases	*kt*	*369.9*	*410.7*	*(10)*
Copper	kt	1,371.2	1,453.7	(6)
Cobalt	kt	46.3	42.2	10
Zinc	kt	1,077.5	1,068.1	1
Lead	kt	280.0	273.3	2
Nickel	kt	120.6	123.8	(3)
Gold	koz	848	1,003	(15)
Silver	koz	32,018	34,880	(8)
Ferrochrome	kt	1,438	1,580	(9)
Coal - coking	*mt*	*9.2*	*7.5*	*23*
Coal - semi-soft	*mt*	*6.4*	*3.9*	*64*
Coal - thermal	*mt*	*123.9*	*118.0*	*5*
Coal	mt	139.5	129.4	8
Oil (entitlement interest basis)	kbbl	5,518	4,626	19

1 Estimated metal unit contained.

Financial information

US$ million	2019	2018	Change %
Revenue◊			
Copper assets			
Collahuasi[1]	1,385	1,426	(3)
Antamina[1]	1,025	1,179	(13)
Other South America (Antapaccay, Lomas Bayas)	1,709	2,113	(19)
Australia (Mount Isa, Ernest Henry, Townsville, Cobar)	1,836	1,941	(5)
Custom metallurgical (Altonorte, Pasar, Horne, CCR)	7,107	7,190	(1)
African Copper (Katanga, Mutanda, Mopani)	2,829	4,493	(37)
Intergroup revenue elimination	(212)	(142)	n.m.
Copper	**15,679**	**18,200**	**(14)**
Zinc assets			
Kazzinc	2,906	3,163	(8)
Australia (Mount Isa, McArthur River)	1,292	1,481	(13)
European custom metallurgical (Portovesme, San Juan de Nieva, Nordenham, Northfleet)	922	1,189	(22)
North America (Matagami, Kidd, CEZ Refinery)	2,226	2,474	(10)
Other Zinc (Argentina, Bolivia, Peru)	400	468	(15)
Zinc	**7,746**	**8,775**	**(12)**
Nickel assets			
Integrated Nickel Operations (Sudbury, Raglan, Nikkelverk)	1,551	1,462	6
Australia (Murrin Murrin)	664	748	(11)
Koniambo	315	–	n.m.
Nickel	**2,530**	**2,210**	**14**
Ferroalloys	**1,716**	**2,197**	**(22)**
Aluminium/Alumina	**1**	**3**	**(67)**
Metals and minerals revenue	**27,672**	**31,385**	**(12)**
Coking Australia	1,544	1,286	20
Thermal Australia	5,951	6,309	(6)
Thermal South Africa	1,279	1,629	(21)
Prodeco	793	1,112	(29)
Cerrejón[1]	494	838	(41)
Coal revenue (own production)	**10,061**	**11,174**	**(10)**
Coal other revenue (buy-in coal)	**768**	**1,160**	**(34)**
Oil E&P assets	350	326	7
Oil refining assets	3,888	–	n.m.
Energy products revenue◊	**15,067**	**12,660**	**19**
Corporate and other revenue	**4**	**24**	**(83)**
Total Industrial Activities revenue◊	**42,743**	**44,069**	**(3)**

1 Represents the Group's share of these JVs.

US$ million	Adjusted EBITDA◊ 2019	Adjusted EBITDA◊ 2018	Adjusted EBITDA◊ Change %	Adjusted EBIT◊ 2019	Adjusted EBIT◊ 2018	Adjusted EBIT◊ Change %
Copper assets						
Collahuasi[1]	885	902	(2)	603	633	(5)
Antamina[1]	737	923	(20)	462	656	(30)
Other South America	859	936	(8)	264	234	13
Australia	449	424	6	121	92	32
Polymet	(7)	(5)	n.m.	(7)	(5)	n.m.
Custom metallurgical	377	227	66	227	46	393
Copper, excluding African Assets	4,159	4,343	(4)	1,934	1,890	2
Adjusted EBITDA mining margin[2]◊	*49%*	*48%*				
African Copper	(349)	1,323	n.m.	(1,279)	296	n.m.
Copper	**2,951**	**4,730**	**(38)**	**391**	**1,952**	**(80)**
Adjusted EBITDA mining margin[2]◊	*29%*	*40%*				
Zinc assets						
Kazzinc	1,097	1,160	(5)	641	747	(14)
Australia	406	667	(39)	6	387	(98)
European custom metallurgical	166	196	(15)	50	91	(45)
North America	155	249	(38)	(59)	138	n.m.
Volcan	(44)	(36)	n.m.	(44)	(36)	n.m.
Other Zinc	(5)	81	n.m.	(109)	(42)	n.m.
Zinc	**1,775**	**2,317**	**(23)**	**485**	**1,285**	**(62)**
Adjusted EBITDA mining margin[2]◊	*33%*	*37%*				
Nickel assets						
Integrated Nickel Operations	657	592	11	235	158	49
Australia	105	206	(49)	81	157	(48)
Koniambo	(136)	–	n.m	(249)	–	n.m
Nickel	**626**	**798**	**(22)**	**67**	**315**	**(79)**
Adjusted EBITDA mining margin◊	*25%*	*36%*				
Adjusted EBITDA mining margin excl. Koniambo◊	*34%*	*36%*				
Ferroalloys	**246**	**670**	**(63)**	**116**	**542**	**(79)**
Aluminium/Alumina	**(40)**	**(38)**	**n.m.**	**(40)**	**(42)**	**n.m.**
Iron ore	**(3)**	**1**	**n.m.**	**(3)**	**1**	**n.m.**
Metals and minerals Adjusted EBITDA/EBIT◊	**5,555**	**8,478**	**(34)**	**1,016**	**4,053**	**(75)**
Adjusted EBITDA mining margin[2]◊	*28%*	*38%*				
Adjusted EBITDA mining margin excl. African Copper and Koniambo[2]◊	*37%*	*41%*				
Coking Australia	793	673	18	546	529	3
Thermal Australia	2,332	3,206	(27)	1,018	2,043	(50)
Thermal South Africa	324	685	(53)	23	389	(94)
Prodeco	43	208	(79)	(180)	32	n.m.
Cerrejón[1]	132	387	(66)	(56)	197	n.m.
Coal	**3,624**	**5,159**	**(30)**	**1,351**	**3,190**	**(58)**
Adjusted EBITDA margin[3]◊	*36%*	*46%*				
Oil E&P assets	215	153	41	–	19	(100)
Oil refining assets	15	–	n.m.	(77)	–	n.m.
Energy products Adjusted EBITDA/EBIT◊	**3,854**	**5,312**	**(27)**	**1,274**	**3,209**	**(60)**
Adjusted EBITDA margin[3]◊	*37%*	*46%*				
Corporate and other	**(445)**	**(515)**	**n.m.**	**(505)**	**(533)**	**n.m.**
Industrial activities Adjusted EBITDA/EBIT◊	**8,964**	**13,275**	**(32)**	**1,785**	**6,729**	**(73)**

1 Represents the Group's share of these JVs.

2 Adjusted EBITDA mining margin for Metals and Minerals is Adjusted EBITDA excluding non-mining assets as described below ($4,941 million (2018: $7,880 million)) divided by Revenue excluding non-mining assets and intergroup revenue elimination ($ 17,628 million (2018: $20,671 million) i.e. the weighted average EBITDA margin of the mining assets. Non-mining assets are the Copper custom metallurgical assets, Zinc European custom metallurgical assets, Zinc North America (principally smelting/ processing), the Aluminium/Alumina group and Volcan (equity accounted with no relevant revenue) as noted in the table above.

3 Energy products EBITDA margin is Adjusted EBITDA for coal and Oil E&P (but excluding Oil refining) ($3,839 million (2018: $5,312 million)), divided by the sum of coal revenue from own production and Oil E&P revenue ($10,411 million (2018: $11,500 million)).

Industrial activities
continued

US$ million	2019 Sustaining	2019 Expansion	2019 Total	2018 Sustaining	2018 Expansion	2018 Total
Capital expenditure◊						
Copper assets						
Collahuasi[1]	298	25	323	263	25	288
Antamina[1]	228	5	233	201	7	208
Other South America	403	21	424	397	31	428
Australia	203	–	203	233	7	240
Polymet	–	9	9	–	–	–
Custom metallurgical	234	–	234	204	–	204
African copper	381	477	858	510	422	932
Copper	**1,747**	**537**	**2,284**	**1,808**	**492**	**2,300**
Zinc assets						
Kazzinc	209	236	445	165	171	336
Australia	293	–	293	279	–	279
European custom metallurgical	106	–	106	114	–	114
North America	68	6	74	100	11	111
Other Zinc	104	–	104	116	–	116
Zinc	**780**	**242**	**1,022**	**774**	**182**	**956**
Nickel assets						
Integrated Nickel Operations	164	289	453	160	182	342
Australia	16	–	16	22	1	23
Koniambo	39	–	39	–	215	215
Nickel	**219**	**289**	**508**	**182**	**398**	**580**
Ferroalloys	**141**	**8**	**149**	**159**	**1**	**160**
Aluminium/Alumina	**–**	**–**	**–**	**–**	**–**	**–**
Metals and minerals capital expenditure◊	**2,887**	**1,076**	**3,963**	**2,923**	**1,073**	**3,996**
Australia (thermal and coking)	358	121	479	240	103	343
Thermal South Africa	200	29	229	176	31	207
Prodeco	229	–	229	254	1	255
Cerrejón[1]	53	–	53	81	–	81
Total Coal	**840**	**150**	**990**	**751**	**135**	**886**
Oil E&P assets	201	–	201	157	–	157
Oil refining assets	121	–	121	–	–	–
Energy products capital expenditure◊	**1,162**	**150**	**1,312**	**908**	**135**	**1,043**
Corporate and other	**–**	**74**	**74**	**–**	**38**	**38**
Industrial activities capital expenditure◊	**4,049**	**1,300**	**5,349**	**3,831**	**1,246**	**5,077**

1 Represents the Group's share of these JVs.

Industrial activities
continued

Production data

Production from own sources – Copper assets[1]

		2019	2018	Change %
Collahuasi[2]				
Copper in concentrates	kt	248.8	246.0	1
Silver in concentrates	koz	2,878	3,244	(11)
Antamina[3]				
Copper in concentrates	kt	151.4	150.6	1
Zinc in concentrates	kt	102.4	138.1	(26)
Silver in concentrates	koz	5,051	5,550	(9)
Other South America (Antapaccay, Lomas Bayas)				
Copper metal	kt	78.9	72.8	8
Copper in concentrates	kt	197.6	225.9	(13)
Gold in concentrates and in doré	koz	85	256	(67)
Silver in concentrates and in doré	koz	1,576	1,722	(8)
Australia (Mount Isa, Ernest Henry, Townsville, Cobar)				
Copper metal	kt	151.1	151.5	-
Copper in concentrates	kt	43.5	58.9	(26)
Gold	koz	100	74	35
Silver	koz	1,615	1,399	15
Copper - excl. African Copper				
Copper	kt	**871.3**	**905.7**	**(4)**
Zinc	kt	**102.4**	**138.1**	**(26)**
Gold	koz	**185**	**330**	**(44)**
Silver	koz	**11,120**	**11,915**	**(7)**
African Copper (Katanga, Mutanda, Mopani)				
Copper metal	kt	359.3	410.7	(13)
Copper in concentrates	kt	10.6	–	n.m.
Cobalt[4]	kt	42.2	38.4	10
Total Copper department				
Copper	**kt**	**1,241.2**	**1,316.4**	**(6)**
Cobalt	**kt**	**42.2**	**38.4**	**10**
Zinc	**kt**	**102.4**	**138.1**	**(26)**
Gold	**koz**	**185**	**330**	**(44)**
Silver	**koz**	**11,120**	**11,915**	**(7)**

Industrial activities

continued

Production from own sources – Zinc assets[1]

		2019	2018	Change %
Kazzinc				
Zinc metal	kt	172.5	201.2	(14)
Lead metal	kt	31.6	46.9	(33)
Lead in concentrates	kt	2.8	8.7	(68)
Copper metal[5]	kt	44.0	52.4	(16)
Gold	koz	634	643	(1)
Silver	koz	4,546	6,210	(27)
Silver in concentrates	koz	92	303	(70)
Australia (Mount Isa, McArthur River)				
Zinc in concentrates	kt	597.6	532.5	12
Lead in concentrates	kt	213.3	175.8	21
Silver in concentrates	koz	7,193	6,362	13
North America (Matagami, Kidd)				
Zinc in concentrates	kt	111.4	101.1	10
Copper in concentrates	kt	39.1	39.0	–
Silver in concentrates	koz	1,654	1,893	(13)
Other Zinc: South America (Argentina, Bolivia, Peru) [6]				
Zinc in concentrates	kt	93.6	95.2	(2)
Lead metal	kt	–	13.9	(100)
Lead in concentrates	kt	32.3	28.0	15
Copper in concentrates	kt	2.7	4.5	(40)
Silver metal	koz	–	744	(100)
Silver in concentrates	koz	6,906	6,989	(1)
Total Zinc department				
Zinc	**kt**	**975.1**	**930.0**	**5**
Lead	**kt**	**280.0**	**273.3**	**2**
Copper	**kt**	**85.8**	**95.9**	**(11)**
Gold	**koz**	**634**	**643**	**(1)**
Silver	**koz**	**20,391**	**22,501**	**(9)**

Industrial activities

continued

Production from own sources – Nickel assets[1]

		2019	2018	Change %
Integrated Nickel Operations (INO) (Sudbury, Raglan, Nikkelverk)				
Nickel metal	kt	59.8	59.5	1
Nickel in concentrates	kt	0.5	0.5	–
Copper metal	kt	15.8	14.4	10
Copper in concentrates	kt	28.4	27.0	5
Cobalt metal	kt	0.7	0.9	(22)
Gold	koz	29	29	–
Silver	koz	507	464	9
Platinum	koz	51	58	(12)
Palladium	koz	112	119	(6)
Rhodium	koz	4	4	–
Murrin Murrin				
Nickel metal	kt	36.6	35.5	3
Cobalt metal	kt	3.4	2.9	17
Koniambo				
Nickel in ferronickel	kt	23.7	28.3	(16)
Total Nickel department				
Nickel	**kt**	**120.6**	**123.8**	**(3)**
Copper	**kt**	**44.2**	**41.4**	**7**
Cobalt	**kt**	**4.1**	**3.8**	**8**
Gold	**koz**	**29**	**29**	**–**
Silver	**koz**	**507**	**464**	**9**
Platinum	**koz**	**51**	**58**	**(12)**
Palladium	**koz**	**112**	**119**	**(6)**
Rhodium	**koz**	**4**	**4**	**–**

Production from own sources – Ferroalloys assets[1]

		2019	2018	Change %
Ferrochrome[7]	kt	1,438	1,580	(9)
Vanadium Pentoxide	mlb	20.2	20.2	–

Total production – Custom metallurgical assets[1]

		2019	2018	Change %
Copper (Altonorte, Pasar, Horne, CCR)				
Copper metal	kt	432.9	438.8	(1)
Copper anode	kt	510.7	479.3	7
Zinc (Portovesme, San Juan de Nieva, Nordenham, Northfleet)				
Zinc metal	kt	805.7	799.6	1
Lead metal	kt	190.5	186.3	2

Coal assets[1]

		2019	2018	Change %
Australian coking coal	mt	9.2	7.5	23
Australian semi-soft coal	mt	6.4	3.9	64
Australian thermal coal (export)	mt	64.2	59.4	8
Australian thermal coal (domestic)	mt	8.6	9.4	(9)
South African thermal coal (export)	mt	13.0	17.3	(25)
South African thermal coal (domestic)	mt	13.9	10.0	39
Prodeco	mt	15.6	11.7	33
Cerrejón[8]	mt	8.6	10.2	(16)
Total Coal department	**mt**	**139.5**	**129.4**	**8**

Oil assets

		2019	2018	Change %
Glencore entitlement interest basis				
Equatorial Guinea	kbbl	1,895	1,827	4
Chad	kbbl	3,371	2,799	20
Cameroon	kbbl	252	–	n.m.
Total Oil department	**kbbl**	**5,518**	**4,626**	**19**
Gross basis				
Equatorial Guinea	kbbl	9,236	8,818	5
Chad	kbbl	4,608	3,827	20
Cameroon	kbbl	730	–	n.m.
Total Oil department	**kbbl**	**14,574**	**12,645**	**15**

1 Controlled industrial assets and joint ventures only. Production is on a 100% basis, except for joint ventures, where the Group's attributable share of production is included.
2 The Group's pro-rata share of Collahuasi production (44%).
3 The Group's pro-rata share of Antamina production (33.75%).
4 Cobalt contained in concentrates and hydroxides.
5 Copper metal includes copper contained in copper concentrates and blister.
6 South American production excludes Volcan Compania Minera.
7 The Group's attributable 79.5% share of the Glencore-Merafe Chrome Venture.
8 The Group's pro-rata share of Cerrejón production (33.3%).

Operating highlights

Copper assets

Own sourced copper production of 1,371,200 tonnes was 82,500 tonnes (6%) lower than in 2018. Approximately half of this (40,800 tonnes) related to the African Copper assets, with Katanga's ramp-up (+82,100 tonnes) partially offsetting Mutanda' scaling down and placement into temporary care and maintenance and Mopani's extensive smelter refurbishment shutdown. The remainder primarily comprised relatively minor portfolio changes and maintenance.

Own sourced cobalt production of 46,300 tonnes was 4,100 tonnes (10%) higher than the comparable prior period, primarily reflecting Katanga's ramp-up.

Collahuasi

Attributable copper production of 248,800 tonnes was in line with 2018.

Antamina

Attributable copper production of 151,400 tonnes was in line with 2018. Attributable zinc production of 102,400 tonnes was 35,700 tonnes (26%) lower than in 2018, reflecting the expected progression of the mine plan.

Other South America

The 2018 base included 20,500 tonnes of copper and 124,000 ounces of gold relating to Alumbrera (open pit mining completed in Q3 2018) and Punitaqui (sold Q4 2018). After adjusting for such, 2019 copper production of 276,500 tonnes was in line with 2018 and gold production of 85,000 ounces was down 47,000 ounces (36%) due to expected lower grades at Antapaccay.

Australia

Own sourced copper production of 194,600 tonnes was 15,800 tonnes (8%) lower than in 2018, mainly relating to weather-related disruptions in Q1, the impact of which has been progressively caught up over the following quarters.

Custom metallurgical assets

Copper metal production of 432,900 tonnes was in line with 2018. Copper anode production of 510,700 tonnes was 31,400 tonnes (7%) higher than in 2018, mainly reflecting Altonorte's plant turnaround in the base period.

African Copper – in development/optimisation phases

Own sourced copper production of 369,900 tonnes was 40,800 tonnes (10%) lower than in 2018., reflecting Mutanda scaling down before entering temporary care and maintenance (from November) and Mopani's comprehensive smelter refurbishment during H2, partially offset by Katanga's continued ramp-up to 235,000 tonnes (from 152,400 tonnes).

Reflecting Mopani's lengthy smelter maintenance shutdown in H2 2019, African copper production includes 10,600 tonnes of copper contained in concentrate that will either be sold or processed into cathode once the smelter restarts.

Own sourced cobalt production of 42,200 tonnes was 3,800 tonnes (10%) higher than in 2018, reflecting Katanga's ramp-up, partly offset by Mutanda scaling down as it entered care and maintenance in Q4 2019.

Zinc assets

Own sourced zinc production of 1,077,500 tonnes was in line with 2018, reflecting the effects of stronger production (mine restarts) in Australia and Peru, largely offset by reduced own sourced production at Kazzinc for safety reasons and expected lower zinc production from Antamina due to mine scheduling.

Industrial activities
continued

Kazzinc
Own sourced zinc production of 172,500 tonnes was 28,700 tonnes (14%) lower than in 2018, mainly reflecting slower than expected mining at Tishinsky mine, due to safety considerations. A mechanical failure at the Ridder concentrator in Q4 resulted in ore being stockpiled in front of the concentrator, in advance of its processing in 2020.

Own sourced lead production of 34,400 tonnes was 21,200 tonnes (38%) lower than in 2018, reflecting completion of one of the older Zhairem pits. Workers and equipment have moved to the new Zhairem zinc mine currently being developed.

Own sourced copper production of 44,000 tonnes was 8,400 tonnes (16%) lower than in 2018, mainly due to rebricking of the Isa furnace in H1 2019.

Own sourced gold production of 634,000 ounces was in line with 2018.

Australia
Zinc production of 597,600 tonnes was 65,100 tonnes (12%) higher than in 2018, reflecting the full year contribution from Lady Loretta, following its 2018 restart, and stronger processing operations at McArthur River.

Lead production of 213,300 tonnes was 37,500 tonnes (21%) higher than in 2018, mainly relating to Lady Loretta.

North America
Zinc production of 111,400 tonnes was 10,300 tonnes (10%) higher than in 2018, mainly reflecting stronger production at Matagami as it accesses the higher-grade, deeper section of the deposit.

Copper production of 39,100 tonnes was in line with 2018.

South America
Own sourced zinc production of 93,600 tonnes was in line with 2018, reflecting the recent restart of the Iscaycruz mine in Peru, offset by challenging mining conditions at Aguilar in Argentina.

Own sourced lead production of 32,300 tonnes was 9,600 tonnes (23%) lower than in 2018, mainly relating to Aguilar.

European custom metallurgical assets
Zinc metal production of 805,700 tonnes and lead metal production of 190,500 tonnes were in line with 2018.

Nickel assets
Own sourced nickel production of 120,600 tonnes was 3,200 tonnes (3%) lower than in 2018, mainly reflecting a number of maintenance stoppages at Koniambo.

Integrated Nickel Operations (INO)
Own sourced nickel production of 60,300 tonnes was in line with 2018. Own sourced copper production of 44,200 tonnes was 2,800 tonnes (7%) higher, however copper production is expected to reduce over the medium term as the existing Sudbury mines deplete, pending transition to the new Sudbury projects, currently under construction.

Murrin Murrin
Murrin's own sourced nickel production of 36,600 tonnes was 1,100 tonnes (3%) higher than in 2018. Own sourced cobalt production of 3,400 tonnes was 500 tonnes (17%) higher, reflecting strong plant performance and higher year over year grades.

Koniambo
Nickel production of 23,700 tonnes was 4,600 tonnes (16%) lower than in 2018, mainly reflecting a number of maintenance stoppages. These were primarily in H1 (production of 10,200 tonnes) with H2 up 32% half on half at 13,500 tonnes.

Ferroalloys assets
Attributable ferrochrome production of 1,438,000 tonnes was 142,000 tonnes (9%) lower than in 2018, mainly reflecting additional maintenance days taken opportunistically in Q3 2019 during a period of high input costs and low selling prices.

Vanadium pentoxide production of 20.2 million pounds was in line with 2018.

Coal assets
Coal production of 139.5 million tonnes was 10.1 million tonnes (8%) higher than in 2018, mainly reflecting the full-year effects of the acquisitions of HVO (acquired in May 2018) and Hail Creek (August 2018). Prodeco's year over year contribution reflected a period of additional mine development in the base period, while Cerrejon's 2019 production was constrained by dust emissions control requirements.

Australian coking
Production of 9.2 million tonnes was 1.7 million tonnes (23%) higher than in 2018, mainly reflecting the full-year contribution of Hail Creek.

Australian thermal and semi-soft
Production of 79.2 million tonnes was 6.5 million tonnes (9%) higher than in 2018, reflecting the full-year contributions from HVO and Hail Creek.

South African thermal
Production of 26.9 million tonnes was broadly in line with 2018.

Industrial activities
continued

Prodeco
Production of 15.6 million tonnes was 3.9 million tonnes (33%) higher than in 2018, reflecting additional mine development activities carried out in the base period.

Cerrejón
Attributable production of 8.6 million tonnes was 1.6 million tonnes (16%) lower than in 2018, primarily reflecting constraints on production to limit dust emissions.

Oil assets

Exploration and production
Entitlement interest production of 5.5 million barrels was 0.9 million barrels (19%) higher than in 2018, reflecting the benefits of the drilling campaign in Chad and first oil from the Bolongo field in Cameroon.

Consolidated statement of income

For the year ended 31 December 2019

US$ million	Notes	**2019**	2018 Restated[1]
Revenue	3	215,111	220,524
Cost of goods sold		(210,434)	(211,468)
Selling and administrative expenses		(1,391)	(1,381)
Share of income from associates and joint ventures	10	114	1,043
Net loss on disposals of non-current assets	4	(43)	(139)
Other expense – net	5	(173)	(764)
Impairments of non-current assets	6	(2,322)	(1,452)
Impairments of non-current financial assets	6	(86)	(191)
Dividend income	10	49	21
Interest income		227	228
Interest expense		(1,940)	(1,742)
(Loss)/income before income taxes		**(888)**	**4,679**
Income tax expense	7	(618)	(2,063)
(Loss)/income for the year		**(1,506)**	**2,616**
Attributable to:			
Non-controlling interests		(1,102)	(792)
Equity holders of the Parent		(404)	3,408
(Loss)/earnings per share:			
Basic (US$)	17	(0.03)	0.24
Diluted (US$)	17	(0.03)	0.24

1 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).

The accompanying notes are an integral part of the consolidated financial statements.

Consolidated statement of comprehensive income

For the year ended 31 December 2019

US$ million	Notes	**2019**	2018
(Loss)/income for the year		(1,506)	2,616
Other comprehensive income			
Items not to be reclassified to the statement of income in subsequent periods:			
Defined benefit plan actuarial losses, net of tax of $19 million (2018: $10 million)	23	(80)	(35)
Gain/(loss) on equity investments accounted for at fair value through other comprehensive income, net of tax of $11 million (2018: $2 million)	10	337	(848)
Gain due to changes in credit risk on financial liabilities accounted for at fair value through profit and loss		(1)	–
Net items not to be reclassified to the statement of income in subsequent periods		**256**	**(883)**
Items that have been or may be reclassified to the statement of income in subsequent periods:			
Exchange gain/(loss) on translation of foreign operations		117	(711)
Losses on cash flow hedges, net of tax of $4 million (2018: $1 million)	16	(51)	(18)
Share of other comprehensive loss from associates and joint ventures	10	(37)	(124)
Items recycled to the statement of income	25	–	218
Net items that have been or may be reclassified to the statement of income in subsequent periods		**29**	**(635)**
Other comprehensive income/(loss)		**285**	**(1,518)**
Total comprehensive (loss)/income		**(1,221)**	**1,098**
Attributable to:			
Non-controlling interests		(1,103)	(841)
Equity holders of the Parent		(118)	1,939

The accompanying notes are an integral part of the consolidated financial statements.

Consolidated statement of financial position

As at 31 December 2019

US$ million	Notes	2019	2018
Assets			
Non-current assets			
Property, plant and equipment	8	55,357	56,770
Intangible assets	9	7,006	6,971
Investments in associates and joint ventures	10	12,984	13,909
Other investments	10	2,387	2,067
Advances and loans	11	2,427	2,555
Other financial assets	27	25	51
Inventories	12	575	353
Deferred tax assets	7	1,477	1,728
		82,238	**84,404**
Current assets			
Inventories	12	19,936	20,564
Accounts receivable	13	17,021	17,787
Other financial assets	27	2,381	3,482
Prepaid expenses		315	389
Cash and cash equivalents	14	1,899	2,046
		41,552	**44,268**
Assets held for sale	15	286	–
		41,838	**44,268**
Total assets		**124,076**	**128,672**
Equity and liabilities			
Capital and reserves – attributable to equity holders			
Share capital	16	146	146
Reserves and retained earnings		40,128	45,592
		40,274	**45,738**
Non-controlling interests	33	(1,038)	(355)
Total equity		**39,236**	**45,383**
Non-current liabilities			
Borrowings	20	29,067	26,424
Deferred income	21	2,670	2,301
Deferred tax liabilities	7	5,974	6,839
Other financial liabilities	27	379	529
Provisions including post-retirement benefits	22	7,302	6,824
		45,392	**42,917**
Current liabilities			
Borrowings	20	7,976	8,570
Accounts payable	24	26,193	26,484
Deferred income	21	558	412
Provisions	22	489	554
Other financial liabilities	27	3,722	3,243
Income tax payable		354	1,109
		39,292	**40,372**
Liabilities held for sale	15	156	–
		39,448	**40,372**
Total equity and liabilities		**124,076**	**128,672**

The accompanying notes are an integral part of the consolidated financial statements.

Consolidated statement of cash flows

For the year ended 31 December 2019

US$ million	Notes	**2019**	2018
Operating activities			
(Loss)/income before income taxes		(888)	4,679
Adjustments for:			
Depreciation and amortisation		7,160	6,325
Share of income from associates and joint ventures	10	(114)	(1,043)
Streaming revenue and other non-current provisions		(296)	(647)
Loss on disposals of non-current assets	4	43	139
Unrealised mark-to-market movements on other investments	5	(47)	(139)
Impairments	6	2,408	1,643
Other non-cash items – net[1]		367	739
Interest expense – net		1,713	1,514
Cash generated by operating activities before working capital changes		**10,346**	**13,210**
Working capital changes			
Decrease in accounts receivable[2]		1,211	2,734
Decrease in inventories		678	3,539
Increase/(decrease) in accounts payable[3]		199	(4,948)
Total working capital changes		**2,088**	**1,325**
Income taxes paid		(2,301)	(1,740)
Interest received		200	183
Interest paid		(1,604)	(1,419)
Net cash generated by operating activities		**8,729**	**11,559**
Investing activities			
Net cash used in acquisition of subsidiaries	25	(123)	(2,922)
Net cash received from disposal of subsidiaries	25	5	88
Exchangeable loan provided for the conditional acquisition of Astron Energy	13/25	–	(1,044)
Purchase of investments		(125)	(19)
Proceeds from sale of investments		119	16
Purchase of property, plant and equipment		(4,712)	(4,687)
Proceeds from sale of property, plant and equipment		178	136
Dividends received from associates and joint ventures	10	942	1,139
Net cash used by investing activities		**(3,716)**	**(7,293)**

1 Includes certain non-cash items as disclosed in note 5, share based remuneration and inventory net realisable value adjustments.
2 Includes movements in other financial assets, prepaid expenses and long-term advances and loans.
3 Includes movements in other financial liabilities, provisions and deferred income.

The accompanying notes are an integral part of the consolidated financial statements.

Consolidated statement of cash flows
For the year ended 31 December 2019

US$ million	Notes	**2019**	2018
Financing activities[1]			
Proceeds from issuance of capital market notes[2]		3,866	185
Proceeds from issuance of non-dilutive convertible bonds[2]		–	576
Purchase of call options on non-dilutive convertible bonds		–	(95)
Repayment of capital market notes		(3,167)	(3,650)
(Repayment)/proceeds from revolving credit facility		(29)	4,624
Proceeds from other non-current borrowings		291	15
Repayment of other non-current borrowings		(325)	–
Repayment of finance lease obligations under IAS 17		–	(72)
Repayment of lease liabilities under IFRS 16		(358)	–
Margin receipts/(calls) in respect of financing related hedging activities		529	(507)
(Repayment of)/proceeds from current borrowings		(682)	439
Proceeds from/(repayment of) U.S. commercial papers		79	(634)
Acquisition of non-controlling interests in subsidiaries		(24)	(58)
Return of capital/distributions to non-controlling interests		(305)	(343)
Purchase of own shares	16	(2,318)	(2,005)
Disposal of own shares		6	27
Distributions paid to equity holders of the Parent	18	(2,710)	(2,836)
Net cash used by financing activities		**(5,147)**	**(4,334)**
Decrease in cash and cash equivalents		(134)	(68)
Effect of foreign exchange rate changes		(11)	(33)
Cash and cash equivalents, beginning of period		2,046	2,147
Cash and cash equivalents, end of year		**1,901**	**2,046**
Cash and cash equivalents reported in the statement of financial position		1,899	**2,046**
Cash and cash equivalents attributable to assets held for sale		2	–

1 Refer to note 20 for reconciliation of movement in borrowings.
2 Net of issuance costs relating to capital market notes of $25 million (2018: $4 million).

The accompanying notes are an integral part of the consolidated financial statements.

Consolidated statement of changes of equity

For the year ended 31 December 2019

	Retained earnings	Share premium	Other reserves (Note 16)	Own shares (Note 16)	Total reserves and retained earnings	Share capital	Total equity attributable to equity holders	Non-controlling interests (Note 33)	Total equity
1 January 2018	**2,244**	**51,340**	**(2,425)**	**(1,575)**	**49,584**	**146**	**49,730**	**(300)**	**49,430**
Income for the year	3,408	–	–	–	3,408	–	3,408	(792)	2,616
Other comprehensive income	(159)	–	(1,310)	–	(1,469)	–	(1,469)	(49)	(1,518)
Total comprehensive income	**3,249**	**–**	**(1,310)**	**–**	**1,939**	**–**	**1,939**	**(841)**	**1,098**
Own share disposal[1]	(153)	–	–	262	109	–	109	–	109
Own share purchases[1]	–	–	–	(2,005)	(2,005)	–	(2,005)	–	(2,005)
Equity-settled share-based expenses[2]	8	–	–	–	8	–	8	–	8
Change in ownership interest in subsidiaries[3]	–	–	(1,207)	–	(1,207)	–	(1,207)	1,108	(99)
Acquisition/disposal of business[4]	–	–	–	–	–	–	–	21	21
Reclassifications	(5)	–	5	–	–	–	–	–	–
Distributions paid[5]	–	(2,836)	–	–	(2,836)	–	(2,836)	(343)	(3,179)
31 December 2018	**5,343**	**48,504**	**(4,937)**	**(3,318)**	**45,592**	**146**	**45,738**	**(355)**	**45,383**

	Retained earnings	Share premium	Other reserves (Note 16)	Own shares (Note 16)	Total reserves and retained earnings	Share capital	Total equity attributable to equity holders	Non-controlling interests (Note 33)	Total equity
1 January 2019	**5,343**	**48,504**	**(4,937)**	**(3,318)**	**45,592**	**146**	**45,738**	**(355)**	**45,383**
Loss for the year	(404)	–	–	–	(404)	–	(404)	(1,102)	(1,506)
Other comprehensive (loss)/income	(118)	–	404	–	286	–	286	(1)	285
Total comprehensive loss	**(522)**	**–**	**404**	**–**	**(118)**	**–**	**(118)**	**(1,103)**	**(1,221)**
Own share disposal[1]	(115)	–	–	199	84	–	84	–	84
Own share purchases[1]	–	–	–	(2,318)	(2,318)	–	(2,318)	–	(2,318)
Equity-settled share-based expenses[2]	12	–	–	–	12	–	12	–	12
Change in ownership interest in subsidiaries[3]	–	–	(418)	–	(418)	–	(418)	358	(60)
Acquisition/disposal of business[4]	–	–	–	–	–	–	–	371	371
Reclassifications	24	–	(20)	–	4	–	4	(4)	–
Distributions paid[5]	–	(2,710)	–	–	(2,710)	–	(2,710)	(305)	(3,015)
31 December 2019	**4,742**	**45,794**	**(4,971)**	**(5,437)**	**40,128**	**146**	**40,274**	**(1,038)**	**39,236**

1 See note 16.
2 See note 19.
3 See note 33.
4 See note 25.
5 See note 18.

The accompanying notes are an integral part of the consolidated financial statements.

Notes to the financial statements

1. Accounting policies

Corporate information

Glencore plc (the "Company", "Parent", the "Group" or "Glencore"), is a leading integrated producer and marketer of natural resources, with worldwide activities in the production, refinement, processing, storage, transport and marketing of metals and minerals and energy products. Glencore operates on a global scale, marketing and distributing physical commodities sourced from third party producers and own production to industrial consumers, such as those in the battery, electronic, construction, automotive, steel, energy and oil industries. Glencore also provides financing, logistics and other services to producers and consumers of commodities. In this regard, Glencore seeks to capture value throughout the commodity supply chain. Glencore's long experience as a commodity producer and merchant has allowed it to develop and build upon its expertise in the commodities which it markets and cultivate long-term relationships with a broad supplier and customer base across diverse industries and in multiple geographic regions.

This preliminary announcement was authorised for issue in accordance with a Directors' resolution on 17 February 2020.

The unaudited financial information for the year ended 31 December 2019 and audited financial information for the year ended 31 December 2018 contained in this document do not constitute statutory accounts as defined in Article 105 of Companies (Jersey) Law 1991. The financial information for the year ended 31 December 2019 has been extracted from the financial statements of Glencore which will be delivered to the Registrar in due course. The audit report for 31 December 2019 is yet to be signed by the auditors.

Statement of compliance

The consolidated financial statements have been prepared in accordance with:

- International Financial Reporting Standards (IFRS) and interpretations as adopted by the European Union (EU) effective for the year ended 31 December 2019, and
- IFRS and interpretations as issued by the International Accounting Standards Board (IASB) effective for the year ended 31 December 2019.

Critical accounting judgements and key sources of estimation uncertainty

The preparation of the consolidated financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts of assets and liabilities as well as the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable and relevant under the circumstances, independent estimates, quoted market prices and common, industry standard modelling techniques. Actual outcomes could result in a material adjustment to the carrying amount of assets or liabilities affected in future periods.

Glencore has identified the following areas as being critical to understanding Glencore's financial position as they require management to make complex and/or subjective judgements, estimates and assumptions about matters that are inherently uncertain:

Critical accounting judgements

In the process of applying Glencore's accounting policies, management has made the following judgements based on the relevant facts and circumstances including macro-economic circumstances and, where applicable, interpretation of underlying agreements, which have the most significant effect on the amounts recognised in the consolidated financial statements.

(i) Determination of control of subsidiaries and joint arrangements

Judgement is required to determine when Glencore has control of subsidiaries or joint control of joint or other unincorporated arrangements. This requires an assessment of the relevant activities (those relating to the operating and capital decisions of the arrangement, such as: the approval of the capital expenditure programme for each year, and appointing, remunerating and terminating the key management personnel or service providers of the operations) and when the decisions in relation to those activities are under the control of Glencore or require unanimous consent. See note 25 for a summary of the acquisitions of subsidiaries completed during the year and the key judgements made in determining control thereof.

Judgement is also required in determining the classification of a joint arrangement between a joint venture or a joint operation through an evaluation of the rights and obligations arising from the arrangement and in particular, if the joint arrangement has been structured through a separate vehicle, further consideration is required of whether:

(1) the legal form of the separate vehicle gives the parties rights to the assets and obligations for the liabilities;

(2) the contractual terms and conditions give the parties rights to the assets and obligations for the liabilities; and

(3) other facts and circumstances give the parties rights to the assets and obligations for the liabilities.

1. Accounting policies continued

Joint arrangements in which the primary activity is the provision of output to the shareholders, typically convey substantially all the economic benefits of the assets to the parties and judgement is required in assessing whether the terms of the offtake agreements and any other obligations for liabilities of the arrangement result in the parties being substantially the only source of cash flows contributing to the continuity of the operations of the arrangement.

Certain joint arrangements that are structured through separate vehicles including Collahuasi and Glencore Agri are accounted for as joint ventures. The Collahuasi arrangement is primarily designed for the provision of output to the shareholders sharing joint control, the offtake terms of which are at prevailing market prices and the parties are not obligated to cover any potential funding shortfalls. In management's judgement, Glencore is not the only possible source of funding and does not have a direct or indirect obligation to the liabilities of the arrangement, but rather shares in its net assets and, therefore, such arrangements have been accounted for as joint ventures.

Differing conclusions around these judgements, may materially impact how these businesses are presented in the consolidated financial statements – under the full consolidation method, equity method or recognition of Glencore's share of assets, liabilities, revenue and expenses, including any assets or liabilities held jointly. See note 10 for a summary of these joint arrangements and the key judgements made in determining the applicable accounting treatment for the material joint arrangements entered during the year.

(ii) Classification of transactions which contain a financing element (notes 20, 21 and 24)

Transactions for the purchase of commodities may contain a financing element such as extended payment terms. Under such an arrangement, a financial institution may issue a letter of credit on behalf of Glencore and act as the paying party upon delivery of product by the supplier and Glencore will subsequently settle the liability directly with the financial institution, generally from 30 up to 90 days after physical supply. Judgement is required to determine the most appropriate classification and presentation of these transactions within the statements of cash flows and financial position. In determining the appropriate classification, management considers the underlying economic substance of the transaction and the significance of the financing element to the transaction. Typically, the economic substance of the transaction is determined to be operating in nature as the financing element is insignificant and the time frame in which the original arrangement is extended by, is consistent and within supply terms commonly provided in the market. As a result, the entire cash flow is presented as operating in the statement of cash flow with a corresponding trade payable in the statement of financial position. As at 31 December 2019, trade payables include $5,687 million (2018: $5,152 million) of such liabilities arising from supplier financing arrangements, the weighted average of which have extended the settlement of the original payable to 73 days (2018: 59 days) after physical supply and are due for settlement 38 days (2018: 29 days) after year end. These payables are not included within net funding and net debt as defined in the APMs section.

(iii) Classification of trade receivables and liabilities at amortised cost or fair value through profit and loss (notes 13, 24 and 28)

Judgement is required to determine the appropriate IFRS 9 classification of trade receivables containing provisional pricing features (i.e. the final selling price is subject to movements in market prices after the date of sale) to be measured at amortised cost or fair value through profit and loss. This requires an assessment of the exposure of the underlying trade receivable to future movements in market prices at the date of initial recognition of such receivable, which is typically the date of delivery of the goods. Those receivables that are exposed to future movements in market prices have contractual cash flow characteristics that are not solely payments of principal and interest and are therefore measured at fair value through profit or loss (see notes 13 and 28). For those receivables that are not exposed to future movements in market prices, a further assessment of the business model for managing the receivables is required to determine the appropriate classification and measurement. The business model pertaining to those receivables that do not contain provisional pricing features is to hold the assets to collect the contractual cash flows and as such, these financial assets are classified as at "amortised cost" (see note 13).

A similar assessment is undertaken for trade payables, and for those payables that contain provisional price features, the Group elected to designate the entire payable as at fair value through profit and loss consistent with the accounting for provisionally priced receivables. The balance of trade payables are classified as at "amortised cost" (see notes 24 and 28).

Differing conclusions around classification of these instruments, may impact the presentation of these financial assets or liabilities within their respective note disclosures. However, as these types of financial assets and liabilities have short maturities, any estimation uncertainty related to these judgements and/or a differing measurement criteria (i.e. an expected credit loss impairment model or fair value methodology) is not anticipated to result in a material change to the carrying value of the financial asset or liability within the next financial year.

1. Accounting policies continued

Key sources of estimation uncertainty

In the process of applying Glencore's accounting policies, management has made key estimates and assumptions concerning the future and other key sources of estimation uncertainty. The key assumptions and estimates at the reporting date that have a significant risk of resulting in a material adjustment to the carrying amount of assets and liabilities within the next financial year, are described below. Actual results may differ from these estimates under different assumptions and conditions and may materially affect financial results or the financial position reported in future periods.

(i) Recognition of deferred tax assets (note 7)

Deferred tax assets are recognised only to the extent it is considered probable that those assets will be recoverable. This involves an assessment of when those deferred tax assets are likely to reverse, and a judgement as to whether there will be sufficient taxable income available to offset the tax assets when they do reverse. These judgements and estimates are subject to risk and uncertainty and therefore, to the extent assumptions regarding future profitability change, there can be a material increase or decrease in the amounts recognised in the consolidated statement of income in the period in which the change occurs. The recoverability of deferred tax assets including the estimates and assumptions contained therein are reviewed regularly by management.

(ii) Impairments and impairment reversals (notes 6 and 10)

Investments in associates and joint ventures, other investments, advances and loans, property, plant and equipment and intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of an individual asset or a cash-generating unit (CGU) may not be fully recoverable, or at least annually for CGUs to which goodwill and other indefinite life intangible assets have been allocated. Indicators of impairment may include changes in the Group's operating and economic assumptions, including those arising from changes in reserves or mine planning, updates to the Group's commodity supply, demand and price forecasts, or the possible impacts from emerging risks such as those related to climate change and the transition to a lower carbon economy. If an asset or CGU's recoverable amount is less than its carrying amount, an impairment loss is recognised in the consolidated statement of income. For those assets of CGUs which were impaired in prior periods, if their recoverable amount exceeds their carrying amount, an impairment reversal is recorded in the consolidated statement of income. Future cash flow estimates which are used to calculate the asset's or CGU's fair value are discounted using asset or CGU specific discount rates and are based on expectations about future operations, primarily comprising estimates about production and sales volumes, commodity prices (considering current and future prices and price trends including factors such as the current global trajectory of climate change), reserves and resources, operating costs and capital expenditures. Estimates are reviewed regularly by management. Changes in such estimates and in particular, deterioration in the commodity pricing outlook, could impact the recoverable values of these assets or CGUs, whereby some or all of the carrying amount may be impaired or the impairment charge reversed (if pricing outlook improves significantly) with the impact recorded in the statement of income.

As noted above and further described below in the 'impairment or impairment reversal' accounting policy, the Group carries out, at least annually, an impairment assessment. Following this review, indicators of impairment were identified for various CGUs primarily due to a deterioration in the underlying commodity prices most influencing the respective operation. Accordingly, the Group assessed the recoverable value of these CGUs and as at 31 December 2019, except for those CGUs disclosed in notes 6 and 10, the estimated recoverable values exceeded the carrying values. However, for certain CGUs where no impairment was recognised, should there be a significant deterioration in the key assumptions (mainly price curves over the life of mine), a material impairment could result within the next financial year. A summary of the carrying values, the key / most sensitive assumptions and a sensitivity impact of potential (10% assumed to be a reasonably possible change within the next year) movements in these assumptions for each such CGU with limited headroom (relative to their estimated recoverable value) is as follows:

- Coal South Africa – carrying value ($2,748 million), short to long-term API 4 coal price assumptions ($73 – 86/mt), a 10% fall (across the curve) in the API 4 coal price assumptions could result in an impairment of $703 million.
- Mopani – carrying value ($1,672 million), long-term copper price assumption ($6,500/t), a 10% fall in the copper price assumption could result in an impairment of $181 million. A 10% reduction in estimated annual production over the life of mine could result in an impairment of $116 million.
- Koniambo – carrying value ($1,645 million), long-term nickel price assumption ($15,400/t), a 10% fall in the nickel price assumption could result in an impairment of $715 million. A 10% reduction in estimated annual production over the life of mine could result in an impairment of $668 million.
- Chad Oil – carrying value ($804 million), short to long-term oil price assumptions ($65 - $72/bbl), a 10% fall (across the curve) in the oil price assumptions could result in an impairment of $202 million.
- Volcan – carrying value ($3,272 million), long-term zinc price assumption ($2,500/t), a 10% fall (across the curve) in the zinc price assumption could result in an impairment of $234 million.

1. Accounting policies continued

(iii) Restoration, rehabilitation and decommissioning costs (note 22)

A provision for future restoration, rehabilitation and decommissioning costs requires estimates and assumptions to be made around the relevant regulatory framework, the magnitude of the possible disturbance and the timing, extent and costs of the required closure and rehabilitation activities. Most of these rehabilitation and decommissioning events are expected to take place many years in the future and the currently estimated requirements and costs that will have to be met when the restoration event occurs are inherently uncertain and could materially change over time.

In calculating the appropriate provision for the expected restoration, rehabilitation or decommissioning obligations, cost estimates of the future potential cash outflows based on current studies of the expected rehabilitation activities and timing thereof, are prepared. These forecasts are then discounted to their present value using a risk-free rate specific to the liability and the currency in which they are denominated.

Any changes in the expected future costs or risk-free rate are initially reflected in both the provision and the asset and subsequently in the consolidated statement of income over the remaining economic life of the asset. As the actual future costs can differ from the estimates due to changes in laws, regulations, technology, costs and timing, the provisions including the estimates and assumptions contained therein are reviewed regularly by management.

(iv) Fair value measurements (notes 10, 11, 12, 13, 24, 25, 27 and 28)

In addition to recognising derivative instruments at fair value, as discussed below, an assessment of the fair value of assets and liabilities is also required in accounting for other transactions, most notably, business combinations and marketing inventories and disclosures related to fair values of financial assets and liabilities. In such instances, fair value measurements are estimated based on the amounts for which the assets and liabilities could be exchanged at the relevant transaction date or reporting period end, and are therefore not necessarily reflective of the cash flow upon actual settlements. Where fair value measurements cannot be derived from publicly available information, they are estimated using models and other valuation methods. To the extent possible, the assumptions and inputs used take into account externally verifiable inputs. However, such information is by nature subject to uncertainty, particularly where comparable market-based transactions often do not exist.

Derivative instruments are carried at fair value for which Glencore evaluates the quality and reliability of the assumptions and data used to measure fair value in the three hierarchy levels, Level 1, 2 and 3, as prescribed by IFRS 13 Fair Value Measurement. Fair values are determined in the following ways: externally verified via comparison to quoted market prices in active markets (Level 1); by using models with externally verifiable inputs (Level 2); or by using alternative procedures such as comparison to comparable instruments and/or using models with unobservable market inputs requiring Glencore to make market-based assumptions (Level 3). Level 3 inputs therefore include the highest level of estimation uncertainty.

Adoption of new and revised standards

In the current year, Glencore has adopted all new and revised IFRS standards that became effective as of 1 January 2019, the material changes being:

(i) IFRS 16 – Leases

IFRS 16 provides a comprehensive model for identification of lease arrangements and their treatment (on-balance sheet) in the financial statements of both lessees and lessors. It superseded IAS 17 Leases and its associated interpretative guidance. The Group applied the modified retrospective approach. Under this approach, the Group did not restate prior-year amounts reported and applied the practical expedient to retain the classification of existing contracts as leases under the previous accounting standard (i.e. IAS 17) instead of reassessing whether existing contracts are/or contain a lease at the date of initial application.

The Group has elected to apply the following other practical expedients available under the standard:

- The application of a single discount rate for portfolios of leases with reasonably similar characteristics;
- The use of hindsight for determination of the lease term as of the date of initial application;
- The use of onerous provision assessment under IAS 37 immediately prior to the date of initial application rather than impairment assessment of right-of-use assets under IAS 36;
- The exclusion of initial direct costs of obtaining a lease from the measurement of right-of-use assets at the date of initial application; and
- Leases with a remaining lease term of less than 12 months from the date of initial application have not been recognised under IFRS 16 and will remain accounted for as operating expenditures.

Upon adoption of IFRS 16, right-of-use assets of $792 million (net of $9 million of previously recognised onerous lease provisions), lease receivables of $64 million and lease liabilities of $865 million were recognised as at 1 January 2019. The reconciliation between the operating lease commitments as at 31 December 2018 and the opening balance for the lease liabilities as at 1 January 2019 is as follows:

1. Accounting policies continued

US$ million	
Operating lease commitments at 31 December 2018	1,052
Vessels/chartering commitments at 31 December 2018	335
Total lease commitments at 31 December 2018	**1,387**
Leases not yet commenced	(72)
Leases of low-value assets	(31)
Short-term leases	(163)
Effect of discounting	(256)
Total additional lease liabilities recognised on adoption of IFRS 16	**865**
Existing finance lease obligations at 31 December 2018	387
Total lease liabilities at 1 January 2019	**1,252**
Of which:	
Current lease liabilities	149
Non-current lease liabilities	1,103

The lease liabilities were discounted using asset and company specific incremental borrowing rates as at 1 January 2019. The weighted-average discount rate was 7.5%. In order to calculate the incremental borrowing rates, reference interest rates were derived from the yields of corporate bonds in major countries and currencies, for a period up to 10 years. The reference interest rates were supplemented by a lessee and asset class risk premium, as appropriate.

The current period lease disclosures can be found in notes 8 and 20.

(ii) IFRIC 23 – Uncertainty over income tax treatment

The interpretation addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of IAS 12 Income Taxes. Due to its global reach, including operating in high-risk jurisdictions, the Group's global tax position is subject to enhanced complexity and uncertainty, which may lead to uncertain tax treatments and the corresponding recognition and measurement of current and deferred taxes. The judgements and estimates made to separately recognise and measure the effect of each uncertain tax treatment are re-assessed whenever circumstances change or when there is new information that affects those judgements. The Group has re-assessed its global tax exposure and the key estimates taken in determining the positions recorded for adopting IFRIC 23. As of 1 January 2019, the global tax exposure has been determined by reference to the uncertainty that the tax authority may not accept the Group's proposed treatment of tax positions. The adoption of the interpretation had no material impact on the Group.

(iii) IFRIC agenda decision on the Physical Settlement of Contracts to Buy or Sell a non-Financial Item

In March 2019, the International Financial Reporting Interpretations Committee (IFRIC) issued an agenda decision on the Physical Settlement of Contracts to Buy or Sell a non-Financial Item. The committee concluded that, for physical commodity contracts within the scope of IFRS 9 Financial instruments, entities should not transfer previously recognised unrealised mark-to-market movements to different income statement line items upon realisation. The Group previously recognised mark-to-market movements on the re-measurement of physical forward sales contracts that do not meet own use exemption, within cost of goods sold up to the point of realisation.

Following the agenda decision, the Group has revised its accounting policy to recognise mark-to-market movements on physical forward sales contracts that do not meet own use exemption within the revenue line item and no longer within cost of goods sold. For physical forward purchase contracts that do meet the own use exemption, the mark-to-market movements continue to be recognised within cost of goods sold. Upon adoption of this change, the prior year revenue and cost of goods sold balances increased by an equal amount of $770 million (0.3% of pre-adjusted revenue), resulting in no impact on net income.

(iv) Amendments to IFRS 9, IAS 39 and IFRS 7 (September 2019) - Interest Rate Benchmark Reform

The Group has chosen to early adopt the amendments to IFRS 9 and IFRS 7, which are mandatory for annual reporting periods beginning on or after 1 January 2020.

These amendments modify specific hedge accounting requirements to allow hedge accounting to continue for affected hedges during the period of uncertainty before the hedged items or hedging instruments affected by the current interest rate benchmarks are amended as a result of the on-going interest rate benchmark reforms.

The Group has issued foreign currency and US dollar-denominated fixed rate debt (see note 20) which it fair value hedges using fixed to USD LIBOR cross currency interest rate swaps and interest rate swaps (see note 26). The amendments permit continuation of hedge accounting even if in the future USD LIBOR may no longer be separately identifiable. However, this relief does not extend to the requirement that the designated interest rate risk component must continue to be reliably measureable. If the risk component is no longer reliably measureable, the hedging relationship is discontinued.

1. Accounting policies continued

The amendments are applied retrospectively to those hedging relationships that existed at the beginning of the reporting period in which an entity first applies the amendments or that were designated thereafter.

The Group will continue to apply the amendments to IFRS 9 until the uncertainty arising from the interest rate benchmark reforms with respect to the timing and the amount of the underlying cash flows that the Group is exposed ends. The Group has assumed that this uncertainty will not end until the Group's contracts that reference IBORs are amended to specify the date on which the interest rate benchmark will be replaced, the cash flows of the alternative benchmark rate and the relevant spread adjustment. This will, in part, be dependent on the introduction of fall back clauses which have yet to be added to the Group's contracts and the negotiation with counterparties.

Following adoption of the amendments to IFRS 9 there is no impact upon the Group's financial statements and existing hedge relationships except for additional disclosures provided within note 26.

Revised standards not yet effective

At the date of the authorisation of this preliminary announcement, the following revised IFRS standards, which are applicable to Glencore, were issued but not yet effective:

(i) Amendments to IFRS 3 – Definition of business – effective for year ends beginning on or after 1 January 2020

The amendments intend to assist the determination of whether a transaction should be accounted for as a business combination or as an asset acquisition. To be considered a business, an acquired set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs. IFRS 3 continues to adopt a market participant's perspective to determine whether an acquired set of activities and assets is a business, but clarifies the minimum requirements to be a business and removes the assessment of a market participant's ability to replace missing elements.

The amendments also introduce an optional concentration test that permits a simplified assessment of whether an acquired set of activities and assets is not a business - it is not a business if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets.

The amended definitions shall be applicable for any future acquisition within the scope of IFRS 3 following the effective date.

(ii) Amendments to IAS 1 and IAS 8 – Definition of material – effective for year ends beginning on or after 1 January 2020

The amendments clarify the definition of material and how it should be applied by including in the definition guidance that until now has been featured elsewhere in IFRS Standards, and ensures that the definition of material is consistent across all IFRS Standards. Information is considered material if omitting, misstating or obscuring it could reasonably be expected to influence the decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity.

No significant changes to presentation or disclosures within these financial statements are expected following adoption of this amendment.

1. Accounting policies continued

Basis of preparation

The financial statements are prepared under the historical cost convention except for certain financial assets, liabilities, marketing inventories and pension obligations that are measured at revalued amounts or fair values at the end of each reporting period as explained in the accounting policies below. Historical cost is defined as the amount of cash or cash equivalents paid or the fair value of the consideration given to acquire them at the time of their acquisition. The principal accounting policies adopted are set out below.

The Directors have assessed that they have, at the time of approving this preliminary announcement, a reasonable expectation that the Group has adequate resources to continue in operational existence for the 12 months from the date of approval of the 2019 Annual Report and Accounts. Therefore, they continue to adopt the going concern basis of accounting in preparing these financial statements. Further information on Glencore's objectives, policies and processes for managing its capital and financial risks are detailed in note 26.

All amounts are expressed in millions of United States Dollars, unless otherwise stated, consistent with the predominant functional currency of Glencore's operations.

Principles of consolidation

The consolidated financial statements incorporate the financial statements of the Company and entities controlled by the Company and its subsidiaries.

Control is achieved when Glencore is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Specifically, Glencore controls an investee if, and only if, Glencore has all of the following:

- Power over the investee (i.e. existing rights that give it the current ability to direct the relevant activities of the investee)
- Exposure, or rights, to variable returns from its involvement with the investee, and
- The ability to use its power over the investee to affect its returns

When Glencore has less than a majority of the voting rights of an investee or similar rights of an investee, it considers all relevant facts and circumstances in assessing whether it has power over the investee including:

- The size of Glencore's holding of voting rights relative to the size and dispersion of holdings of the other vote holders
- Potential voting rights held by Glencore, other vote holders or other parties
- Rights arising from other contractual arrangements, and
- Any additional facts and circumstances that indicate that Glencore has, or does not have, the current ability to direct the relevant activities at the time that decisions need to be made, including voting patterns at previous shareholders' meetings

The Company reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above. Consolidation of a subsidiary begins when Glencore obtains control over the subsidiary and ceases when Glencore loses control of the subsidiary. Specifically, income and expenses of a subsidiary acquired or disposed of during the year are included in the consolidated statement of income and other comprehensive income from the date Glencore gains control until the date when Glencore ceases to control the subsidiary.

Profit or loss and each component of other comprehensive income are attributed to the owners of the Company and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group's accounting policies. All intragroup assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

Changes in Glencore's interests in subsidiaries that do not result in a loss of control are accounted for as equity transactions with any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received being recognised directly in equity and attributed to equity holders of Glencore.

When Glencore loses control of a subsidiary, a gain or loss is recognised in the consolidated statement of income and is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill), and liabilities of the subsidiary and any non-controlling interests. All amounts previously recognised in other comprehensive income in relation to that subsidiary are accounted for as if Glencore had directly disposed of the related assets or liabilities of the subsidiary (i.e. reclassified to profit or loss or transferred to another category of equity as specified/permitted by applicable IFRSs). The fair value of any investment retained in the former subsidiary at the date when control is lost is regarded as the fair value on initial recognition for subsequent accounting under IFRS 9, when applicable, or the cost on the initial recognition of an investment in an associate or a joint venture.

Notes to the financial statements
continued

1. Accounting policies continued

Investments in associates and joint ventures
Associates and joint ventures (together "Associates") in which Glencore exercises significant influence or joint control are accounted for using the equity method. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies. Significant influence is presumed if Glencore holds between 20% and 50% of the voting rights, unless evidence exists to the contrary. A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint arrangement. Joint control is the contractually agreed sharing of control over an arrangement, which exists only when decisions about relevant strategic and/or key operating decisions require unanimous consent of the parties sharing control.

Equity accounting involves Glencore recording its share of the Associate's net income and equity. Glencore's interest in an Associate is initially recorded at cost and is subsequently adjusted for Glencore's share of changes in net assets of the Associate, less any impairment in the value of individual investments. Where Glencore transacts with an Associate, unrealised profits and losses are eliminated to the extent of Glencore's interest in that Associate.

Changes in Glencore's interests in Associates are accounted for as a gain or loss on disposal with any difference between the amount by which the carrying value of the Associate is adjusted and the fair value of the consideration received being recognised directly in the consolidated statement of income.

Joint operations
A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

When Glencore undertakes its activities under joint operations, Glencore recognises in relation to its interest in a joint operation:

- Its assets, including its share of any assets held jointly
- Its liabilities, including its share of any liabilities incurred jointly
- Its revenue from the sale of its share of the output arising from the joint operation
- Its share of the revenue from the sale of the output by the joint operation, and
- Its expenses, including its share of any expenses incurred jointly

The Group accounts for the assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with the IFRSs applicable to the particular assets, liabilities, revenues and expenses.

Where Glencore transacts with a joint operation, unrealised profits and losses are eliminated to the extent of Glencore's interest in that joint operation.

Other unincorporated arrangements
In some cases, Glencore participates in unincorporated arrangements where it has the rights to its share of the assets and obligations for its share of the liabilities of the arrangement, rather than a right to the net returns of the arrangement, but does not share joint control. In such cases, Glencore accounts for its share of the assets, liabilities, revenues and expenses in accordance with the IFRSs applicable to the particular assets, liabilities, revenues and expenses and obligations for the liabilities relating to the arrangement, similar to a joint operation noted above.

Business combinations and goodwill
Acquisitions of subsidiaries and businesses are accounted for using the acquisition method of accounting. The cost of the acquisition is measured at fair value, which is calculated as the sum of the acquisition date fair values of the assets transferred, liabilities incurred to the former owners of the acquiree and the equity interests issued in exchange for control of the acquiree. The identifiable assets, liabilities and contingent liabilities ("identifiable net assets") are recognised at their fair value at the date of acquisition. Acquisition related costs are recognised in the consolidated statement of income as incurred.

Where a business combination is achieved in stages, Glencore's previously held interests in the acquired entity are remeasured to fair value at the acquisition date (i.e. the date Glencore attains control) and the resulting gain or loss, if any, is recognised in the consolidated statement of income.

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree, and the fair value of the acquirer's previously held equity interest in the acquiree (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed.

1. Accounting policies continued

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to the CGUs that are expected to benefit from the synergies of the combination. CGUs to which goodwill has been allocated are tested for impairment annually, or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the CGU is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit pro-rata based on the carrying amount of each asset in the unit.

Any impairment loss is recognised directly in profit or loss. An impairment loss recognised for goodwill is not able to be reversed in subsequent periods.

On disposal of the relevant CGU, the attributable amount of goodwill is included in the determination of the profit or loss on disposal.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, Glencore reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted for additional information obtained during the “measurement period” (which cannot exceed one year from the acquisition date) about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

Non-controlling interests that are present ownership interests and entitle their holders to a proportionate share of the entity’s net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests’ proportionate share of the recognised amounts of the acquiree’s identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on the basis specified in another IFRS.

Similar procedures are applied in accounting for the purchases of interests in Associates and joint operations. Any goodwill arising from such purchases is included within the carrying amount of the investment in Associates, but not amortised thereafter. Any excess of Glencore’s share of the net fair value of the Associate’s identifiable net assets over the cost of the investment is included in the consolidated statement of income in the period of the purchase.

Non-current assets held for sale and disposal groups

Non-current assets and assets and liabilities included in disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use, they are available for immediate disposal and the sale is highly probable. Non-current assets held for sale are measured at the lower of their carrying amount or fair value less costs to sell.

Revenue recognition

Revenue is derived principally from the sale of goods and in some instances the goods are sold on Cost and Freight (CFR) or Cost, Insurance and Freight (CIF) Incoterms. When goods are sold on a CFR or CIF basis, the Group is responsible for providing these services (shipping and insurance) to the customer, sometimes after the date at which Glencore has lost control of the goods. Revenue is recognised when the performance obligations have been satisfied, which is once control of the goods and/or services has transferred from Glencore to the buyer. Revenue is measured based on consideration specified in the contract with a customer and excludes amounts collected on behalf of third parties. The same recognition and presentation principles apply to revenues arising from physical settlement of forward sale contracts that do not meet the own use exemption.

Revenue related to the sale of goods is recognised when the product is delivered to the destination specified by the customer, which is typically the vessel on which it is shipped, the destination port or the customer’s premises and the buyer has gained control through their ability to direct the use of and obtain substantially all the benefits from the asset. Where the sale of goods is connected with an agreement to repurchase goods at a later date, revenue is recognised when the repurchase terms are at prevailing market prices, the goods repurchased are readily available in the market, and the buyer gained control of the goods originally sold to them. As at 31 December 2019, the outstanding repurchase commitments under such agreements were approximately $1.4 billion (2018: $1.3 billion). Should it be determined that control has not transferred or the buyer does not have the ability to benefit substantially from ownership of the asset, revenue is not recognised and any proceeds received are accounted for as a financing arrangement. For certain commodities, the sales price is determined on a provisional basis at the date of sale as the final selling price is subject to movements in market prices up to the date of final pricing, normally ranging from 30 to 90 days after initial booking (provisionally priced sales). Revenue on provisionally priced sales is recognised based on the estimated fair value of the total consideration receivable. The revenue adjustment mechanism embedded within provisionally priced sales arrangements has the character of a commodity derivative. Accordingly, the fair value of the final sales price adjustment is re-estimated continuously and changes in fair value are recognised as an adjustment to revenue. In all cases, fair value is estimated by reference to forward market prices.

Revenue from the sale of material by-products are included within revenue. Where a by-product is not regarded as significant, revenue may be credited against cost of goods sold.

1. Accounting policies continued

Revenue related to the provision of shipping and insurance related activities is recognised over time as the service is rendered.

Payments received for future metal deliveries (prepayments) are accounted for as executory contracts whereby the prepayment is initially recorded as deferred revenue in the consolidated statement of financial position. The initial deferred revenue amount is unwound and revenue is recognised in the consolidated statement of income as and when Glencore physically delivers the metal and loses control of it. Where these prepayments are in excess of one year and contain a significant financing component, the amount of the deferred revenue is adjusted for the effects of the time value of money. Glencore applies the practical expedient to not adjust the promised amount of consideration for the effects of time value of money if the period between delivery and the respective payment is one year or less.

Royalty, interest and dividend income is recognised when the right to receive payment has been established, it is probable that the economic benefits will flow to Glencore and the amount of income can be measured reliably. Royalty revenue is recognised on an accrual basis in accordance with the substance of the relevant agreement. Interest income is accrued on a time basis, by reference to the principal outstanding and the applicable effective interest rate.

Foreign currency translation

Glencore's reporting currency and the functional currency of the majority of its operations is the U.S. dollar as this is assessed to be the principal currency of the economic environment in which it operates.

(i) Foreign currency transactions

Transactions in foreign currencies are converted into the functional currency of each entity using the exchange rate prevailing at the transaction date. Monetary assets and liabilities outstanding at year end are converted at year-end rates. The resulting exchange differences are recorded in the consolidated statement of income.

(ii) Translation of financial statements

For the purposes of consolidation, assets and liabilities of group companies whose functional currency is in a currency other than the U.S. dollar are translated into U.S. dollars using year-end exchange rates, while their statements of income are translated using average rates of exchange for the year. Translation adjustments are included as a separate component of shareholders' equity and have no consolidated statement of income impact to the extent that no disposal of the foreign operation has occurred. Where an intragroup balance is, in substance, part of the Group's net investment in an entity, exchange gains and losses on that balance are taken to the currency translation reserve. Cumulative translation differences are recycled from equity and recognised as income or expense on disposal of the operation to which they relate.

Goodwill and fair value adjustments arising from the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and are translated at the closing rate.

Borrowing costs

Borrowing costs are expensed as incurred except where they relate to the financing of construction or development of qualifying assets in which case they are capitalised up to the date when the qualifying asset is ready for its intended use.

Retirement benefits

Glencore operates various pension schemes in accordance with local requirements and practices of the respective countries. The annual costs for defined contribution plans that are funded by payments to separate trustee administered funds or insurance companies equal the contributions that are required under the plans and accounted for as an expense.

Glencore uses the Projected Unit Credit Actuarial method to determine the present value of its defined benefit obligations and the related current service cost and, where applicable, past service cost. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset.

The cost of providing pensions is charged to the consolidated statement of income so as to recognise current and past service costs, interest cost on defined benefit obligations, and the effect of any curtailments or settlements, net of expected returns on plan assets. Actuarial gains and losses are recognised directly in other comprehensive income and will not be reclassified to the consolidated statement of income. The retirement benefit obligation/asset recognised in the consolidated statement of financial position represents the actual deficit or surplus in Glencore's defined benefit plans. Any surplus resulting from this calculation is limited to the present value of any economic benefits available in the form of refunds from the plans or reductions in future contributions to the plans.

Glencore also provides post-retirement healthcare benefits to certain employees in Canada, South Africa and the United States. These are accounted for in a similar manner to the defined benefit pension plans, however are unfunded.

1. Accounting policies continued

Share-based payments

(i) Equity-settled share-based payments

Equity-settled share-based payments are measured at the fair value of the awards based on the market value of the shares at the grant date. Fair value excludes the effect of non-market-based vesting conditions. The fair value is charged to the consolidated statement of income and credited to retained earnings on a straight-line basis over the period the estimated awards are expected to vest.

At each balance sheet date, the Company revises its estimate of the number of equity instruments expected to vest as a result of the effect of non-market-based vesting conditions. The impact of the revision of the original estimates, if any, is recognised in the consolidated statement of income such that the cumulative expense reflects the revised estimate, with a corresponding adjustment to retained earnings.

(ii) Cash-settled share-based payments

For cash-settled share-based payments, a liability is initially recognised at fair value based on the estimated number of awards that are expected to vest, adjusting for market and non-market-based performance conditions. Subsequently, at each reporting period until the liability is settled, it is remeasured to fair value with any changes in fair value recognised in the consolidated statement of income.

Income taxes

Income taxes consist of current and deferred income taxes. Current taxes represent income taxes expected to be payable based on enacted or substantively enacted tax rates at the period end on expected current taxable income, and any adjustment to tax payable in respect of previous years. Deferred taxes are recognised for temporary differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable income, using enacted or substantively enacted income tax rates which are expected to be effective at the time of reversal of the underlying temporary difference. Deferred tax assets and unused tax losses are only recognised to the extent that their recoverability is probable. Deferred tax assets are reviewed at reporting period end and amended to the extent that it is no longer probable that the related benefit will be realised. To the extent that a deferred tax asset not previously recognised subsequently fulfils the criteria for recognition, an asset is then recognised.

Deferred tax assets and liabilities are offset when they relate to income taxes levied by the same authority and Glencore has both the right and the intention to settle its current tax assets and liabilities on a net or simultaneous basis. The tax effect of certain temporary differences is not recognised principally with respect to the initial recognition of an asset or liability (other than those arising in a business combination or in a manner that initially impacted accounting or taxable profit) and temporary differences relating to investments in subsidiaries and Associates to the extent that Glencore can control the timing of the reversal of the temporary difference and it is probable the temporary difference will not reverse in the foreseeable future. Deferred tax is provided in respect of fair value adjustments on acquisitions. These adjustments may relate to assets such as extraction rights that, in general, are not eligible for income tax allowances.

Current and deferred tax are recognised as an expense or income in the consolidated statement of income, except when they relate to items that are recognised outside the consolidated statement of income (whether in other comprehensive income or directly in equity) or where they arise from the initial accounting for a business combination.

Royalties, extraction taxes and other levies/taxes are treated as taxation arrangements when they have the characteristics of an income tax, including being imposed and determined in accordance with regulations established by the respective government's taxation authority and the amount payable is based on taxable income – rather than physical quantities produced or as a percentage of revenues – after adjustment for temporary differences. For such arrangements, current and deferred tax is provided on the same basis as described above for other forms of taxation. Obligations arising from royalty arrangements that do not satisfy these criteria are recognised as current provisions and included in cost of goods sold.

Glencore assesses its liabilities and contingencies for all tax years open to audit based upon the latest information available. Inherent uncertainties exist in estimates of tax contingencies due to complexities of interpretation and changes in tax laws. For those matters where it is probable that an adjustment will be made, the Group records its best estimate of these tax liabilities, including related interest charges, taking into account the range of possible outcomes.

Property, plant and equipment

Property, plant and equipment are stated at cost, being the fair value of the consideration given to acquire or construct the asset, including directly attributable costs required to bring the asset to the location or to a condition necessary for operation and the direct cost of dismantling and removing the asset, less accumulated depreciation and any accumulated impairment losses.

Property, plant and equipment are depreciated to their estimated residual value over the estimated useful life of the specific asset concerned, or the estimated remaining life of the associated mine (LOM), field or lease.

1. Accounting policies continued

Depreciation commences when the asset is available for use. The major categories of property, plant and equipment are depreciated/amortised on a units of production (UOP) and/or straight-line basis as follows:

Buildings	10 – 45 years
Freehold land	not depreciated
Plant and equipment	3 – 30 years/UOP
Right-of-use assets	2 – 30 years
Mineral and petroleum rights	UOP
Deferred mining costs	UOP

(i) Mineral and petroleum rights
Mineral and petroleum reserves, resources and rights (together "Mineral and petroleum rights") which can be reasonably valued, are recognised in the assessment of fair values on acquisition. Mineral and petroleum rights for which values cannot be reasonably determined are not recognised. Exploitable Mineral and petroleum rights are amortised using the UOP basis over the commercially recoverable reserves and, in certain circumstances, other mineral resources. Mineral resources are included in amortisation calculations where there is a high degree of confidence that they will be extracted in an economic manner.

(ii) Exploration and evaluation expenditure
Exploration and evaluation expenditure relates to costs incurred in the exploration and evaluation of potential mineral and petroleum resources and includes costs such as exploration and production licences, researching and analysing historical exploration data, exploratory drilling, trenching, sampling and the costs of pre-feasibility studies. Exploration and evaluation expenditure for each area of interest, other than that acquired from another entity, is charged to the consolidated statement of income as incurred except when the expenditure is expected to be recouped from future exploitation or sale of the area of interest and it is planned to continue with active and significant operations in relation to the area, or at the reporting period end, the activity has not reached a stage which permits a reasonable assessment of the existence of commercially recoverable reserves, in which case the expenditure is capitalised. As the intangible component (i.e. licences) represents an insignificant and indistinguishable portion of the overall expected tangible amount to be incurred and recouped from future exploitation, these costs along with other capitalised exploration and evaluation expenditure are recorded as a component of property, plant and equipment. Purchased exploration and evaluation assets are recognised at their fair value at acquisition.

As the capitalised exploration and evaluation expenditure asset is not available for use, it is not depreciated. All capitalised exploration and evaluation expenditure is monitored for indications of impairment. Where a potential impairment is indicated, an assessment is performed for each area of interest or at the CGU level. To the extent that capitalised expenditure is not expected to be recovered it is charged to the consolidated statement of income.

Administration costs that are not directly attributable to a specific exploration area are charged to the consolidated statement of income. Licence costs paid in connection with a right to explore in an existing exploration area are capitalised and amortised over the term of the permit.

Development expenditure
When commercially recoverable reserves are determined and such proposed development receives the appropriate approvals, capitalised exploration and evaluation expenditure is transferred to construction in progress, a component within the plant and equipment asset sub-category. All subsequent development expenditure is similarly capitalised, provided commercial viability conditions continue to be satisfied. Proceeds from the sale of product extracted during the development phase are netted against development expenditure. Upon completion of development and commencement of production, capitalised development costs are further transferred, as required, to the appropriate plant and equipment asset category and depreciated using the unit of production method (UOP) or straight-line basis.

(iii) Deferred mining costs
Mainly comprises certain capitalised costs related to underground mining as well as pre-production and in-production stripping activities as outlined below. Deferred mining costs are amortised using the UOP basis over the life of the ore body to which those costs relate.

Deferred stripping costs
Stripping costs incurred in the development of a mine (or pit) before production commences are capitalised as part of the cost of constructing the mine (or pit) and subsequently amortised over the life of the mine (or pit) on a UOP basis.

In-production stripping costs related to accessing an identifiable component of the ore body to realise benefits in the form of improved access to ore to be mined in the future (stripping activity asset), are capitalised within deferred mining costs provided all the following conditions are met:

1. Accounting policies continued

(a) it is probable that the future economic benefit associated with the stripping activity will be realised;

(b) the component of the ore body for which access has been improved can be identified; and

(c) the costs relating to the stripping activity associated with the improved access can be reliably measured.

If all of the criteria are not met, the production stripping costs are charged to the consolidated statement of income as they are incurred.

The stripping activity asset is subsequently depreciated on a UOP basis over the life of the identified component of the ore body that became more accessible as a result of the stripping activity and is then stated at cost less accumulated depreciation and any accumulated impairment losses.

(iv) Biological assets
Biological assets are carried at their fair value less estimated selling costs. Any changes in fair value less estimated selling costs are included in the consolidated statement of income in the period in which they arise.

Leases
As lessee, the Group assesses whether a contract contains a lease at inception of the contract. The Group recognises a right-of-use asset and corresponding lease liability in the statement of financial position for all lease arrangements where it is the lessee, except for short-term leases with a term of twelve months or less and leases of low value assets. For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the term of the lease.

The lease liability is initially measured at the present value of the future lease payments from the commencement date of the lease. The lease payments are discounted using the interest rate implicit in the lease or, if not readily determinable, the asset and company specific incremental borrowing rates. Lease liabilities are recognised within borrowings on the statement of financial position. The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability (using the effective interest method) and by reducing the carrying amount to reflect the lease payments made. The Group remeasures the lease liability, with a corresponding adjustment to the related right-of-use assets, whenever:

- The lease term changes or there is a significant event or change in circumstances resulting in a change in the assessment of exercise of a purchase option, in which case the lease liability is remeasured by discounting the revised lease payments using a revised discount rate;
- The lease payments change due to the changes in an index or rate or a change in expected payment under a guaranteed residual value, in which case the lease liability is remeasured by discounting the revised lease payments using an unchanged discount rate;
- A lease contract is modified and the lease modification is not accounted for as a separate lease, in which case the lease liability is remeasured based on the lease term of the modified lease by discounting the revised lease payments using a revised discount rate at the effective date of modification.

The right-of-use assets are initially recognised on the balance sheet at cost, which comprises the amount of the initial measurement of the corresponding lease liability, adjusted for any lease payments made at or prior to the commencement date of the lease, any lease incentive received and any initial direct costs incurred, and expected costs for obligations to dismantle and remove right-of-use assets when they are no longer used. Right-of-use assets are recognised within property, plant and equipment on the statement of financial position. Right-of-use assets are depreciated on a straight-line basis from the commencement date of the lease over the shorter of the useful life of the right-of-use asset or the end of the lease term.

The Group enters into lease arrangements as a lessor with respect to some of its time charter vessels. Leases for which the Group is an intermediate lessor are classified as finance or operating leases by reference to the right-of-use asset arising from the head lease. Income from operating leases is recognised on a straight-line basis over the term of the relevant lease. Amounts due from lessees under finance leases are recognised as receivables at the amount of the Group’s net investment in the leases. Finance lease income is allocated to accounting periods so as to reflect a constant periodic rate of return on the Group’s net investment outstanding in respect of these leases.

The comparative period lease contracts were accounted for under IAS 17. Assets under finance leases, where substantially all of the risks and rewards of ownership transferred to the Group as lessee, were capitalised and amortised over their expected useful lives on the same basis as owned assets or, where shorter, the term of the relevant lease. All other leases were classified as operating leases, the expenditures for which were recognised in the statement of income on a straight-line basis over the lease term.

Restoration, rehabilitation and decommissioning
Restoration, rehabilitation and decommissioning costs arising from the installation of plant and other site preparation work, discounted using a risk-free rate specific to the liability and the currency in which they are denominated to their net present value, are provided for and capitalised at the time such an obligation arises. The costs are charged to the consolidated statement of income over the life of the operation through depreciation of the asset and the unwinding of the discount on the provision.

1. Accounting policies continued

Costs for restoration of subsequent site disturbance, which is created on an ongoing basis during production, are provided for at their net present values and charged to the consolidated statement of income as extraction progresses.

Changes in the estimated timing of the rehabilitation or changes to the estimated future costs are accounted for prospectively by recognising an adjustment to the rehabilitation liability and a corresponding adjustment to the asset to which it relates, provided a reduction, if any, in the provision is not greater than the depreciated capitalised cost of the related asset, in which case the capitalised cost is reduced to Nil and the remaining adjustment recognised in the consolidated statement of income. In the case of closed sites, changes to estimated costs are recognised immediately in the consolidated statement of income.

Intangible assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value at the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation (calculated on a straight-line basis over their useful lives) and accumulated impairment losses, if any.

Internally generated intangibles are not capitalised. Instead, the related expenditure is recognised in the consolidated statement of income and other comprehensive income in the period in which the expenditure is incurred.

Identifiable intangible assets with a finite life are amortised on a straight-line basis over their expected useful life. The amortisation method and period are reviewed annually and impairment testing is undertaken when circumstances indicate the carrying amount may not be recoverable. Other than goodwill which is not depreciated, Glencore has no identifiable intangible assets with an indefinite life.

The major categories of intangibles are amortised on a straight-line basis as follows:

Port allocation rights	30 – 40 years
Licences, trademarks and software	3 – 20 years
Customer relationships	5 – 9 years
Acquired offtake arrangements	5 – 10 years

Goodwill impairment testing

For the purpose of impairment testing, goodwill has been allocated to the CGUs, or groups of CGUs, that are expected to benefit from the synergies of the business combination and which represent the level at which management monitors and manages the goodwill. In assessing whether an impairment is required, the carrying value of the CGU is compared with its recoverable amount. The recoverable amount is the higher of its fair value less costs of disposal (FVLCD) and its value in use (VIU). If the recoverable amount of the CGU is less than the carrying amount of the unit, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro-rata basis of the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognised directly in the consolidated statement of income. An impairment loss recognised for goodwill can not be reversed in subsequent periods.

Other investments

Equity investments, other than investments in Associates, are recorded at fair value. Glencore designated investments that are not held for trading as at fair value through other comprehensive income. As a result, changes in fair value are recorded in the consolidated statement of other comprehensive income. Dividends from these investments are recognised in the consolidated statement of income, unless the dividend represents a recovery of part of the cost of the equity investment.

Impairment or impairment reversals

Glencore conducts, at least annually, an internal review of asset values which is used as a source of information to assess for any indications of impairment or impairment reversal. Formal impairment tests are carried out, at least annually, for cash-generating units containing goodwill and for all other non-current assets, when events or changes in circumstances indicate the carrying value may not be recoverable.

A formal impairment or reversal test involves determining whether the carrying amounts are in excess (or below, as the case may be) of their recoverable amounts. An asset's recoverable amount is determined as the higher of its FVLCD and its VIU. Such reviews are undertaken on an asset-by-asset basis, except where assets do not generate cash flows independent of other assets, in which case the review is undertaken at the CGU level.

If the carrying amount of an asset exceeds its recoverable amount, an impairment loss is recorded in the consolidated statement of income to reflect the asset at the lower amount.

For those assets which were impaired in prior periods, if their recoverable amount exceeds their carrying amount, an impairment reversal is recorded in the consolidated statement of income to reflect the asset at the higher amount to the extent the increased carrying amount does not exceed the carrying value of the asset that would have been determined had no impairment previously been recognised. Goodwill impairments cannot be subsequently reversed.

1. Accounting policies continued

Provisions
Provisions are recognised when Glencore has a present obligation (legal or constructive), as a result of past events, and it is probable that an outflow of resources embodying economic benefits that can be reliably estimated will be required to settle the liability.

The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at the balance sheet date, taking into account the risks and uncertainties surrounding the obligation, including interpretation of specific laws and likelihood of settlement. Where a provision is measured using the cash flow estimated to settle the present obligation, its carrying amount is the present value of those cash flows (when the effect of the time value of money is material).

Onerous contracts
An onerous contract is considered to exist where Glencore has a contract under which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received from the contract. Present obligations arising under onerous contracts are recognised and measured as provisions.

Unfavourable contracts
An unfavourable contract is considered to exist when Glencore, in a business combination, acquires a contract under which the terms of the contract require Glencore to sell or purchase products or services on terms which are economically unfavourable compared to current market terms at the time of the business combination. Unfavourable contracts are recognised at the present value of the economic loss and amortised into the statement of income over the term of the contract.

Inventories
The vast majority of inventories attributable to the marketing activities ("marketing inventories") are valued at fair value less costs of disposal with the remainder valued at the lower of cost or net realisable value. Unrealised gains and losses from changes in fair value are reported in cost of goods sold.

Inventories held by the industrial activities ("production inventories") are valued at the lower of cost or net realisable value. Cost is determined using the first-in-first-out (FIFO) or the weighted average method and comprises material costs, labour costs and allocated production related overhead costs. Where the production process results in more than one product being produced (joint products), cost is allocated between the various products according to the ratio of contribution of these metals to gross sales revenue. Financing and storage costs related to inventory are expensed as incurred.

Non-financial instruments (physical advances or prepayments)
The Group enters into physical advances and prepayment agreements with certain suppliers and customers. When such advances and prepayments are primarily settled in cash or another financial asset, they are classified as financial instruments (see below). When settlement is satisfied primarily through physical delivery or receipt of an underlying product they are classified as non-financial instruments.

Financial instruments
Financial assets and financial liabilities are recognised in the Group's consolidated statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets are classified as either financial assets at amortised cost, at fair value through other comprehensive income (FVTOCI) or at fair value through profit or loss (FVTPL) depending upon the business model for managing the financial assets and the nature of the contractual cash flow characteristics of the financial asset. Financial assets are initially recognised at fair value on the trade date, including, in the case of instruments not recorded at fair value through profit or loss, directly attributable transaction costs. Subsequently, other investments, provisionally priced trade receivables and derivatives are carried at fair value and trade receivables that do not contain provisional price features, loans and other receivables are carried at amortised cost adjusted for any loss allowance.

Financial liabilities, other than derivatives and those containing provisional price features, are initially recognised at fair value of consideration received net of transaction costs as appropriate and subsequently carried at amortised cost. Financial liabilities that contain provisional pricing features and derivatives are carried at FVTPL.

(i) Impairment of financial assets
A loss allowance for expected credit losses is determined for all financial assets, other than those at FVTPL, at the end of each reporting period. The expected credit loss recognised represents a probability-weighted estimate of credit losses over the expected life of the financial instrument.

The Group applies the simplified approach to measure the loss allowance for trade receivables classified at amortised cost, using the lifetime expected loss provision. The expected credit losses on these financial assets is estimated using a provision matrix by reference to past default experience and an equivalent credit rating, adjusted as appropriate for current observable data and forward-looking information.

1. Accounting policies continued

For all other financial assets at amortised cost, the Group recognises lifetime expected credit losses when there has been a significant increase in credit risk since initial recognition, which is determined by:

- A review of overdue amounts,
- Comparing the risk of default at the reporting date and at the date of initial recognition, and
- An assessment of relevant historical and forward-looking quantitative and qualitative information.

For those balances that are beyond 30 days overdue it is presumed to be an indicator of a significant increase in credit risk.

If the credit risk on the financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-months expected credit loss, which comprises the expected lifetime loss from the instrument were a default to occur within 12 months of the reporting date.

The Group considers an event of default has materialised and the financial asset is credit impaired when information developed internally or obtained from external sources indicates that the debtor is unlikely to pay the Group without taking into account any collateral held by the Group or if the financial asset is more than 90 days past due, unless the Group has reasonable and supportable information to demonstrate that a more lagging default criterion is more appropriate. The Group writes off a financial asset when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery.

(ii) Derecognition of financial assets and financial liabilities
The Group derecognises a financial asset when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another party. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognises its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognise the financial asset and also recognises a collateralised borrowing for the proceeds received.

The Group derecognises financial liabilities when the Group's obligations are discharged, cancelled or have expired.

On derecognition of a financial asset/financial liability in its entirety, the difference between the carrying amount of the financial asset/financial liability and the sum of the consideration received and receivable/paid and payable is recognised in profit and loss. On derecognition of equity investments designated and measured at FVTOCI, the cumulative gain or loss recognised in other comprehensive income is reclassified directly to retained earnings.

Own shares
The cost of purchases of own shares is deducted from equity. Where they are purchased, issued to employees or sold, no gain or loss is recognised in the consolidated statement of income. Such gains and losses are recognised directly in equity. Any proceeds received on disposal of the shares or transfers to employees are recognised in equity.

Derivatives and hedging activities
Derivative instruments, which include physical contracts to sell or purchase commodities that do not meet the own use exemption, are initially recognised at fair value when Glencore becomes a party to the contractual provisions of the instrument and are subsequently remeasured to fair value at the end of each reporting period. Fair values are determined using quoted market prices, dealer price quotations or using models and other valuation techniques, the key inputs for which include current market and contractual prices for the underlying instrument, time to expiry, yield curves, volatility of the underlying instrument and counterparty risk.

Gains and losses on derivative instruments for which hedge accounting is not applied, other than the revenue adjustment mechanism embedded within provisionally priced sales and mark-to-market movements on physical forward sales contracts, are recognised in cost of goods sold.

Those derivatives qualifying and designated as hedges are either (i) a Fair Value Hedge of the change in fair value of a recognised asset or liability or an unrecognised firm commitment, or (ii) a Cash Flow Hedge of the change in cash flows to be received or paid relating to a recognised asset or liability or a highly probable transaction.

At the inception of the hedge and on an ongoing basis, Glencore documents whether the hedging instrument is effective in offsetting changes in fair values or cash flows of the hedged item attributable to the hedged risk, which is when the hedging relationship meets the qualifying hedge effectiveness requirements.

Glencore discontinues hedge accounting when the qualifying criteria for the hedged relationship is no longer met.

A change in the fair value of derivatives designated as a Fair Value Hedge is reflected together with the change in the fair value of the hedged item in the consolidated statement of income.

1. Accounting policies continued

A change in the fair value of derivatives designated as a Cash Flow Hedge is initially recognised as a cash flow hedge reserve in shareholders' equity. The deferred amount is then released to the consolidated statement of income in the same periods during which the hedged transaction affects the consolidated statement of income. Hedge ineffectiveness is recorded in the consolidated statement of income when it occurs.

When a hedging instrument expires or is sold, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in shareholders' equity and is recognised in the consolidated statement of income when the committed or forecast transaction is ultimately recognised in the consolidated statement of income. However, if a forecast or committed transaction is no longer expected to occur, the cumulative gain or loss that was recognised in equity is immediately transferred to the consolidated statement of income.

A derivative may be embedded in a non-derivative "host contract" such as provisionally priced sales and purchases. Such combinations are known as hybrid instruments. If a hybrid contract contains a host that is a financial asset within the scope of IFRS 9, then the relevant classification and measurement requirements are applied to the entire contract at the date of initial recognition. Should the host contract not be a financial asset within the scope of IFRS 9, the embedded derivative is separated from the host contract and accounted for as a standalone derivative. Where the embedded derivative is separated, the host contract is accounted for in accordance with its relevant accounting policy, unless the entire instrument is designated at FVTPL in accordance with IFRS 9.

2. Segment information

Changes in segmental reporting

During the period, key members of the Group's Metals and minerals, Energy products and Agricultural products segments retired and a new position with oversight and responsibility for all of Glencore's industrial assets (Head of Industrial Assets) was created. Internal reporting lines and organisational structures were amended such that Glencore's industrial activities report to the Head of Industrial Assets and all of its marketing activities report to the Head of Marketing (being the Group CEO). This change in oversight and responsibility for the two differing parts of our business (marketing and industrial) and associated remuneration has resulted in a change in the 'chief operating decision makers' reporting and accountability structures and, with it, our reportable segments. Aligning with the new executive structure and respective operational oversight and responsibility, the new reportable segments are – 'Industrial' and 'Marketing' activities.

Comparative 2018 information has been restated for the change in reportable segments.

Segment information

Glencore is organised and operates on a worldwide basis in two core business segments – Marketing activities and Industrial activities, reflecting the reporting lines and structure used by Glencore's Management to allocate resources and assess the performance of Glencore.

The business segments' contributions to the Group are primarily derived from a) the net margin or premium earned from physical Marketing activities (net sale and purchase of physical commodities) and the provision of marketing and related value-add services and b) the net margin earned from Industrial asset activities (resulting from the sale of physical commodities over the cost of production and/or cost of sales). Due to similar economic characteristics of the operating segments within the Marketing activities and Industrial activities, these operating segments have been aggregated under the two reportable segments.

Corporate and other: consolidated statement of income amount represents Group related income and expenses (including share of Glencore Agri earnings and certain variable bonus charges). Statement of financial position amounts represent Group related balances.

The financial performance of the operating segments is principally evaluated by management with reference to Adjusted EBIT/EBITDA. Adjusted EBIT is the net result of segmental revenue (revenue including Proportionate adjustments as defined in the Alternative performance measure section) less cost of goods sold and selling and administrative expenses plus share of income from associates and joint ventures, dividend income and the attributable share of Adjusted EBIT of relevant material associates and joint ventures, which are accounted for internally by means of proportionate consolidation, excluding significant items. Adjusted EBITDA consists of Adjusted EBIT plus depreciation and amortisation, including the related Proportionate adjustments. In addition, Volcan, while a subsidiary of the Group, is accounted for under the equity method for internal reporting and analysis due to the relatively low economic ownership held by the Group.

The accounting policies of the operating segments are the same as those described in note 1 with the exception of relevant material associates, the Collahuasi joint venture and Volcan. Under IFRS 11, Glencore's investments in the Antamina copper/zinc mine (34% owned) and the Cerrejón coal mine (33% owned) are considered to be associates as they are not subject to joint control and the Collahuasi copper mine (44% owned) is considered to be a joint venture. Associates and joint ventures are required to be accounted for in Glencore's financial statements under the equity method. For internal reporting and analysis, Glencore evaluates the performance of these investments under the proportionate consolidation method, reflecting Glencore's proportionate share of the revenues, expenses, assets and liabilities of the investments. For internal reporting and analysis, management evaluates the performance of Volcan under the equity method, reflecting the Group's relatively low 23.3% economic ownership in this fully ring-fenced listed entity, with its stand-alone, independent and separate capital structure. The balances as presented for internal reporting purposes are reconciled to Glencore's statutory disclosures in the following tables and/or in the Alternative performance measures section.

Notes to the financial statements
continued

2. Segment information continued

Glencore accounts for intra-segment sales and transfers where applicable as if the sales or transfers were to third parties, i.e. at arm's length commercial terms.

2019 US$ million	Marketing activities	Industrial activities	Inter-segment eliminations	Total
Revenue				
Metals and minerals	73,561	27,672	(16,751)	84,482
Energy products	120,627	15,067	(2,921)	132,773
Corporate and other	–	4	–	4
Revenue - segmental	**194,188**	**42,743**	**(19,672)**	**217,259**
Proportionate adjustment – revenue[1]	–	(2,148)	–	(2,148)
Revenue – reported measure	**194,188**	**40,595**	**(19,672)**	**215,111**
Metals and minerals				
Adjusted EBITDA	1,169	5,555	–	6,724
Depreciation and amortisation	(80)	(4,438)	–	(4,518)
Proportionate adjustment – depreciation[1]	–	(101)	–	(101)
Adjusted EBIT	**1,089**	**1,016**	**–**	**2,105**
Energy products				
Adjusted EBITDA	1,515	3,854	–	5,369
Depreciation and amortisation	(191)	(2,392)	–	(2,583)
Proportionate adjustment – depreciation[1]	–	(188)	–	(188)
Adjusted EBIT	**1,324**	**1,274**	**–**	**2,598**
Corporate and other				
Adjusted EBITDA[2]	(47)	(445)	–	(492)
Depreciation and amortisation	–	(60)	–	(60)
Adjusted EBIT	**(47)**	**(505)**	**–**	**(552)**
Total Adjusted EBITDA	**2,637**	**8,964**	**–**	**11,601**
Total depreciation and amortisation	(271)	(6,890)	–	(7,161)
Total depreciation proportionate adjustment	–	(289)	–	(289)
Total Adjusted EBIT	**2,366**	**1,785**	**–**	**4,151**
Share of associates' significant items[1,3]				(219)
Share of associates' significant items - Volcan				(73)
Movement in unrealised inter-segment profit elimination adjustments[4]				468
Loss on disposals of non-current assets				(43)
Other (expense)/income – net				(173)
Impairments				(2,408)
Interest expense – net				(1,713)
Income tax expense				(618)
Proportionate adjustment – net finance and income tax expense[1]				(878)
Loss for the year				**(1,506)**

1 Refer to APMs section for definition.

2 Marketing activities include $58 million, pre-significant items, of Glencore's equity accounted share of Glencore Agri.

3 Share of associates' significant items comprise Glencore's share of significant charges relating to impairments and other items booked directly by various associates, notably Glencore Agri ($73 million), Trevali ($65 million) and Oil vessels' entities ($62 million).

4 Represents the required adjustment to eliminate unrealised profit or losses arising on inter-segment transactions, i.e. before ultimate sale to a third party. For Glencore, such adjustments arise on the sale of product, in the ordinary course of business, from its Industrial to Marketing operations. Management assesses segment performance prior to any such adjustments, as if the sales were to third parties.

2. Segment information continued

2018

US$ million	Marketing activities	Industrial activities	Inter-segment eliminations	**Total Restated[1]**
Revenue				
Metals and minerals	72,744	31,385	(20,291)	83,838
Energy products	129,930	12,660	(3,285)	139,305
Corporate and other	–	24	–	24
Revenue - segmental	**202,674**	**44,069**	**(23,576)**	**223,167**
Proportionate adjustment – revenue[2]	–	(2,643)	–	(2,643)
Revenue – reported measure	**202,674**	**41,426**	**(23,576)**	**220,524**
Metals and minerals				
Adjusted EBITDA	1,767	8,478	–	10,245
Depreciation and amortisation	(25)	(4,316)	–	(4,341)
Proportionate adjustment – depreciation[2]	–	(109)	–	(109)
Adjusted EBIT	**1,742**	**4,053**	**–**	**5,795**
Energy products				
Adjusted EBITDA	795	5,312	–	6,107
Depreciation and amortisation	(53)	(1,913)	–	(1,966)
Proportionate adjustment – depreciation[2]	–	(190)	–	(190)
Adjusted EBIT	**742**	**3,209**	**–**	**3,951**
Corporate and other				
Adjusted EBITDA[3]	(70)	(515)	–	(585)
Depreciation and amortisation	–	(18)	–	(18)
Adjusted EBIT	**(70)**	**(533)**	**–**	**(603)**
Total Adjusted EBITDA	**2,492**	**13,275**	**–**	**15,767**
Total depreciation and amortisation	(78)	(6,247)	–	(6,325)
Total depreciation proportionate adjustment	–	(299)	–	(299)
Total Adjusted EBIT	**2,414**	**6,729**	**–**	**9,143**
Share of associates' significant items[2,4]				(40)
Movement in unrealised inter-segment profit elimination adjustments[5]				237
Loss on disposals of non-current assets				(139)
Other (expense)/income – net				(764)
Impairments				(1,643)
Interest expense – net				(1,514)
Income tax expense				(2,063)
Proportionate adjustment – net finance and income tax expense[2]				(601)
Income for the year				**2,616**

1 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).
2 Refer to APMs section for definition.
3 Marketing activities include $21 million of Glencore's equity accounted share of Glencore Agri.
4 Share of associates' significant items comprise Glencore's share of significant charges relating to impairments booked directly by various associates.
5 Represents the required adjustment to eliminate unrealised profit or losses arising on inter-segment transactions, i.e. before ultimate sale to a third party. For Glencore, such adjustments arise on the sale of product, in the ordinary course of business, from its Industrial to Marketing operations. Management assesses segment performance prior to any such adjustments, as if the sales were to third parties.

2. Segment information continued

2019 US$ million	Marketing activities	Industrial activities	Corporate and other	Total
Current assets	27,198	12,455	–	39,653
Current liabilities	(24,359)	(6,957)	–	(31,316)
Allocatable current capital employed	**2,839**	**5,498**	**–**	**8,337**
Property, plant and equipment	921	54,436	–	55,357
Intangible assets	5,293	1,713	–	7,006
Investments in associates and other investments	6,202	9,169	–	15,371
Non-current advances and loans	1,511	916	–	2,427
Inventories	–	575	–	575
Allocatable non-current capital employed	**13,927**	**66,809**	**–**	**80,736**
Other assets[1]			3,687	3,687
Other liabilities[2]			(53,524)	(53,524)
Total net assets	**16,766**	**72,307**	**(49,837)**	**39,236**
Capital expenditure				
Metals and minerals	94	3,963	–	4,057
Energy products	344	1,312	–	1,656
Corporate and other	–	74	–	74
Capital expenditure - segmental[3]	**438**	**5,349**	**–**	**5,787**
Proportionate adjustment – capital expenditure[4]	–	(419)	–	(419)
Capital expenditure – reported measure	**438**	**4,930**	**–**	**5,368**

2018 US$ million	Marketing activities	Industrial activities	Corporate and other	Total
Current assets	31,514	10,708	–	42,222
Current liabilities	(25,065)	(6,737)	–	(31,802)
Allocatable current capital employed	**6,449**	**3,971**	**–**	**10,420**
Property, plant and equipment	457	56,313	–	56,770
Intangible assets	5,559	1,412	–	6,971
Investments in associates and other investments	6,122	9,854	–	15,976
Non-current advances and loans	1,575	980	–	2,555
Inventories	–	353	–	353
Allocatable non-current capital employed	**13,713**	**68,912**	**–**	**82,625**
Other assets[1]			3,825	3,825
Other liabilities[2]			(51,487)	(51,487)
Total net assets	**20,162**	**72,883**	**(47,662)**	**45,383**
Capital expenditure				
Metals and minerals	34	3,996	–	4,030
Energy products	55	1,043	–	1,098
Corporate and other	–	38	–	38
Capital expenditure - segmental	**89**	**5,077**	**–**	**5,166**
Proportionate adjustment – capital expenditure[4]	–	(389)	–	(389)
Capital expenditure – reported measure	**89**	**4,688**	**–**	**4,777**

1 Other assets include non-current financial asset, deferred tax assets, cash and cash equivalents and assets held for sale.
2 Other liabilities include borrowings, non-current deferred income, deferred tax liabilities, non-current provisions, non-current financial liabilities and liabilities held for sale.
3 Includes $656 million ($361 million in Marketing activities and $295 million in Industrial activities) of 'right-of-use assets' capitalised in accordance with IFRS 16 – Leases.
4 Refer to APMs section for definition.

2. Segment information continued

Geographical information

US$ million	2019	2018 Restated[1]
Revenue from third parties[2]		
The Americas	38,114	36,939
Europe	75,749	76,761
Asia	82,988	94,643
Africa	8,214	5,240
Oceania	10,046	6,941
	215,111	**220,524**
Non-current assets[3]		
The Americas	21,702	23,491
Europe	11,048	10,824
Asia	4,669	4,453
Africa	17,548	16,921
Oceania	20,955	22,314
	75,922	**78,003**

1 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).

2 Revenue by geographical destination is based on the country of incorporation of the sales counterparty, however this may not necessarily be the country of the counterparty's ultimate parent and/or final destination of product.

3 Non-current assets are non-current assets excluding other investments, advances and loans, other financial assets and deferred tax assets. Non-current assets comprise assets in Australia of $19,277 million (2018: $20,500 million), in Peru of $9,923 million (2018: $10,596 million) and the DRC of $6,911 million (2018: $7,272 million).

3. Revenue

US$ million	2019	2018 Restated[1]
Sale of commodities	212,244	217,889
Freight, storage and other services	2,867	2,635
Total	**215,111**	**220,524**

1 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).

Revenue is derived principally from the sale of commodities, recognised once control of the goods has transferred from Glencore to the buyer. Revenue from sale of commodities includes $221 million (2018: $770 million) of mark-to-market related adjustments on provisionally priced sales arrangements. Revenue derived from freight, storage and other services is recognised over time as the service is rendered. Revenue is measured based on consideration specified in the contract with the customer and excludes amounts collected on behalf of third parties. This is consistent with the revenue information disclosed for each reportable segment (see note 2).

4. Net loss on disposals of non-current assets

US$ million	Notes	2019	2018
Revaluation of previously held interest in newly acquired business (Polymet)	25	(38)	–
Loss on sale of Mototolo	25	–	(137)
Gain on sale of Terminales Portuarios Chancay S.A.	25	26	–
Net (loss)/gain on sale of other investments/operations		(8)	15
Loss on disposal of property, plant and equipment		(23)	(17)
Total		**(43)**	**(139)**

Polymet
In June 2019, Glencore concluded the acquisition of an additional 42.9% interest in Polymet Mining Corp. Prior to acquisition, Glencore owned a 28.8% interest in Polymet which was accounted for as an associate. The revaluation of the existing interest at the date of acquisition resulted in a reported loss of $38 million (see note 25).

Terminales Portuarios Chancay S.A.
In April 2019, Glencore disposed of a 60% interest in Terminales Portuarios Chancay S.A. for $11 million, subsequently accounting for its remaining share of 40% using the equity method (see notes 10 and 25).

4. Net loss on disposals of non-current assets continued

Mototolo
In November 2018, Glencore disposed of its 40% interest in the Mototolo joint venture, a PGM mine in South Africa, resulting in a loss of $137 million, mainly on account of recycling foreign currency translation reserves to the statement of income (see note 25).

5. Other expense – net

US$ million	Notes	2019	2018
Net changes in mark-to-market valuations on investments		47	139
Net foreign exchange losses		(70)	(58)
Legal related costs		(159)	(86)
Closed site rehabilitation costs		(81)	(8)
Closure and severance costs		(173)	–
Disposal of Rosneft stake related income/(costs)		325	(325)
KCC debt restructuring	33	–	(248)
Katanga OSC settlement and restatement		–	(22)
Acquisition related costs	25	(6)	(142)
Other expenses – net		(56)	(14)
Total		**(173)**	**(764)**

Together with foreign exchange movements and mark-to-market movements on investments, other expense includes other items that, due to their nature and variable financial impact or infrequency of the events giving rise to these items, are reported separately from operating segment results.

Net changes in mark-to-market valuations on investments
Primarily relates to movements on interests in investments (see note 10) and the ARM Coal non-discretionary dividend obligation (see note 28) carried at fair value.

Legal related costs
Includes various investigations (legal, expert and compliance) related costs of $117 million (2018: $24 million)(see note 31).

In 2018, the Strategic Fuel Fund Association of South Africa (SFF) brought various claims against Glencore Energy UK (GENUK), a subsidiary of the Group, asserting that certain purchases of oil from SFF were invalid on the basis that SFF did not comply with its necessary approval and procurement processes and that GENUK is therefore not entitled to remove the inventory until the dispute is resolved. Over the period, holding costs and related charges recognised in relation to this inventory amounted to $42 million (2018: $62 million).

Closed site rehabilitation costs
Relates to movements in restoration, rehabilitation and decommissioning estimates related to sites that are no longer operational (classified as "closed sites") (see note 22).

Closure and severance related costs
As a result of the sharp decline in cobalt prices and weak, oversupplied cobalt markets, it was determined in H2 2019, to put Mutanda on temporary care and maintenance. Furthermore, in Q4 2019, following an extensive business review, it was determined to permanently close the Brunswick lead smelter in Canada. As a result of these decisions, severance and inventory write downs of $27 million and $56 million respectively were recognised at Mutanda (Industrial activities segment) and inventory write downs and future rehabilitation costs of $18 million and $15 million respectively were recognised at the Brunswick smelter (Industrial activities segment). Also, as a result of the ongoing mine optimisation review at Katanga (Industrial activities segment), $10 million of severance and $47 million of inventory write downs were recognised due to organisational, production and development updates.

Disposal of Rosneft stake related income/(costs)
In January 2017, Glencore and Qatar Investment Authority (QIA) entered into various agreements establishing a 50:50 consortium (QHG) to acquire 19.5% of OSJC Rosneft Oil (Rosneft) and enter into a 5 year offtake agreement with Rosneft. In September 2018, the consortium arrangements were terminated with each member taking a direct ownership in Rosneft shares – QIA received an 18.93% stake and Glencore retained a 0.57% equity stake commensurate with its original equity swap investment in 2017 (see note 10) and the QHG group of entities being wholly owned by Glencore. Upon completion of the transaction, the QHG group had incurred a liability for funding and other closure costs totalling $325 million. While QHG had a legally enforceable contractual claim to recover these costs, the ability to recognise the potential claim as an asset was not virtually certain and thus, in 2018, these costs were expensed in full.

5. Other expense – net continued

In September 2019, an agreement was reached to settle QHG's outstanding claim through the effective sale of the liability for these funding and closure costs which were carried in various QHG group companies. This resulted in a gain of $325 million being recognised.

Katanga OSC settlement and restatement

In December 2018, Katanga Mining Limited (Katanga), a controlled subsidiary of the Group listed on the Toronto Stock Exchange, entered into a settlement agreement with the Ontario Securities Commission (OSC) including a payment of $22 million. The settlement agreement resolved an investigation by the OSC into certain of Katanga's historic accounting practices, corporate governance and disclosure practices.

6. Impairments

US$ million	Notes	**2019**	2018
Property, plant and equipment and intangible assets	8/9	(1,954)	(1,452)
Investments	10	(137)	–
Advances and loans - non-current	11	(86)	(191)
VAT receivables		(162)	–
Inventory and other		(69)	–
Total impairments[1]		**(2,408)**	**(1,643)**

1 Impairments recognised during the year are allocated to Glencore's operating segments as follows: Marketing activities $201 million (2018: $92 million) and Industrial activities $2,207 million (2018: $1,551 million).

As part of a regular portfolio review, Glencore carries out an assessment of whether there are indicators of asset impairment or whether a previously recorded impairment may no longer be required.

The recoverable amounts of the property, plant and equipment and intangible assets were measured based on fair value less costs of disposal (FVLCD), determined by discounted cash flow techniques based on the most recent approved financial budgets and three-year business plans, which are underpinned and supported by life of mine plans of the respective operations. The valuation models use the most recent reserve and resource estimates, relevant cost assumptions generally based on past experience and where possible, market forecasts of commodity price and foreign exchange rate assumptions discounted using operation specific discount rates ranging from 6.6% – 13.5% (2018: 7% – 13.5%). The valuations remain sensitive to price and a deterioration/improvement in the pricing outlook may result in additional impairments/reversals. The determination of FVLCD uses Level 3 valuation techniques for both years.

As a result of the regular impairment assessment, the following significant impairment charges resulted:

2019

Property, plant and equipment and intangible assets

- Following the sharp further decline in cobalt prices over H1 2019 and in response thereof, significant updates were made to Mutanda's mine plans, culminating in the decision to place the operation on temporary care and maintenance in December 2019, for future restart, once the current weak and oversupplied cobalt market sufficiently recovers. As a result, the Mutanda operations (Industrial activities segment) were impaired by $300 million to its estimated recoverable amount of $2,600 million, including continued value recognition for the long-term copper sulphide resource potential. The valuation remains sensitive to price and a prolonged temporary care and maintenance scenario and further deteriorations in these key assumptions may result in additional impairment. The operation specific discount rate used in the valuation was 13.5%. The short to long-term copper and cobalt price assumptions were $6,500/mt and $20.00 – $27.00/lb, respectively. Should the copper and cobalt assumptions fall by 10% (across the curve), or should it be determined that the temporary care and maintenance scenario be prolonged for an additional 2 years, with all other assumptions held constant, a further impairment ranging between $317 million and $468 million would be recognised.
- During H1 2019, Glencore's exploration licenses in Chad East expired and Glencore entered into discussions with the Government of the Republic of Chad with a view to extending the exploration licenses on terms acceptable to both parties. The discussions did not result in any agreement to extend the licenses. As a result, the full carrying value pertaining to the acreage held under exploration licenses ($538 million) (Industrial activities segment) was impaired. The expiry of the exploration licences has no impact on Glencore's current production and development assets in the Mangara, Badila and Krim fields (Chad West), which are held under exploitation licences.
- During H1 2019, challenging warehousing conditions persisted and as a result, the remaining goodwill of $50 million related to the Access World warehousing business (Marketing activities segment) was impaired.

6. Impairments continued

- Global LNG oversupply with resultant low spot gas prices, and to a lesser extent, higher EU carbon prices, placed considerable pressure on the API2 European coal market, the primary price reference market for our Colombian coal operations. This impact, including reflecting our latest Colombian mine-life approval expectations, resulted in a reduction in future production and revenue estimates. As a result, the Prodeco operation (Industrial activities segment) was impaired by $514 million, along with an inventory write down of $41 million to its estimated recoverable amount of $778 million. The valuation remains sensitive to price and a further deterioration in the pricing outlook may result in a further impairment. The operation specific discount rate used in the valuation was 8.1%. The short to long-term API2 price assumptions were $70 - 83/mt. Should the price assumptions fall by 10% (across the curve) with all other assumptions held constant, a further impairment of $466 million would be recognised.
- In November 2019, an agreement to dispose of the Oxidos and Cerro de Pasco operations (separately identifiable zinc and silver processing areas within the Volcan group) (Industrial activities segment), which predominantly comprise an oxide processing plant, environmental and rehabilitation provisions and old tailings dumps, was reached with $30 million due over a two year period plus a royalty, contingent upon the price of silver and gold over certain thresholds, estimated to be worth $100 million on a discounted basis. The transaction is subject to customary regulatory approvals and is expected to close during 2020. As a result of the agreed disposal, it has been determined that these operations meet the requirements of IFRS 5, which requires that its assets and liabilities be presented as current assets and liabilities "held for sale" as at 31 December 2019 at the lower of their carrying value or fair value less costs to sell, and as a result of this reclassification to assets held for sale, an impairment charge of $354 million was recognised as well as a VAT impairment of $24 million. Also see note 15.
- The balance of the impairment charges on property, plant and equipment (none of which were individually material) relate to specific assets where utilisation is no longer required or to projects no longer processed due to changes in production and development plans. As a result, the full carrying amount of these asses/projects was impaired, with $168 million recognised in our Industrial activities segment and $30 million recognised in our Marketing activities segment.

VAT receivables

As a result of the continued decline in the Zambian government's cash flow position and continued challenge by the Zambian Revenue Authority on the validity of Mopani's (Industrial activities segment) Value Added Tax ("VAT") claims pertaining to 2013-15 submissions, such claims amounting to $127 million were impaired in full.

The balance of the impairment charges on VAT receivables (none of which were individually material) were recognised in our Industrial activities segment ($5 million) and in our Marketing activities segment ($6 million).

2018

Property, plant and equipment

- As a result of delays in various expansion programs, cost increases owing to inflation, tax and other regulatory pressures and, in particular, a materially lower acid price assumption (by-product from smelting), the Mopani copper operations in Zambia (Industrial activities segment) were impaired by $803 million, to its estimated recoverable amount of $1,427 million. The valuation remains sensitive to price and a further deterioration in the pricing outlook may result in additional impairment. The operation specific discount rate used in the valuation was 11.1%. The short to long-term copper and cobalt price assumptions were $6,500/mt and $27.22/lb, respectively, and acid price assumptions were $220/mt for 2019 and 2020 and $50/mt over the remaining life of mine. As at 31 December 2018, had the copper, cobalt and acid price assumptions fallen by 10%, a further $390 million of impairment would have been recognised. In addition, had operating costs risen by 5% as a result of further operational challenges and delays, a further $165 million of impairment would have been recognised.
- In Q4 2018, a significant downward revision in the amount and timing of copper oxide reserves at our Mutanda copper operations in the DRC was highlighted, which lowers near term forecast annual copper production. In addition, the significant increased costs and elevated political risk stemming from the introduction of the 2018 Mining Code, has reduced the value of the base business, as well as reduced the value and probability of approving the development of new facilities to treat the sulphide reserves. As a result of these changes, the Mutanda operations (Industrial activities segment) were impaired by $600 million, to its estimated recoverable amount of $3,006 million. The valuation remains sensitive to price and adverse applications of the 2018 Mining Code. A further deterioration in these assumptions may result in additional impairment. The operation specific discount rate used in the valuation was 13.5%. The short to long-term copper and cobalt price assumptions were $6,500/mt and $27.22/lb, respectively, and it was assumed that no super profits tax would be incurred. As at 31 December 2018, had the copper and cobalt price assumptions fallen by 10% and it was determined that super profits tax was due, a further impairment ranging between $479 million and $1,008 million would have been recognised.
- The balance of the impairment charges on property, plant and equipment (none of which were individually material) relate to specific assets where utilisation is no longer required or to projects no longer progressed due to changes in production and development plans. As a result, the full carrying amount of these assets/projects was impaired, with $49 million recognised in our Industrial activities segment.

6. Impairments continued

Advances and loans – non-current

In 2018, certain loans and physical advances were restructured over the period due to various non-performance factors, resulting in the following impairments being recognised:

- $92 million impairment of a loan provided under an Energy related financing arrangement (Marketing activities segment). The estimated recoverable amount of the advance was $23 million.
- $99 million impairment of a financial loan arrangement (Industrial activities segment). The estimated recoverable amount of the loan was $155 million, see note 11.

7. Income taxes

Income taxes consist of the following:

US$ million	**2019**	2018
Current income tax expense	(1,315)	(2,290)
Adjustments in respect of prior year current income tax	74	21
Deferred income tax credit	603	264
Adjustments in respect of prior year deferred income tax	20	(58)
Total tax expense reported in the statement of income	**(618)**	**(2,063)**
Current income tax (expense)/credit recognised directly in other comprehensive income	–	–
Deferred income tax credit recognised directly in other comprehensive income	4	8
Total tax credit recognised directly in other comprehensive income	**4**	**8**

The effective Group tax rate is different from the statutory Swiss income tax rate applicable to the Company for the following reasons:

US$ million	**2019**	2018
(Loss)/income before income taxes	(888)	4,679
Less: Share of income from associates and joint ventures	(114)	(1,043)
Parent Company's and subsidiaries' (loss)/income before income tax and attribution	**(1,002)**	**3,636**
Income tax credit/(expense) calculated at the Swiss income tax rate of 15% (2018: 15%)	150	(545)
Tax effects of:		
Different tax rates from the standard Swiss income tax rate	450	(227)
Tax-exempt income ($175 million (2018: $275 million) from recurring items and $37 million (2018: $77 million) from non-recurring items)	212	352
Items not tax deductible ($689 million (2018: $585 million) from recurring items and $200 million (2018: $187 million) from non-recurring items)	(889)	(772)
Foreign exchange fluctuations	(12)	(130)
Changes in tax rates ($Nil (2018: $Nil) from recurring items and $13 million (2018: $1 million) from non-recurring items)	(13)	1
Utilisation and changes in recognition of tax losses and temporary differences	(187)	(357)
Recognition of temporary differences arising from retrospective changes in tax restructuring regulations	120	–
Tax losses not recognised	(543)	(340)
Adjustments in respect of prior years	94	(37)
Other	–	(8)
Income tax expense	**(618)**	**(2,063)**

The non-tax deductible items of $889 million (2018: $772 million) primarily relate to financing costs, impairments and various other expenses.

The impact of tax-exempt income of $212 million (2018: $352 million) primarily relates to non-taxable intra-group dividends, income that is not effectively connected to the taxable jurisdiction, and various other items.

The tax impact of foreign exchange fluctuations relates to the foreign currency movements on deferred tax balances where the underlying tax balances are denominated in a currency different to the functional currency determined for accounting purposes.

7. Income taxes continued

Deferred taxes

Deferred taxes as at 31 December 2019 and 2018 are attributable to the items in the table below:

US$ million	2019	Recognised in the statement of income	Recognised in other comprehensive income	Business combination and disposal of subsidiaries	Foreign currency exchange movements	Other	2018
Deferred tax assets[1]							
Tax losses carried forward	1,212	(308)	–	6	–	–	1,514
Other	265	54	4	7	(1)	(13)	214
Total	**1,477**	**(254)**	**4**	**13**	**(1)**	**(13)**	**1,728**
Deferred tax liabilities[1]							
Depreciation and amortisation	(5,680)	742	–	(69)	(35)	–	(6,318)
Mark-to-market valuations	(71)	(10)	9	3	–	–	(73)
Other	(223)	145	(9)	–	(1)	90	(448)
Total	**(5,974)**	**877**	**–**	**(66)**	**(36)**	**90**	**(6,839)**
Total Deferred tax - net	**(4,497)**	**623**	**4**	**(53)**	**(37)**	**77**	**(5,111)**

US$ million	2018	Recognised in the statement of income	Recognised in other comprehensive income	Business combination and disposal of subsidiaries	Foreign currency exchange movements	Other	2017
Deferred tax assets[1]							
Tax losses carried forward	1,514	(58)	–	–	(1)	50	1,523
Other	214	38	(2)	–	(32)	–	210
Total	**1,728**	**(20)**	**(2)**	**–**	**(33)**	**50**	**1,733**
Deferred tax liabilities[1]							
Depreciation and amortisation	(6,318)	487	2	(157)	224	(19)	(6,855)
Mark-to-market valuations	(73)	(5)	(1)	–	(2)	–	(65)
Other	(448)	(256)	9	(105)	8	–	(104)
Total	**(6,839)**	**226**	**10**	**(262)**	**230**	**(19)**	**(7,024)**
Total Deferred tax - net	**(5,111)**	**206**	**8**	**(262)**	**197**	**31**	**(5,291)**

1 Asset and liability positions in the same category reflect the impact of tax assets and liabilities arising in local tax jurisdictions that cannot be offset against tax assets and liabilities arising in other tax jurisdictions.

Deferred tax assets are recognised for tax losses carried forward only to the extent that realisation of the related tax benefit is probable. As at 31 December 2019, $1,571 million (2018: $2,140 million) of deferred tax assets related to available loss carry forwards have been brought to account, of which $1,212 million (2018: $1,514 million) are disclosed as deferred tax assets with the remaining balance being offset against deferred tax liabilities arising in the same tax entity. This balance is primarily comprised of:

- $517 million (2018: $520 million) in entities domiciled in the DRC (Katanga Mining Group),
- $287 million (2018: $452 million) in entities domiciled in Switzerland, and
- $366 million (2018: $403 million) in entities domiciled in the U.S.

In evaluating whether it is probable that taxable profits will be earned in future accounting periods prior to any tax loss expiry as may be the case, all available evidence was considered, including approved budgets, forecasts and business plans and, in certain cases, analysis of historical operating results. These forecasts are consistent with those prepared and used internally for business planning and impairment testing purposes. Following this evaluation, it was determined there would be sufficient taxable income generated to realise the benefit of the deferred tax assets and that no reasonably possible change in any of the key assumptions would result in a material reduction in forecast headroom of tax profits so that the recognised deferred tax asset would not be realised, other than the potential developments in the DRC discussed below.

The recognised losses carried forward in Switzerland primarily relate to non-recurring events. Based on the core business activities conducted in Switzerland and taxable income forecasts going forward, sufficient taxable profits are expected to fully utilise the recognised tax losses prior to expiration.

The recognised losses carried forward in the U.S. primarily relate to non-recurring events in 2011 and have a carry forward period of 20 years. The U.S. entities comprise our core U.S. marketing activities and based on taxable income forecasts going forward, sufficient taxable profits are expected to fully utilise the recognised tax losses prior to expiration.

7. Income taxes continued

DRC related income tax judgements

The losses carried forward in the DRC have an unlimited carry forward period, but are subject to an annual utilisation limitation. Katanga Mining resumed processing operations in December 2017 and is expected to generate taxable profits in the future. Should this potential fully materialise, up to $824 million (2018: $705 million) of unrecognised tax effected losses are available to be recognised.

During 2018, the DRC parliament adopted a new mining code ("2018 Mining Code") introducing wide-ranging reforms including the introduction of higher royalties, a new Super Profits Tax regime and further regulatory controls. This triggered a re-assessment of our tax positions in the DRC. Based on the potential challenge of historical tax positions and uncertainties of the 2018 Mining Code, specifically, the application and interpretation of the Super Profits Tax, which cannot be offset by carry forward income tax losses, consideration was given to the range of possible outcomes to determine the expected value of the tax losses available for future offset, including to what extent previously incurred tax losses would be available to offset future taxable profits. Any adverse challenge by the DRC tax authorities could significantly impact the currently recognised tax losses.

Available gross tax losses

Available gross tax losses carried forward and deductible temporary differences, for which no deferred tax assets have been recognised in the consolidated financial statements, are detailed below and will expire as follows:

US$ million	**2019**	2018
1 year	41	1,418
2 years	45	36
3 years	307	35
Thereafter	3,172	2,791
Unlimited	4,333	3,591
Total	**7,898**	**7,871**

As at 31 December 2019, unremitted earnings of $55,282 million (2018: $55,029 million) have been retained by subsidiaries for reinvestment. No provision is made for income taxes.

8. Property, plant and equipment

2019

US$ million	Notes	Freehold land and buildings	Plant and equipment	Right-of-use assets	Mineral and petroleum rights	Exploration and evaluation	Deferred mining costs	**Total**
Gross carrying amount:								
1 January 2019		6,060	43,629	–	29,687	2,183	17,066	98,625
Impact of adoption of IFRS 16[1]		–	(843)	1,635	–	–	–	792
Restatement[2]	25	2	(7)	–	–	–	–	(5)
1 January 2019 (restated)		6,062	42,779	1,635	29,687	2,183	17,066	99,412
Business combination	25	200	772	169	467	–	15	1,623
Disposal of subsidiaries	25	(59)	(32)	–	–	–	–	(91)
Additions		65	3,558	656	104	1	962	5,346
Disposals		(33)	(679)	(90)	(40)	–	(632)	(1,474)
Effect of foreign currency exchange movements		4	81	(1)	74	–	9	167
Reclassification to held for sale	15	(176)	(36)	(1)	(16)	(1)	(8)	(238)
Other movements		148	(218)	(55)	(53)	65	597	484
31 December 2019		**6,211**	**46,225**	**2,313**	**30,223**	**2,248**	**18,009**	**105,229**
Accumulated depreciation and impairment:								
1 January 2019		1,655	21,742	–	8,758	1,588	8,112	41,855
Impact of adoption of IFRS 16[1]		–	(312)	312	–	–	–	–
1 January 2019 (restated)		1,655	21,430	312	8,758	1,588	8,112	41,855
Disposal of subsidiaries	25	(4)	(32)	–	–	–	–	(36)
Disposals		(6)	(553)	(77)	(1)	–	(611)	(1,248)
Depreciation		377	3,059	396	1,709	6	1,469	7,016
Impairment	6	20	264	–	804	532	265	1,885
Effect of foreign currency exchange movements		1	26	–	15	–	–	42
Reclassification to held for sale	15	(27)	–	–	(14)	(1)	–	(42)
Other movements		1	452	2	(361)	33	273	400
31 December 2019		**2,017**	**24,646**	**633**	**10,910**	**2,158**	**9,508**	**49,872**
Net book value 31 December 2019		**4,194**	**21,579**	**1,680**	**19,313**	**90**	**8,501**	**55,357**

1 Gross finance lease arrangements of $843 million and related depreciation of $312 million previously presented within plant and equipment, have been reclassified to the 'right-of-use assets' heading. There has been no change in the amount recognised.

2 Adjustment to provisionally reported purchase price allocation in relation to Ale.

Plant and equipment includes expenditure for construction in progress of $4,161 million (2018: $3,268 million). Mineral and petroleum rights include biological assets of $19 million (2018: $18 million). Depreciation expenses included in cost of goods sold are $6,970 million (2018: $6,224 million) and in selling and administrative expenses, $46 million (2018: $19 million).

During 2019, $66 million (2018: $49 million) of interest was capitalised. With the exception of project specific borrowings, the rate used to determine the amount of borrowing costs eligible for capitalisation was 4% (2018: 4%).

As at 31 December 2019, with the exception of leases, no property, plant or equipment was pledged as security for borrowings (2018: $Nil).

8. Property, plant and equipment continued

Leases

The Group leases various assets including land and buildings and plant and equipment. As at 31 December 2019, the net book value of recognised right-of use assets relating to land and buildings was $595 million and plant and equipment $1,085 million. The depreciation charge for the period relating to those assets was $103 million and $293 million, respectively.

Disclosure of amounts recognised as lease liabilities in the statement of financial position and cash outflows for leases in the year are included within note 20.

Amounts recognised in the statement of income are detailed below:

US$ million	**2019**
Depreciation on right-of-use assets	(396)
Interest expense on lease liabilities	(101)
Expense relating to short-term leases	(758)
Expense relating to low-value leases	(3)
Expense relating to variable lease payments not included in the measurement of the lease liability	(1)
Income from subleasing right-of-use assets	231
Total	**(1,028)**

At 31 December 2019, the Group is committed to $224 million of short-term lease payments and $146 million related to capitalised leases not yet commenced.

2018

US$ million	Notes	Freehold land and buildings	Plant and equipment	Mineral and petroleum rights	Exploration and evaluation	Deferred mining costs	**Total**
Gross carrying amount:							
1 January 2018 (restated)[1]		5,711	41,310	28,619	2,170	14,674	92,484
Business combination	25	130	555	1,534	–	938	3,157
Disposal of subsidiaries	25	(74)	(467)	(248)	–	(105)	(894)
Additions		72	3,611	195	–	860	4,738
Disposals		(24)	(1,066)	(90)	–	(200)	(1,380)
Effect of foreign currency exchange movements		(27)	(452)	(419)	–	(49)	(947)
Reclassification from held for sale		3	237	16	–	25	281
Other movements		269	(99)	80	13	923	1,186
31 December 2018		**6,060**	**43,629**	**29,687**	**2,183**	**17,066**	**98,625**
Accumulated depreciation and impairment:							
1 January 2018 (restated)[1]		1,363	18,731	6,778	1,584	6,748	35,204
Disposal of subsidiaries	25	(45)	(377)	(180)	–	(98)	(700)
Disposals		(10)	(968)	(184)	–	(66)	(1,228)
Depreciation		354	3,059	1,539	4	1,287	6,243
Impairment	6	3	415	861	–	173	1,452
Effect of foreign currency exchange movements		(3)	(134)	(91)	–	(8)	(236)
Reclassification from held for sale		3	54	11	–	72	140
Other movements		(10)	962	24	–	4	980
31 December 2018		**1,655**	**21,742**	**8,758**	**1,588**	**8,112**	**41,855**
Net book value 31 December 2018		**4,405**	**21,887**	**20,929**	**595**	**8,954**	**56,770**

1 Certain balances in the prior year have been restated to reflect appropriate reclassification. The restatements were only within property, plant and equipment headings, there were no depreciation and amortisation changes..

Notes to the financial statements
continued

9. Intangible assets

US$ million	Notes	Goodwill	Port allocation rights	Licences, trademarks and software	Customer relationships and other	**Total**
Cost:						
1 January 2019		13,293	1,336	434	664	15,727
Restatement[1]	25	–	–	87	(240)	(153)
1 January 2019 (restated)		13,293	1,336	521	424	15,574
Business combination	25	–	–	24	347	371
Disposal of subsidiaries	25	–	–	–	(33)	(33)
Additions		–	–	10	12	22
Disposals		–	(1)	(11)	(1)	(13)
Effect of foreign currency exchange movements		–	40	(4)	(1)	35
Other movements		–	(1)	56	(28)	27
31 December 2019		**13,293**	**1,374**	**596**	**720**	**15,983**
Accumulated amortisation and impairment:						
1 January 2019		8,243	159	268	86	8,756
Disposals		–	–	(11)	(1)	(12)
Amortisation expense[2]		–	33	35	76	144
Impairment	6	50	–	–	19	69
Effect of foreign currency exchange movements		–	7	–	–	7
Other movements		–	(1)	23	(9)	13
31 December 2019		**8,293**	**198**	**315**	**171**	**8,977**
Net book value 31 December 2019		**5,000**	**1,176**	**281**	**549**	**7,006**

1 Adjustment to provisionally reported purchase price allocation in relation to Ale.
2 Recognised in cost of goods sold.

US$ million	Notes	Goodwill	Port allocation rights	Licences, tradmarks and software	Customer relationships and other	**Total**
Cost:						
1 January 2018		13,293	1,555	468	183	15,499
Restatement[1]	25	–	–	(76)	29	(47)
1 January 2018 (restated)		13,293	1,555	392	212	15,452
Business combination	25	–	–	2	425	427
Disposal of subsidiaries	25	–	–	–	(4)	(4)
Additions		–	1	25	13	39
Disposals		–	(1)	(8)	–	(9)
Effect of foreign currency exchange movements		–	(219)	(2)	(7)	(228)
Reclassification from held for sale	15	–	–	1	–	1
Other movements		–	–	24	25	49
31 December 2018 (restated)		**13,293**	**1,336**	**434**	**664**	**15,727**
Accumulated amortisation and impairment:						
1 January 2018		8,243	149	237	83	8,712
Disposal of subsidiaries	25	–	–	–	(4)	(4)
Disposals		–	–	(8)	–	(8)
Amortisation expense[2]		–	37	35	10	82
Effect of foreign currency exchange movements		–	(27)	(2)	(1)	(30)
Other movements		–	–	6	(2)	4
31 December 2018 (restated)		**8,243**	**159**	**268**	**86**	**8,756**
Net book value 31 December 2018		**5,050**	**1,177**	**166**	**578**	**6,971**

1 Adjustment to provisionally reported purchase price allocation in relation to Volcan.
2 Recognised in cost of goods sold.

9. Intangible assets continued

Goodwill
The carrying amount of goodwill has been allocated to cash-generating units (CGUs), or groups of CGUs as follows:

US$ million	**2019**	2018
Metals and minerals marketing business	3,326	3,326
Coal marketing business	1,674	1,674
Metals warehousing business	–	50
Total	**5,000**	**5,050**

Metals and minerals and coal marketing businesses
Goodwill of $3,326 million and $1,674 million was recognised in connection with previous business combinations and was allocated to the metals and minerals marketing and coal marketing CGUs respectively, based on the annual synergies expected to accrue to the respective marketing departments as a result of increased volumes, blending opportunities and freight and logistics arbitrage opportunities.

Metals warehousing business
During the period, the goodwill of $50 million related to the Access World warehousing business was impaired (see note 6).

Port allocation rights
Port allocation rights represent contractual entitlements to export certain amounts of coal on an annual basis from Richard Bay Coal Terminal in South Africa recognised as part of previous business combinations. The rights are amortised on a straight-line basis over the estimated economic life of the port of 40 years.

Licences, trademarks and software
Intangibles related to internally developed technology and patents were recognised in previous business combinations and are amortised over the estimated economic life of the technology which ranges between 10 – 15 years.

Customer relationships
Customer relationships mainly represent intangible assets related to long-standing customer relationships recognised in respect of business combinations completed in 2019 and 2018 (see note 25). These intangible assets are being amortised on a straight-line basis over their estimated economic life which ranges between 5 – 9 years.

Goodwill impairment testing
Given the nature of each CGU's activities, information on its fair value is usually difficult to obtain unless negotiations with potential purchasers or similar transactions are taking place. Consequently,

- The recoverable amount for each of the marketing CGUs is determined by reference to the FVLCD which utilises a price to earnings multiple approach based on the 2019 approved financial budget which includes factors such as marketing volumes handled and operating, interest and income tax charges, generally based on past experience. The price to earnings multiple of 15 times (2018: 15 times) is derived from observable market data for broadly comparable businesses; and
- Glencore believes that no reasonably possible changes in any of the above key assumptions would cause the recoverable amount to fall below the carrying value of the CGU. The determination of FVLCD for each of the marketing CGUs used Level 3 valuation techniques in both years.

10. Investments in associates, joint ventures and other investments

Investments in associates and joint ventures

US$ million	Notes	2019	2018
1 January		13,909	13,998
Additions		104	19
Disposals		(96)	(1)
Share of income from associates and joint ventures		114	1,043
Share of other comprehensive loss from associates and joint ventures		(37)	(124)
Additions from business combinations	25	–	109
Transfer of previously equity accounted investment to subsidiary	25	(40)	–
Fair value of retained interest in Terminales Portuarios Chancay S.A.	25	150	–
Impairments	6	(137)	–
Dividends received		(942)	(1,139)
Other movements		(41)	4
31 December		**12,984**	**13,909**
Of which:			
Investments in associates		6,858	7,707
Investments in joint ventures		6,126	6,202

As at 31 December 2019, the carrying value of our listed associates is $605 million (2018: $772 million), mainly comprising Century Aluminum and Trevali, which have a carrying value of $395 million (2018: $441 million) and $119 million (2018: $244 million), respectively. The fair value of our listed associates and joint ventures, using published price quotations (a Level 1 fair value measurement) is $427 million (2018: $463 million). As at 31 December 2019, $104 million (2018: $101 million) of the carrying amount of Glencore's investment in Century Aluminium was pledged under a loan facility, with proceeds received and recognised in current borrowings of $80 million (2018: $90 million)(see note 20).

Impairments

Primarily comprise impairment charges in respect of our investments in Trevali ($48 million) and Oil vessels' entities ($67 million).

Terminales Portuarios Chancay S.A.

In April 2019, Glencore disposed of a 60% interest in Terminales Portuarios Chancay S.A. for $11 million (see notes 4 and 25), subsequently accounting for its remaining share of 40% using the equity method.

10. Investments in associates, joint ventures and other investments continued

2019 Details of material associates and joint ventures

Summarised financial information in respect of Glencore's associates and joint ventures, reflecting 100% of the underlying associates' and joint ventures' relevant figures, is set out below.

US$ million	Cerrejón	Antamina	**Total material associates**	Collahuasi	Glencore Agri	**Total material joint ventures**	**Total material associates and joint ventures**
Non-current assets	2,399	4,589	**6,988**	4,905	5,712	**10,617**	**17,605**
Current assets	630	1,276	**1,906**	1,306	7,363	**8,669**	**10,575**
Non-current liabilities	(768)	(1,170)	**(1,938)**	(1,207)	(3,855)	**(5,062)**	**(7,000)**
Current liabilities	(57)	(486)	**(543)**	(794)	(5,389)	**(6,183)**	**(6,726)**
The above assets and liabilities include the following:							
Cash and cash equivalents	157	55	**212**	163	184	**347**	**559**
Current financial liabilities[1]	(21)	(53)	**(74)**	(15)	(2,770)	**(2,785)**	**(2,859)**
Non-current financial liabilities[1]	(15)	(146)	**(161)**	(95)	(3,450)	**(3,545)**	**(3,706)**
Net assets 31 December 2019	**2,204**	**4,209**	**6,413**	**4,210**	**3,831**	**8,041**	**14,454**
Glencore's ownership interest	33.3%	33.8%		44.0%	49.9%		
Acquisition fair value and other adjustments	409	1,872	**2,281**	1,116	1,246	**2,362**	**4,643**
Carrying value	1,143	3,295	**4,438**	2,968	3,158	**6,126**	**10,564**

1 Financial liabilities exclude trade, other payables and provisions.

Summarised profit and loss in respect of Glencore's associates and joint ventures, reflecting 100% of the underlying associates' and joint ventures' relevant figures for the year ended 31 December 2019 including group adjustments relating to alignment of accounting policies or fair value adjustments, is set out below.

US$ million	Cerrejón	Antamina	**Total material associates**	Collahuasi	Glencore Agri	**Total material joint ventures**	**Total material associates and joint ventures**
Revenue	1,483	3,038	**4,521**	3,147	25,057	**28,204**	**32,725**
(Loss)/income for the year	(1,440)	892	**(548)**	945	(29)	**916**	**368**
Other comprehensive loss	–	–	**–**	(23)	(3)	**(26)**	**(26)**
Total comprehensive (loss)/income	(1,440)	892	**(548)**	922	(32)	**890**	**342**
Glencore's share of dividends paid	66	243	**309**	467	–	**467**	**776**
The above (loss)/income for the year includes the following:							
Depreciation and amortisation	(565)	(811)	**(1,376)**	(640)	(524)	**(1,164)**	**(2,540)**
Interest income[1]	–	15	**15**	35	28	**63**	**78**
Interest expense[2]	(12)	(3)	**(15)**	(25)	(202)	**(227)**	**(242)**
Impairment, net of tax[3]	(1,305)	–	**(1,305)**	–	–	**–**	**(1,305)**
Income tax credit/(expense)	46	(489)	**(443)**	(437)	(40)	**(477)**	**(920)**

1 Includes foreign exchange gains and other income of $68 million.
2 Includes foreign exchange losses of $16 million.
3 Glencore's attributable share of impairment relating to Cerrejón amounts to $435 million, net of taxes of $213 million, resulting from lower API2 coal price assumptions and reduced production estimates, including in relation to updated mine-life approval expectations. The operation specific discount rate used in the valuation was 8.1%. The short to long-term API 2 price assumptions were $70 - 83/mt. Should the price assumptions fall by 10% (across the curve) with all other assumptions held constant a further impairment of $312 million would be recognised.

10. Investments in associates, joint ventures and other investments continued

2018 Details of material associates and joint ventures

Summarised financial information in respect of Glencore's associates and joint ventures, reflecting 100% of the underlying associates' and joint ventures' relevant figures, is set out below.

US$ million	Cerrejón	Antamina	**Total material associates**	Collahuasi	Glencore Agri	**Total material joint ventures**	**Total material associates and joint ventures**
Non-current assets	2,554	4,428	**6,982**	4,751	4,549	**9,300**	**16,282**
Current assets	876	1,120	**1,996**	1,170	6,917	**8,087**	**10,083**
Non-current liabilities	(652)	(1,132)	**(1,784)**	(1,161)	(2,968)	**(4,129)**	**(5,913)**
Current liabilities	(409)	(534)	**(943)**	(483)	(4,739)	**(5,222)**	**(6,165)**
The above assets and liabilities include the following:							
Cash and cash equivalents	307	77	**384**	161	180	**341**	**725**
Current financial liabilities[1]	(2)	(34)	**(36)**	(12)	(1,995)	**(2,007)**	**(2,043)**
Non-current financial liabilities[1]	–	(144)	**(144)**	(96)	(2,669)	**(2,765)**	**(2,909)**
Net assets 31 December 2018	**2,369**	**3,882**	6,251	**4,277**	**3,759**	8,036	14,287
Glencore's ownership interest	33.3%	33.8%		44.0%	49.9%		
Acquisition fair value and other adjustments	900	1,925	**2,825**	1,136	1,309	**2,445**	**5,270**
Carrying value	1,689	3,237	**4,926**	3,018	3,184	**6,202**	**11,128**

1 Financial liabilities exclude trade, other payables and provisions.

Summarised profit and loss in respect of Glencore's associates and joint ventures, reflecting 100% of the underlying associates' and joint ventures' relevant figures for the year ended 31 December 2018, including group adjustments relating to alignment of accounting policies or fair value adjustments, is set out below.

US$ million	Cerrejón	Antamina	**Total material associates**	Collahuasi	Glencore Agri	**Total material joint ventures**	**Total material associates and joint ventures**
Revenue	2,516	3,489	**6,005**	3,241	26,304	**29,545**	**35,550**
Income for the year	359	1,224	**1,583**	963	(15)	**948**	**2,531**
Other comprehensive loss	–	–	**–**	(20)	2	**(18)**	**(18)**
Total comprehensive income	359	1,224	**1,583**	943	(13)	**930**	**2,513**
Glencore's share of dividends paid	194	405	**599**	440	–	**440**	**1,039**
The above profit for the year includes the following:							
Depreciation and amortisation	(571)	(789)	**(1,360)**	(611)	(261)	**(872)**	**(2,232)**
Interest income[1]	–	–	**–**	46	59	**105**	**105**
Interest expense[2]	–	(6)	**(6)**	(25)	(171)	**(196)**	**(202)**
Income tax expense	(231)	(711)	**(942)**	(496)	(123)	**(619)**	**(1,561)**

1 Includes foreign exchange gains and other income of $73 million.
2 Includes foreign exchange losses of $24 million.

Aggregate information of associates that are not individually material:

US$ million	**2019**	2018
The Group's share of (loss)/income	(110)	93
The Group's share of other comprehensive loss	(25)	(116)
The Group's share of total comprehensive loss	(135)	(23)
Aggregate carrying value of the Group's interests	2,420	2,781

10. Investments in associates, joint ventures and other investments continued

The amount of corporate guarantees (excluding Glencore Agri) in favour of associates and joint ventures as at 31 December 2019 was $483 million (2018: $419 million). Issued guarantees in favour of Glencore Agri amounted to $500 million as at 31 December 2019 (2018: $506 million), mainly relating to a $400 million Viterra bond maturing in 2020. No amounts have been claimed or provided as at 31 December 2019. Glencore's share of joint ventures' capital commitments amounts to $108 million (2018: $19 million).

Other investments

US$ million	2019	2018
Fair value through other comprehensive income[1]		
United Company Rusal plc[2]	–	440
EN+ GROUP PLC[2]	674	–
OAO NK Russneft[3]	869	744
Yancoal	172	233
OSJC Rosneft	440	376
Other	135	207
	2,290	2,000
Fair value through profit and loss		
Century Aluminum Company cash-settled equity swaps	69	67
Champion Iron Limited share warrants[4]	28	–
	97	67
Total	**2,387**	**2,067**

1 Fair value through other comprehensive income includes net disposals of $36 million for the period.
2 In January 2019, Glencore agreed to exchange its interest in United Company Rusal plc into a 10.6% interest in EN+ GROUP PLC.
3 Glencore's investment in OAO NK Russneft is pledged under a loan facility issued to OAO NK Russneft.
4 The warrants are exercisable until October 2025 for conversion into direct share ownership.

Although Glencore holds a 25% interest in Russneft, it does not exercise significant influence over its financial and operating policy decisions.

During the year, dividend income from equity investments designated as at fair value through other comprehensive income amounted to $49 million (2018: $21 million).

11. Advances and loans

US$ million	Notes	2019	2018
Financial assets at amortised cost			
Loans to associates		294	275
Other non-current receivables and loans		511	376
Rehabilitation trust fund		147	120
Financial assets at fair value through profit and loss			
Other non-current receivables and loans		116	155
Non-financial instruments			
Pension surpluses	23	42	41
Advances repayable with product[1]		1,172	1,387
Other non-current receivables		145	201
Total		**2,427**	**2,555**

1 Net of $1,216 million (2018: $1,142 million) provided by various banks, the repayment terms of which are contingent upon and connected to the future delivery of contractual production.

Financial assets at amortised cost

Loans to associates

Loans to associates generally bear interest at applicable floating market rates plus a premium.

Other non-current receivables and loans

Other non-current receivables and loans comprise the following:

US$ million	2019	2018
Secured financing arrangements	493	360
Other	18	16
Total	**511**	**376**

Various financing facilities, generally marketing related and secured against certain assets and/or payable from the future sale of production of the counterparty. The non-current receivables and loans are interest-bearing and on average are to be repaid over a three-year period.

Rehabilitation trust fund

Glencore makes contributions to controlled funds that were established to meet the costs of its restoration and rehabilitation liabilities, primarily in South Africa. These funds are not available for the general purposes of the Group, and there is no present obligation to make any further contributions.

Loss allowances of financial assets at amortised cost

The Group determines the expected credit loss of other non-current receivables and loans (at amortised cost) based on different scenarios of probability of default and expected loss applicable to each of the material underlying balances. The movement in loss allowance for financial assets classified at amortised cost is detailed below:

US$ million	Loans to associates	Other non-current receivables and loans	Total
Gross carrying value 31 December 2019	325	866	**1,191**
Loss allowances			
1 January 2019	27	323	350
Released during the period	–	(10)	(10)
Charged during the period	4	43	47
Reclassifications	–	(1)	(1)
31 December 2019	31	355	**386**
Net carrying value 31 December 2019	**294**	**511**	**805**

11. Advances and loans continued

Financial assets at fair value through profit and loss

Other non-current receivables and loans

In 2018, the terms of a loan arrangement were substantially restructured and modified. Under the new terms, repayment of the loan is dependent upon the underlying performance of the operations and as such, the contractual cash flows no longer represent "solely payments of principal and interest" and therefore the loan is accounted for at fair value through profit and loss (FVTPL). Following the substantial modification, the loan was de-recognised as a financial asset at amortised cost and the new loan was recognised at a fair value of $155 million. During 2019 fair value movements of negative $39 million were recognised (see note 6).

Fair value was determined using a Level 3 discounted cash flow model technique, with the key unobservable inputs being a discount rate specific to the operation of 13% and a repayment profile dependent upon the underlying business plans and forecasts over the next 5 years. The valuation is sensitive to timing of the underlying cash flows and could result in a $42 million reduction of fair value if the repayment schedule is extended by an additional 9 years.

Non-financial instruments

Advances repayable with product

US$ million	2019	2018
Counterparty		
Société Nationale d'Electricité (SNEL) power advances	303	340
Chad State National Oil Company	360	393
Société Nationale des Pétroles du Congo	18	65
Other	491	589
Total	**1,172**	**1,387**

SNEL power advances

In early 2012, a joint agreement with Société Nationale d'Électricité (SNEL), the Democratic Republic of the Congo's (DRC) national electricity utility, was signed whereby Glencore's operations would contribute $375 million to a major electricity infrastructure refurbishment programme, including transmission and distribution systems. This is expected to facilitate a progressive increase in power availability to 450 megawatts by the end of Q1 2020. Funding commenced in the second quarter of 2012 and will continue until Q1 2020. The loans are being repaid via discounts on electricity purchases, which will accelerate upon completion of the refurbishment programme.

Chad State National Oil Company

Glencore has provided a net $379 million (2018: $393 million) to the Chad State National Oil Company (SHT) to be repaid through future oil deliveries over ten years. As at 31 December 2019 the advance is net of $778 million (2018: $805 million) provided by a syndicate of lenders, the repayment terms of which are contingent upon and connected to the receipt of oil due from SHT under the prepayment. Of the net amount advanced, $360 million (2018: $393 million) is receivable after 12 months and is presented within Other non-current receivables and loans and $19 million (2018: $Nil) is due within 12 months and included within Accounts receivable.

Société Nationale des Pétroles du Congo (SNPC)

Glencore has provided a net $156 million (2018: $183 million) to SNPC repayable through future oil deliveries over five years. As at 31 December 2019, the advance is net of $498 million (2018: $530 million) provided by the lenders, the repayment terms of which are contingent upon and connected to the future receipt of oil contractually due from SNPC. Of the net amount advanced, $18 million (2018: $65 million) is due after 12 months and is presented within Other long-term receivables and loans and $138 million (2018: $118 million) is due within 12 months and included within Accounts receivable. SNPC has indicated to Glencore and the syndicate of banks that it wishes to restructure the terms of this arrangement. Whilst no agreement has been reached at the reporting date, a future restructuring may materially impact the portion of this advance that is realised within one year.

12. Inventories

Current inventory

Inventories of $19,936 million (2018: $20,564 million) comprise $10,516 million (2018: $11,449 million) of inventories carried at fair value less costs of disposal and $9,420 million (2018: $9,115 million) valued at the lower of cost or net realisable value. The amount of inventories and related ancillary costs recognised as an expense during the period was $192,418 million (2018: $196,509 million).

Fair value of inventories is a Level 2 fair value measurement (see note 28) using observable market prices obtained from exchanges, traded reference indices or market survey services adjusted for relevant location and quality differentials. There are no significant unobservable inputs in the fair value measurement of such inventories.

Glencore has a number of dedicated financing facilities, which finance a portion of its inventories. In each case, the inventory has not been derecognised as the Group has not transferred control. The proceeds received are recognised as current borrowings (see note 20). As at 31 December 2019, the total amount of inventory pledged under such facilities was $430 million (2018: $562 million). The proceeds received and recognised as current borrowings were $339 million (2018: $366 million) and $80 million (2018: $139 million) as non-current borrowings.

Non-current inventory

$575 million (2018: $353 million) of inventories valued at lower of cost or net realisable value are not expected to be utilised or sold within 12 months and are therefore classified as non-current inventory.

13. Accounts receivable

US$ million	Notes	2019	2018
Financial assets at amortised cost			
Trade receivables		3,724	4,163
Trade advances		44	321
Margin calls paid[1]		2,198	1,388
Associated companies		326	546
Other receivables[2]		399	422
Financial assets at fair value through profit and loss			
Trade receivables containing provisional pricing features	28	6,526	6,471
Exchangeable loan (see below)		–	1,044
Finance lease receivable	28	14	–
Non-financial instruments			
Advances repayable with product[3]		1,433	1,535
Income tax receivable		561	203
Other tax and related receivables		1,796	1,694
Total		**17,021**	**17,787**

1 Includes $635 million (2018: $1,041 million) of cash collateral payments under margin arrangements related to cross currency swaps held to hedge non-U.S. dollar denominated bonds.
2 Includes current portion of non-current loans receivable in amount of $129 million (2018: $104 million).
3 Includes advances, net of $1,248 million (2018: $1,136 million) provided by banks, the repayment terms of which are contingent upon and connected to the future delivery of contractual production over the next 12 months.

The average credit period on sales of goods is 18 days (2018: 19 days). The carrying value of trade receivables approximates fair value.

13. Accounts receivable continued

The Group applies a simplified approach to measure the loss allowance for trade receivables classified at amortised cost, using the lifetime expected loss provision. The expected credit loss on trade receivables is estimated using a provision matrix by reference to past default experience and credit rating, adjusted as appropriate for current observable data. The following table details the risk profile of trade receivables based on the Group's provision matrix.

US$ million	Trade receivables – days past due					
As at 31 December 2019	**Not past due**	**<30**	**31 – 60**	**61 – 90**	**>90**	**Total**
Gross carrying amount	3,077	356	56	59	192	3,740
Expected credit loss rate	0.28%	0.55%	0.83%	1.10%	2.34%	
Lifetime expected credit loss	(9)	(2)	–	(1)	(4)	(16)
Total	**3,068**	**354**	**56**	**58**	**188**	**3,724**

The movement in allowance for doubtful accounts is detailed below:

US$ million	**2019**	**2018**
1 January	317	304
Released during the period	(31)	(54)
Charged during the period	195	99
Utilised during the period	(84)	(11)
Reclassifications	1	(21)
31 December	**398**	**317**

Impairment losses recognised on trade receivables are recorded within cost of goods sold.

Glencore has a number of dedicated financing facilities, which finance a portion of its receivables. The receivables have not been derecognised, as the Group retains the principal risks and rewards of ownership. The proceeds received are recognised as current borrowings (see note 20). As at 31 December 2019, the total amount of trade receivables pledged was $837 million (2018: $1,943 million) and proceeds received and classified as current borrowings amounted to $719 million (2018: $1,539 million) and $Nil (2018: $126 million) as non-current borrowings.

Exchangeable loan

On 6 October 2017, Glencore entered into an agreement with Off the Shelf Investments Fifty Six (RF) Proprietary Limited ("OTS") to acquire from OTS (i) a 75% stake in Chevron South Africa Proprietary Limited (Chevron SA) and certain related interests and (ii) the entire issued share capital of Chevron Botswana Proprietary Limited (Chevron Botswana) (together the "Operations") following closing of OTS's exercise of its pre-emptive right to acquire these Operations from the Chevron group. OTS's acquisition from Chevron closed on 1 October 2018, at which time Glencore advanced $1,044 million to OTS under an exchangeable loan arrangement. The transaction completed on 6 April 2019, whereby the loan advanced was exchanged into the shares in the underlying businesses (see note 25).

14. Cash and cash equivalents

US$ million	**2019**	2018
Bank and cash on hand	1,618	1,860
Deposits and treasury bills	281	186
Total	**1,899**	**2,046**

Cash and cash equivalents comprise cash held at bank, cash in hand and short-term bank deposits with an original maturity of three months or less. The carrying amount of these assets approximates their fair value.

As at 31 December 2019, $92 million (2018: $63 million), including $15 million(2018: $18 million) held in "on-shore" accounts in our DRC operations, was restricted. In 2018, the DRC made various changes to its mining code, including various restrictions on a company's ability to repatriate excess funds earned above its initial investment amounts. The "on-shore" cash in our DRC operations can only be used to fund DRC related expenditures and any excess currently cannot be repatriated out of the DRC to the Group.

15. Assets and liabilities held for sale

In November 2019, an agreement was reached to dispose the Oxidos and Cerro de Pasco operations (separately identifiable zinc and silver processing areas within the Volcan group) which predominantly comprise an oxide processing plant, environmental and rehabilitation provisions and old tailings dumps for $30 million, due over a two year period, and a royalty contingent upon the price of silver and gold over certain thresholds, estimated to be worth $100 million on a discounted basis. The transaction is subject to customary regulatory approvals and is expected to close during 2020. As a result of the agreed disposal, it has been determined that these operations meet the requirements of IFRS 5 which requires that its assets and liabilities be presented as current assets and liabilities "held for sale" as at 31 December 2019 at the lower of their carrying value or fair value less costs to sell and as a result of this reclassification to assets held for sale, an impairment charge of $378 million ($272 million net of tax) was recognised. Also see note 6.

Assets of $286 million and liabilities of $156 million have been classified as held for sale within the Industrial activities segment as detailed below:

US$ million	**Cerro de Pasco**
Non-current assets	
Property, plant and equipment	196
Deferred tax assets	13
	209
Current assets	
Inventories	22
Accounts receivable	53
Cash and cash equivalents	2
	77
Total assets held for sale	**286**
Non-current liabilities	
Deferred tax liabilities	(68)
Provisions	(52)
	(120)
Current liabilities	
Borrowings	(2)
Accounts payable	(34)
	(36)
Total liabilities held for sale	**(156)**
Total net assets held for sale	**130**

16. Share capital and reserves

	Number of shares (thousand)	Share capital (US$ million)	Share premium (US$ million)
Authorised:			
31 December 2019 and 2018 Ordinary shares with a par value of $0.01 each	50,000,000		
Issued and fully paid up:			
1 January 2018 and 31 December 2018 – Ordinary shares	**14,586,200**	**146**	**48,504**
Distributions paid (see note 18)	–	–	(2,710)
31 December 2019 – Ordinary shares	**14,586,200**	**146**	**45,794**

	Treasury Shares		Trust Shares		**Total**	
	Number of shares (thousand)	Share premium (US$ million)	Number of shares (thousand)	Share premium (US$ million)	**Number of shares (thousand)**	**Share premium (US$ million)**
Own shares:						
1 January 2018	191,459	(948)	129,850	(627)	**321,309**	**(1,575)**
Own shares purchased during the year	422,113	(1,684)	63,420	(321)	**485,533**	**(2,005)**
Own shares disposed during the year	–	–	(53,140)	262	**(53,140)**	**262**
Own shares transferred to satisfy employee share awards	(30,000)	149	30,000	(149)	**–**	**–**
31 December 2018	**583,572**	**(2,483)**	**170,130**	**(835)**	**753,702**	**(3,318)**
1 January 2019	583,572	(2,483)	170,130	(835)	**753,702**	**(3,318)**
Own shares purchased during the year	678,315	(2,318)	–	–	**678,315**	**(2,318)**
Own shares disposed during the year	–	–	(40,138)	199	**(40,138)**	**199**
31 December 2019	**1,261,887**	**(4,801)**	**129,992**	**(636)**	**1,391,879**	**(5,437)**

Own shares

Own shares comprise shares acquired under the Company's share buy-back programmes and shares of Glencore plc held by Group employee benefit trusts ("the Trusts") to satisfy the potential future settlement of the Group's employee stock plans, primarily assumed as part of previous business combinations.

The Trusts also coordinate the funding and manage the delivery of ordinary shares and free share awards under certain of Glencore's share plans. The shares have been acquired by either stock market purchases or share issues from the Company. The Trusts are permitted to sell the shares and may hold up to 5% of the issued share capital of the Company at any one time. The Trusts have waived the right to receive distributions from the shares that they hold. Costs relating to the administration of the Trusts are expensed in the period in which they are incurred.

As at 31 December 2019, 1,391,879,129 shares (2018: 753,702,088 shares), equivalent to 9.54% (2018: 5.17%) of the issued share capital were held at a cost of $5,437 million (2018: $3,318 million) and market value of $4,347 million (2018: $2,798 million).

16. Share capital and reserves continued

Other reserves

US$ million	Translation adjustment	Cash flow hedge reserve	Net unrealised gain/(loss)	Net ownership changes in subsidiaries	Total
1 January 2019	(2,779)	(47)	38	(2,149)	(4,937)
Exchange gain on translation of foreign operations	114	–	–	–	114
Loss on cash flow hedges, net of tax	–	(51)	–	–	(51)
Gain on equity investments accounted for at fair value through other comprehensive income	–	–	342	–	342
Change in ownership interest in subsidiaries (see note 33)	–	–	–	(418)	(418)
Gain due to changes in credit risk on financial liabilities accounted for at fair value through profit and loss	–	–	(1)	–	(1)
Reclassifications	–	1	(15)	(6)	(20)
31 December 2019	**(2,665)**	**(97)**	**364**	**(2,573)**	**(4,971)**
1 January 2018	(2,321)	(39)	877	(942)	(2,425)
Exchange loss on translation of foreign operations	(662)	–	–	–	(662)
Loss on cash flow hedges, net of tax	–	(18)	–	–	(18)
Loss on equity investments accounted for at fair value through other comprehensive income	–	–	(848)	–	(848)
Change in ownership interest in subsidiaries (see note 33)	–	–	–	(1,207)	(1,207)
Reclassifications	(14)	10	9	–	5
Items recycled to the statement of income upon disposal of subsidiaries (see note 25)	218	–	–	–	218
31 December 2018	**(2,779)**	**(47)**	**38**	**(2,149)**	**(4,937)**

17. Earnings per share

US$ million	2019	2018
(Loss)/income attributable to equity holders of the Parent for basic earnings per share	(404)	3,408
Weighted average number of shares for the purposes of basic earnings per share (thousand)	13,684,091	14,151,826
Effect of dilution:		
Equity-settled share-based payments (thousand)	92,474	101,701
Weighted average number of shares for the purposes of diluted earnings per share (thousand)	13,776,565	14,253,527
Basic (loss)/earnings per share (US$)	**(0.03)**	**0.24**
Diluted (loss)/earnings per share (US$)[1]	**(0.03)**	**0.24**

Headline earnings:
Headline earnings is a Johannesburg Stock Exchange (JSE) defined performance measure. The calculation of basic and diluted earnings per share, based on headline earnings as determined by the requirements of the Circular 1/2019 as issued by the South African Institute of Chartered Accountants (SAICA), is reconciled using the following data:

US$ million	2019	2018
(Loss)/income attributable to equity holders of the Parent for basic earnings per share	(404)	3,408
Net loss on disposals[2]	43	139
Net loss on disposals – tax	(6)	(38)
Impairments[3]	3,191	1,452
Impairments – non-controlling interest	(270)	(218)
Impairments – tax	(323)	(181)
Headline and diluted earnings for the year	**2,231**	**4,562**
Headline earnings per share (US$)	**0.16**	**0.32**
Diluted headline earnings per share (US$)	**0.16**	**0.32**

1 These equity-settled share-based payments could potentially dilute basic earnings per share in the future, but did not impact diluted loss per share because they were anti-dilutive..
2 See note 4.
3 Comprises impairments of property, plant and equipment, intangible assets, investments, advances and loans and VAT receivables (see note 6), Glencore's share of impairments booked directly by various associates (see note 2) and impairments related to Cerrejón (see note 10).

18. Distributions

US$ million	2019	2018
Paid during the year:		
First tranche distribution - $0.10 per ordinary share (2018: $0.10)	1,368	1,427
Second tranche distribution - $0.10 per ordinary share (2018: $0.10)	1,342	1,409
Total	**2,710**	**2,836**

The proposed distribution in respect of the year ended 31 December 2019 of $0.20 per ordinary share amounting to $2.6 billion is subject to approval by shareholders at the Annual General Meeting and has not been included as a liability in these financial statements. These distributions declared are expected to be paid equally ($0.10 each) in May 2020 and September 2020.

19. Share-based payments

US$ million	Number of awards granted (thousands)	Fair value at grant date (US$ million)	**Number of awards outstanding 2019 (thousands)**	Number of awards outstanding 2018 (thousands)	**Expense recognised 2019 (US$ million)**	Expense recognised 2018 (US$ million)
Deferred Bonus Plan - Bonus share award						
2017 Series	16,506	64	–	9,088	–	–
2018 Series	12,891	65	11,052	12,891	–	65
2019 Series	9,552	33	9,552	–	33	–
	38,949		**20,604**	**21,979**	**33**	**65**
Performance Share Plan						
2014 Series	21,584	119	–	826	–	1
2015 Series	79,787	109	11,878	33,026	5	11
2016 Series	23,984	84	7,407	15,190	9	27
2017 Series	19,732	95	12,498	18,904	27	52
2018 Series	28,210	103	27,912	7,758	54	2
2019 Series	12,171	37	12,171	–	–	–
	185,468		**71,866**	**75,704**	**95**	**93**
Total	**224,417**		**92,470**	**97,683**	**128**	**158**

Deferred Bonus Plan
Under the Glencore Deferred Bonus Plan (DBP), the payment of a portion of a participant's annual bonus is deferred for a period of one to two years as an award of either ordinary shares (a "Bonus Share Award") or cash (a "Bonus Cash Award"). The awards are vested at grant date with no further service conditions, however they are subject to forfeiture for malus events. The Bonus Share Awards may be satisfied, at Glencore's option, in shares by the issue of new ordinary shares, by the transfer of ordinary shares held in treasury or by the transfer of ordinary shares purchased in the market or in cash, with a value equal to the market value of the award at settlement, including distributions paid between award and settling. Glencore currently intends to settle these awards in shares. The associated expense is recorded in the statement of income/loss as part of the expense for performance bonuses.

Performance Share Plan
Under the Glencore Performance Share Plan (PSP), participants are awarded PSP awards which vest in annual tranches over a specified period, subject to continued employment and forfeiture for malus events. At grant date, each PSP award is equivalent to one ordinary share of Glencore. The awards vest in three or five equal tranches on 31 December or 31 January of the years following the year of grant, as may be the case. The fair value of the awards is determined by reference to the market price of Glencore's ordinary shares at grant date. The PSP awards may be satisfied, at Glencore's option, in shares by the issue of new ordinary shares, by the transfer of ordinary shares held in treasury or by the transfer of ordinary shares purchased in the market or in cash, with a value equal to the market value of the award at vesting, including distributions paid between award and vesting. Glencore currently intends to settle these awards in shares.

Share-based awards assumed in previous business combinations

	Total options outstanding (thousands)	**Weighted average exercise price (GBP)**
1 January 2019	106,637	3.88
Lapsed	–	–
Exercised[1]	(4,014)	1.10
31 December 2019	**102,623**	**3.98**
1 January 2018	124,603	4.00
Lapsed	(9,626)	6.58
Exercised[1]	(8,340)	2.62
31 December 2018	**106,637**	**3.88**

1 The weighted average share price at date of exercise of the share based awards was GBP3.03 (2018: GBP3.91).

19. Share-based payments continued

As at 31 December 2019, a total of 102,623,112 options (2018: 106,637,103 options) were outstanding and exercisable, having a range of exercise prices from GBP3.37 to GBP4.80 (2018: GBP1.10 to GBP4.80) and a weighted average exercise price of GBP3.98 (2018: GBP3.88). These outstanding awards have expiry dates ranging from February 2020 to February 2022 (2018: March 2019 to February 2022) and a weighted average contractual life of 1.2 years (2018: 2.19 years). The awards may be satisfied at Glencore's option, by the issue of new ordinary shares, by the transfer of ordinary shares held in treasury or by the transfer of ordinary shares purchased in the market. Glencore currently intends to settle these awards, when exercised, by the transfer of ordinary shares held in treasury.

20. Borrowings

US$ million	Notes	**2019**	2018
Non-current borrowings			
Capital market notes		21,452	19,804
Committed syndicated revolving credit facilities		5,615	5,623
Finance lease obligations under IAS 17		–	277
Lease liabilities under IFRS 16		1,158	–
Other bank loans		842	720
Total non-current borrowings		**29,067**	**26,424**
Current borrowings			
Secured inventory/receivables/other facilities	10/12/13	1,138	1,995
U.S. commercial paper		675	596
Capital market notes		2,455	2,775
Finance lease obligations under IAS 17		–	110
Lease liabilities under IFRS 16		484	–
Other bank loans[1]		3,224	3,094
Total current borrowings		**7,976**	**8,570**
Total borrowings		**37,043**	**34,994**

1 Comprises various uncommitted bilateral bank credit facilities and other financings.

Reconciliation of cash flow to movement in borrowings

US$ million	Notes	**2019**	2018
Cash related movements in borrowings[1]			
Proceeds from issuance of capital market notes		3,866	185
Proceeds from issuance of non-dilutive convertible bond		–	576
Repayment of capital market notes		(3,167)	(3,650)
(Repayment of)/proceeds from revolving credit facilities		(29)	4,624
Proceeds from other non-current borrowings		291	15
Repayment of other non-current borrowings		(325)	–
Repayment of finance lease obligations under IAS 17		–	(72)
Repayment of lease liabilities under IFRS 16		(358)	–
Proceeds from/(repayment of) U.S. commercial papers		79	(634)
(Repayment of)/proceeds from current borrowings		(682)	439
		(325)	1,483
Non-cash related movements in borrowings			
Borrowings acquired/(disposed) in business combinations	25	284	263
Reclassification of the derivative component of the non-dilutive convertible bond		–	(95)
Foreign exchange movements		231	(557)
Fair value hedge movements		387	(143)
Impact of adoption of IFRS 16		865	–
Change in finance lease obligations under IAS 17		–	90
Change in lease liabilities under IFRS 16		582	–
Interest on convertible bonds		19	12
Other non-cash movements		6	7
		2,374	(423)
Increase in borrowings for the year		**2,049**	**1,060**
Total borrowings – opening		34,994	33,934
Total borrowings – closing		**37,043**	**34,994**

1 See consolidated statement of cash flows

20. Borrowings continued

Capital Market Notes

US$ million	Maturity	2019	2018
Euro 750 million 3.375% coupon bonds	Sep 2020	–	865
Euro 1,250 million 1.25% coupon bonds	Mar 2021	1,386	1,413
Euro 600 million 2.75% coupon bonds	Apr 2021	667	688
Euro 700 million 1.625% coupon bonds	Jan 2022	793	814
Euro 1,000 million 1.875% coupon bonds	Sep 2023	1,118	1,140
Euro 400 million 3.70% coupon bonds	Oct 2023	480	492
Euro 600 million 0.625% coupon bonds	Sep 2024	672	–
Euro 750 million 1.75% coupon bonds	Mar 2025	860	858
Euro 500 million 3.75% coupon bonds	Apr 2026	616	618
Euro 500 million 1.50% coupon bonds	Oct 2026	568	–
Eurobonds		**7,160**	**6,888**
JPY 10 billion 1.075% coupon bonds	May 2022	92	91
GBP 500 million 7.375% coupon bonds	May 2020	–	669
GBP 500 million 6.00% coupon bonds	Apr 2022	664	640
GBP 500 million 3.125% coupon bonds	Mar 2026	672	–
Sterling bonds		**1,336**	**1,309**
CHF 500 million 1.25% coupon bonds	Dec 2020	–	513
CHF 250 million 2.25% coupon bonds	May 2021	254	249
CHF 175 million 1.25% coupon bonds	Oct 2024	184	182
CHF 250 million 0.35% coupon bonds	Sep 2025	258	–
Swiss Franc bonds		**696**	**944**
US$ 1,000 million 2.875% coupon bonds	Apr 2020	–	412
US$ 1,000 million 4.95% coupon bonds	Nov 2021	1,022	1,034
US$ 600 million 5.375% coupon bonds[1]	Feb 2022	535	535
US$ 250 million LIBOR plus 1.65% coupon bonds	May 2022	250	250
US$ 1,000 million 4.25% coupon bonds	Oct 2022	1,005	1,008
US$ 500 million 3.00% coupon bonds	Oct 2022	498	497
US$ 1,500 million 4.125% coupon bonds	May 2023	1,542	1,495
US$ 1,000 million 4.125% coupon bonds	Mar 2024	993	–
US$ 1,000 million 4.625% coupon bonds	Apr 2024	1,042	1,004
US$ 625 million non-dilutive convertible bonds	Mar 2025	513	494
US$ 500 million 4.00% coupon bonds	Apr 2025	502	475
US$ 1,000 million 4.00% coupon bonds	Mar 2027	1,030	964
US$ 50 million 4.00% coupon bonds	Mar 2027	50	50
US$ 500 million 3.875% coupon bonds	Oct 2027	514	479
US$ 750 million 4.875% coupon bonds	Mar 2029	801	–
US$ 250 million 6.20% coupon bonds	Jun 2035	271	272
US$ 500 million 6.90% coupon bonds	Nov 2037	589	591
US$ 500 million 6.00% coupon bonds	Nov 2041	538	539
US$ 500 million 5.55% coupon bonds	Oct 2042	473	473
US$ bonds		**12,168**	**10,572**
Total non-current bonds		**21,452**	**19,804**

1 Assumed in the Volcan acquisition, see note 25.

20. Borrowings continued

US$ million	Maturity	2019	2018
AUD 500 million 4.50% coupon bonds	Sep 2019	–	355
GBP 650 million 6.50% coupon bonds	Feb 2019	–	829
GBP 500 million 7.375% coupon bonds	May 2020	675	–
Euro 750 million 3.375% coupon bonds	Sep 2020	842	–
CHF 175 million 2.125% coupon bonds	Dec 2019	–	179
CHF 500 million 1.250% coupon bonds	Dec 2020	519	–
US$ 500 million LIBOR plus 1.36% coupon bonds	Jan 2019	–	279
US$ 1,500 million 2.50% coupon bonds	Jan 2019	–	688
US$ 1,000 million 3.125% coupon bonds	Apr 2019	–	445
US$ 1,000 million 2.875% coupon bonds	Apr 2020	419	–
Total current bonds		**2,455**	**2,775**

2019 Bond activities

- In March 2019, issued a 5 year $1,000 million, 4.125% coupon bond
- In March 2019, issued a 10 year $750 million, 4.875% coupon bond
- In March 2019, issued a 7 year GBP 500 million 3.125% coupon bond
- In April 2019, issued a 7 year EUR 500 million 1.50% coupon bond
- In September 2019, issued a 6 year CHF 250 million 0.35% coupon bond
- In September 2019, issued a 5 year EUR 600 million 0.625% coupon bond

2018 Bond activities

- In March 2018, Glencore issued a $500 million non-dilutive cash settled guaranteed convertible bond due 2025. In September 2018, a further $125 million was issued on similar terms. On the date of issuance, the Bonds were bifurcated into a debt and derivative component with the debt component carried at amortised cost accreting to par value ($625 million) at an effective interest rate of 3.7% per annum and the option component carried at fair value with mark-to-market movements recognised through the statement of income. See note 28.
- Concurrent with the placing of the Bonds, Glencore purchased cash-settled call options over the same number of Glencore shares underlying the convertible bonds to economically hedge the exposure to the potential exercise of conversion rights embedded in the Bonds. These purchased call options are carried at fair value with mark-to-market movements recognised through the statement of income. See note 28.
- In October 2018, Glencore issued a 6-year CHF 175 million, 1.25% coupon bond

Committed syndicated revolving credit facilities

In March 2019 (effective May 2019), Glencore signed new one-year revolving credit facilities of $9,775 million, refinancing the $9,085 million one-year revolving facilities signed in March 2018. Funds drawn under the facilities bear interest at US$LIBOR plus a margin of 40 basis points. Glencore also voluntarily reduced the medium term facility size from $5,115 million to $4,650 million, extended the facility to five-years, and replaced the two one-year extension options.

As at 31 December 2019, the active facilities comprise:

- a $9,775 million one year revolving credit facility with a one-year borrower's term-out option (to May 2021) and a one-year extension option; and
- a $4,650 million medium-term revolving credit facility (to May 2024), with two one-year extension options.

20. Borrowings continued

Secured facilities

US$ million	Maturity[1]	Interest	2019	2018
Syndicated committed metals inventory/receivables facilities[2]	Oct 2024	3.2%	82	328
Syndicated uncommitted metals and oil inventory/receivables facilities	Jan[3]/Jul/Aug/Oct 2020	US$ LIBOR + 65 bps	1,056	1,842
Other secured facilities	Dec 2020	US$ LIBOR + 62 bps	80	90
Total			**1,218**	**2,260**
Current			1,138	1,995
Non-current			80	265

1 Uncommitted facilities are re-drawn several times until actual expiry of the facility contract.
2 Comprises various facilities. The maturity and interest detail represent the weighted average of the various debt balances outstanding at year end.
3 Since year-end, in the ordinary course of business, these maturities have been rolled/extended as required.

21. Deferred income

US$ million	Notes	Unfavourable contracts	Prepayments	**Total**
1 January 2019		684	2,029	2,713
Additions		–	940	940
Accretion in the year		–	134	134
Utilised in the year		(83)	(484)	(567)
Effect of foreign currency exchange difference		8	–	8
31 December 2019		**609**	**2,619**	**3,228**
Current		78	480	558
Non-current		531	2,139	2,670
1 January 2018		585	2,386	2,971
Additions		–	40	40
Accretion in the year		–	140	140
Utilised in the year		(77)	(537)	(614)
Acquired in business combination	25	220	–	220
Effect of foreign currency exchange difference		(44)	–	(44)
31 December 2018		**684**	**2,029**	**2,713**
Current		80	332	412
Non-current		604	1,697	2,301

Unfavourable contracts

In several business combinations, Glencore recognised liabilities related to various assumed contractual agreements to deliver tonnes of coal over various periods ending until 2034 at fixed prices lower than the prevailing market prices on the respective acquisition dates.

These amounts are released to revenue as the underlying commodities are delivered to the buyers over the life of the contracts at rates consistent with the extrapolated forward price curves at the time of the acquisitions.

Prepayments

Prepayments comprise various medium and long-term product supply agreements whereby an upfront prepayment is received in exchange for the future delivery of a specific product, such as gold, silver or cobalt. The arrangements are accounted for as executory contracts whereby the advance payment is recorded as deferred revenue. The revenue from the advance payment is recognised as the specific product identified in the contract is delivered consistent with the implied forward price curve at the time of the transaction and an accretion expense, representing the time value of the upfront deposit, is also recognised.

Non-current prepayments predominantly comprise:

- Life of mine arrangements - long-term streaming agreements for the future delivery of gold and/or silver produced over the life of mine from our Antamina, Antapaccay and Ernest Henry operations. In addition to the upfront payment received, for product delivered from the Antamina and Antapaccay operations, Glencore receives an ongoing amount equal to 20% of the spot silver and gold price. Once certain delivery thresholds have been met at Antapaccay, the ongoing cash payment increases to 30% of the spot gold and silver prices. As at 31 December 2019, $1,396 million (2018: $1,518 million) of product delivery obligations remain.

- Silver supply arrangement – In December 2019, Glencore signed an extension of a silver prepayment arrangement, in exchange for an upfront advance payment of $500 million. Under the terms of the arrangement, Glencore is required to deliver an average of 19 million ounces of silver per annum, over a three year period. As at 31 December 2019, $415 million (2018: $178 million) of product delivery obligations remain.

- Cobalt supply arrangement – In March 2019, Glencore signed a six year cobalt prepayment arrangement in exchange for an upfront advance payment of $100 million. Under the terms of the arrangement, Glencore is required to deliver an average of 1,621 metric tons of cobalt per annum over a four year period starting 2021. As at 31 December 2019, $101 million (2018: $Nil) of product delivery obligations remain.

- Palladium supply arrangement – In June 2019, Glencore signed a five year palladium prepayment arrangement in exchange for an upfront advance payment of $200 million. Under the terms of the arrangement, Glencore is required to deliver a minimum of 44 thousand ounces of palladium per annum over a five year period starting 2020. As at 31 December 2019, $160 million (2018: $Nil) of product delivery obligations remain.

22. Provisions

US$ million	Notes	Post-retirement employee benefits	Other employee entitlements	Rehabilitation costs	Onerous contracts	Other	**Total**
1 January 2019		798	243	4,457	722	1,158	7,378
Utilised		(93)	(25)	(171)	(1)	(118)	(408)
Released		–	(8)	(46)	(195)	(18)	(267)
Accretion		28	–	139	40	3	210
Assumed in business combination	25	44	–	80	–	2	126
Additions		153	19	419	36	151	778
Impact of adoption of IFRS 16		–	–	–	(8)	–	(8)
Reclassification to held for sale	15	–	–	(45)	–	(7)	(52)
Effect of foreign currency exchange movements		28	(1)	14	1	(8)	34
31 December 2019		**958**	**228**	**4,847**	**595**	**1,163**	**7,791**
Current		–	10	239	98	142	489
Non-current		958	218	4,608	497	1,021	7,302
1 January 2018		847	294	4,180	1,092	1,158	7,571
Utilised		(92)	(71)	(211)	–	(136)	(510)
Released		–	(36)	–	(476)	(43)	(555)
Accretion		–	–	135	–	–	135
Assumed in business combination	25	–	26	82	31	134	273
Disposal of subsidiaries	25	–	(1)	(41)	–	(31)	(73)
Additions		95	31	391	75	92	684
Effect of foreign currency exchange movements		(52)	–	(79)	–	(16)	(147)
31 December 2018		**798**	**243**	**4,457**	**722**	**1,158**	**7,378**
Current		–	16	116	227	195	554
Non-current		798	227	4,341	495	963	6,824

Post-retirement employee benefits

The provision for post-retirement employee benefits includes pension plan liabilities of $446 million (2018: $393 million) and post-retirement medical plan liabilities of $512 million (2018: $405 million), see note 23.

Other employee entitlements

The employee entitlement provision represents the value of governed employee entitlements due to employees upon their termination of employment. The associated expenditure will occur in a pattern consistent with when employees choose to exercise their entitlements.

Rehabilitation costs

Rehabilitation provision represents the accrued cost required to provide adequate restoration and rehabilitation upon the completion of production activities. These amounts will be settled when rehabilitation is undertaken, generally at the end of a project's life, which ranges from two to in excess of 50 years with an average for all sites, weighted by closure provision, of some 24 years (2018: 24 years).

As at 31 December 2019, the discount rate applied in calculating the restoration and rehabilitation provision is a pre-tax risk free rate specific to the liability and the currency in which they are denominated as follows: US dollar 1.8% (2018: 2.0%), South African rand 3.8% (2018: 4.0%), Australian dollar 2.5% (2018: 2.8%), Canadian dollar 2.0% (2018: 2.3%), and Chilean peso 2.8% (2018: 3.0%). The effect of decreasing the discount rates used by 0.5% would result in an increase in the overall rehabilitation provision by $351 million, with a resulting equal movement in property, plant and equipment. In the following year, the depreciation expense would increase by some $15 million, with an opposite direction interest expense adjustment of $5 million. The resulting net impact in the statement of income would be a decrease of $10 million, eventually netting to $Nil over the weighted average settlement date of the provision.

22. Provisions continued

Onerous contracts
Onerous contracts represent liabilities related to contractual take or pay commitments for securing coal logistics capacity at fixed prices and quantities higher than the acquisition date forecasted usage and prevailing market price. The provision is released to costs of goods sold as the underlying commitments are incurred.

Other
Other comprises provisions for possible demurrage, mine concession, tax and construction related claims.

Tax disputes
Glencore assesses its liabilities and contingencies for all tax years open to audit based upon the latest information available. Inherent uncertainties exist in estimates of tax contingencies due to complexities of interpretation and changes in tax laws. For those matters where it is probable that an adjustment will be made, the Group records its reasoned estimate of these tax liabilities, including related interest charges. These current open tax matters are spread across numerous jurisdictions and consist primarily of legacy transfer pricing matters that have been open for a number of years and may take several more years to resolve; reasonably possible adverse outcomes are not considered to be individually material, therefore management does not anticipate a significant risk of material change in estimates within the next financial year.

DRC 2018 Mining Code
Owing to the lack of guidance and clarification on the practical application of the "Super Profits Tax" legislation under the 2018 Mining Code (see also note 7), the Group has taken the view that no Super Profits Tax is due in the current year and that any potential amount payable will not result in a material adjustment to the tax provision in the current year and within the next financial year.

UK Tax Audit
HMRC have issued formal transfer pricing, unallowable purposes and diverted profits tax assessments for the 2008-2018 tax years, amounting to $774 million. The Group has appealed against, and continues to vigorously contest, these assessments, following, over the years, various legal opinions received and detailed analysis conducted, supporting its positions and policies applied. Therefore, the Group has not provided for the amount assessed. The matter is now proceeding through the Mutual Agreement Process, pursuant to article 24 of the Switzerland – United Kingdom Income Tax Treaty 1977. Management does not anticipate a significant risk of material changes in estimates in this matter in the next financial year.

23. Personnel costs and employee benefits

Total personnel costs, which include salaries, wages, social security, other personnel costs and share-based payments, incurred for the years ended 31 December 2019 and 2018, were $5,231 million and $5,063 million, respectively. Personnel costs related to consolidated industrial subsidiaries of $4,035 million (2018: $3,887 million) are included in cost of goods sold. Other personnel costs, including deferred bonus and performance share plans, are included in selling and administrative expenses.

The Company and certain subsidiaries sponsor various pension schemes in accordance with local regulations and practices. Eligibility for participation in the various plans is either based on completion of a specified period of continuous service, or date of hire. Among these schemes are defined contribution plans as well as defined benefit plans.

Defined contribution plans
Glencore's contributions under these plans amounted to $141 million in 2019 (2018: $140 million).

Post-retirement medical plans
The Company participates in a number of post-retirement medical plans, principally in Canada, which provide coverage for prescription drugs, medical, dental, hospital and life insurance to eligible retirees. Almost all of the post-retirement medical plans in the Group are unfunded.

Defined benefit pension plans
The Company operates defined benefit plans in various countries, the main locations being Canada, Switzerland, UK and the U.S.. Approximately 67% of the present value of obligations accrued relates to the defined benefit plans in Canada, which are pension plans that provide benefits to members in the form of a guaranteed level of pension payable for life. Contributions to the Canadian plans are made to meet or exceed minimum funding requirements based on provincial statutory requirements and associated federal taxation rules.

The majority of benefit payments are from trustee-administered funds; however, there are also a number of unfunded plans where Glencore meets the benefit payments as they fall due. Plan assets held in trusts are governed by local regulations and practices in each country. Responsibility for governance of the plans – overseeing all aspects of the plans including investment decisions and contribution schedules – lies with Glencore. Glencore has set up committees to assist in the management of the plans and has also appointed experienced, independent professional experts such as investment managers, actuaries, custodians, and trustees.

23. Personnel costs and employee benefits continued

The movement in the defined benefit pension and post-retirement medical plans over the year is as follows:

			Defined benefit pension plans		
US$ million	Notes	Post-retirement medical plans	Present value of defined benefit obligation	Fair value of plan assets	Net liability for defined benefit pension plans
1 January 2019		**405**	2,651	(2,299)	**352**
Current service cost		7	52	–	52
Past service cost - plan amendments		(1)	(5)	–	(5)
Settlement of pension plan disposal		–	(86)	85	(1)
Interest expense/(income)		21	93	(83)	10
Total expense recognised in consolidated statement of income		**27**	54	2	**56**
(Gain) on plan assets, excluding amounts included in interest expense - net		–	–	(207)	(207)
(Gain) from change in demographic assumptions		–	(2)	–	(2)
Loss from change in financial assumptions		39	256	–	256
Loss from actuarial experience		1	12	–	12
Actuarial losses/(gains) recognised in consolidated statement of comprehensive income		**40**	266	(207)	**59**
Employer contributions		–	–	(72)	(72)
Employee contributions		–	1	(1)	–
Benefits paid directly by the Company		(21)	(8)	8	–
Benefits paid from plan assets		–	(153)	153	–
Net cash (outflow)/inflow		**(21)**	(160)	88	**(72)**
Acquisition of business	25	44	25	(25)	–
Exchange differences		17	115	(106)	9
31 December 2019		**512**	2,951	(2,547)	**404**
Of which:					
Pension surpluses	11	–			(42)
Pension deficits	22	512			446

The actual return on plan assets in respect of defined benefit pension plans amounted to a gain of $396 million (2018: loss of $222 million), comprising interest income and the re-measurement of plan assets.

During the next financial year, the Group expects to make a contribution of $90 million to the defined benefit pension and post-retirement medical plans across all countries, including current service costs and contributions required by pension legislation. Contributions over the next five years for the Canadian plans only, based on the most recently filed actuarial reports, approximate $120 million. Future funding requirements and contributions are reviewed and adjusted on an annual basis.

23. Personnel costs and employee benefits continued

US$ million	Notes	Post-retirement medical plans	Defined benefit pension plans: Present value of defined benefit obligation	Fair value of plan assets	Net liability for defined benefit pension plans
1 January 2018		**455**	3,090	(2,766)	**324**
Current service cost		7	52	–	52
Past service cost - plan amendments		–	2	–	2
Settlement of pension plan disposal		–	(155)	153	(2)
Interest expense/(income)		16	89	(87)	2
Total expense recognised in consolidated statement of income		**23**	(12)	66	**54**
Loss on plan assets, excluding amounts included in interest expense - net		–	–	127	127
Loss from change in demographic assumptions		–	6	–	6
Gain from change in financial assumptions		(16)	(95)	–	(95)
Loss/(gain) from actuarial experience		(1)	24	–	24
Actuarial (gains)/losses recognised in consolidated statement of comprehensive income		**(17)**	(65)	127	**62**
Employer contributions		–	–	(74)	(74)
Employee contributions		–	1	(1)	–
Benefits paid directly by the Company		(18)	(8)	8	–
Benefits paid from plan assets		–	(159)	159	–
Net cash (outflow)/inflow		**(18)**	(166)	92	**(74)**
Exchange differences		(38)	(196)	182	(14)
31 December 2018		**405**	2,651	(2,299)	**352**
Of which:					
Pension surpluses	11	–			(41)
Pension deficits	22	405			393

The defined benefit obligation accrued in Canada represents the majority for the Company. The breakdown below provides details of the Canadian plans for both the statement of financial position and the weighted average duration of the defined benefit obligation as at 31 December 2019 and 2018. The defined benefit obligation of any of the Group's defined benefit plans outside of Canada as at 31 December 2019 does not exceed $250 million (2018: $206 million).

23. Personnel costs and employee benefits continued

2019

US$ million	Canada	Other	**Total**
Post-retirement medical plans			
Present value of defined benefit obligation	443	69	**512**
of which: amounts owing to active members	140	13	153
of which: amounts owing to pensioners	303	56	359
Defined benefit pension plans			
Present value of defined benefit obligation	1,967	984	**2,951**
of which: amounts owing to active members	525	453	978
of which: amounts owing to non-active members	24	188	212
of which: amounts owing to pensioners	1,418	343	1,761
Fair value of plan assets	(1,882)	(665)	**(2,547)**
Net defined benefit liability at 31 December 2019	**85**	**319**	**404**
Of which:			
Pension surpluses	(40)	(2)	(42)
Pension deficits	125	321	446
Weighted average duration of defined benefit obligation - years	12	17	**14**

2018

US$ million	Canada	Other	**Total**
Post-retirement medical plans			
Present value of defined benefit obligation	378	27	**405**
of which: amounts owing to active members	118	2	120
of which: amounts owing to pensioners	260	25	285
Defined benefit pension plans			
Present value of defined benefit obligation	1,829	822	**2,651**
of which: amounts owing to active members	488	378	866
of which: amounts owing to non-active members	19	164	183
of which: amounts owing to pensioners	1,322	280	1,602
Fair value of plan assets	(1,745)	(554)	**(2,299)**
Net defined benefit liability at 31 December 2018	**84**	**268**	**352**
Of which:			
Pension surpluses	(40)	(1)	(41)
Pension deficits	124	269	393
Weighted average duration of defined benefit obligation - years	12	17	**14**

Estimated future benefit payments of the Canadian plans, which reflect expected future service but exclude plan expenses, up until 2029 are as follows:

US$ million	Post-retirement medical plans	Defined benefit pension plans	**Total**
2020	19	146	165
2021	19	105	124
2022	19	149	168
2023	20	102	122
2024	20	101	121
2025-2029	100	506	606
Total	**197**	**1,109**	**1,306**

23. Personnel costs and employee benefits continued

The plan assets consist of the following:

US$ million	**2019**	2018
Cash and short-term investments	34	38
Fixed income	1,085	1,060
Equities	960	839
Other	468	362
Total	**2,547**	**2,299**

All investments have been fair valued based on quoted market prices with the exception of securities of $2 million (2018: $2 million) included in "Other".

The fair value of plan assets includes none of Glencore's own financial instruments and no property occupied by or other assets used by Glencore. For many of the plans, representing a large portion of the global plan assets, asset-liability matching strategies are in place, where the fixed-income assets are invested broadly in alignment with the duration of the plan liabilities, and the proportion allocated to fixed-income assets is raised when the plan funding level increases. The asset mix for each plan reflects the nature, expected changes in, and size of the liabilities and the assessment of long-term economic conditions, market risk, expected investment returns as considered during a formal asset mix study, including sensitivity analysis and/or scenario analysis, conducted periodically for the plans.

Through its defined benefit plans, Glencore is exposed to a number of risks, the most significant of which are detailed below:

Asset volatility: The plan liabilities are calculated using a discount rate set with reference to corporate bond yields; if plan assets underperform this yield, this will create a deficit. The funded plans hold a significant proportion of equities, which are expected to outperform bonds in the long term while contributing volatility and risk in the short term. Glencore believes that due to the long-term nature of the plan liabilities, a level of continuing equity investment is an appropriate element of Glencore's long-term strategy to manage the plans efficiently.

Change in bond yields: A decrease in bond yields will increase plan liabilities, although this will be partially offset by an increase in the value of the plans' bond holdings.

Inflation risk: Some of the plans' benefit obligations are linked to inflation, and higher inflation will lead to higher liabilities, although, in most cases, caps on the level of inflationary increases are in place to protect the plan against extreme inflation.

Life expectancy: The majority of the plans' obligations are to provide benefits for the life of the member, so increases in life expectancy will result in an increase in the plans' liability.

Salary increases: Some of the plans' benefit obligations related to active members are linked to their salaries. Higher salary increases will therefore tend to lead to higher plan liabilities.

The principal weighted-average actuarial assumptions used were as follows:

	Post-retirement medical plans		Defined benefit pension plans	
	2019	2018	**2019**	2018
Discount rate	3.9%	4.0%	2.7%	3.5%
Future salary increases	–	–	2.6%	2.6%
Future pension increases	–	–	0.4%	0.3%
Ultimate medical cost trend rate	4.5%	4.2%	–	–

Mortality assumptions are based on the latest available standard mortality tables for the individual countries concerned. As at 31 December 2019, these tables imply expected future life expectancy, for employees aged 65, 16 to 24 years for males (2018: 16 to 24) and 20 to 25 years for females (2018: 20 to 25). The assumptions for each country are reviewed regularly and are adjusted where necessary to reflect changes in fund experience and actuarial recommendations.

23. Personnel costs and employee benefits continued

The sensitivity of the defined benefit obligation to changes in principal assumptions as at 31 December 2019 is set out below, assuming that all other assumptions are held constant and the effect of interrelationships is excluded.

	Increase/(decrease) in pension obligation		
US$ million	Post-retirement medical plans	Defined benefit pension plans	Total
Discount rate			
Increase by 50 basis points	(36)	(177)	**(213)**
Decrease by 50 basis points	39	199	**238**
Rate of future salary increase			
Increase by 100 basis points	–	40	**40**
Decrease by 100 basis points	–	(38)	**(38)**
Rate of future pension benefit increase			
Increase by 100 basis points	–	50	**50**
Decrease by 100 basis points	–	(37)	**(37)**
Medical cost trend rate			
Increase by 100 basis points	77	–	**77**
Decrease by 100 basis points	(61)	–	**(61)**
Life expectancy			
Increase in longevity by one year	15	70	**85**

24. Accounts payable

US$ million	Notes	2019	2018
Financial liabilities at amortised cost			
Trade payables		7,099	7,569
Margin calls received[1]		310	753
Associated companies		1,501	824
Other payables and accrued liabilities		1,776	1,710
Financial liabilities at fair value through profit and loss			
Trade payables containing provisional pricing features	28	14,808	15,073
Non-financial instruments			
Advances settled in product		240	251
Other tax and related payables		459	304
Total		**26,193**	**26,484**

1 Includes $263 million (2018: $139 million) of cash collateral receipts under margin arrangements related to cross currency swaps held to hedge non-U.S. dollar denominated bonds.

Trade payables are obligations to pay for goods and services. Trade payables typically have maturities up to 90 days depending on the type of material and the geographic area in which the purchase transaction occurs and the agreed terms. The carrying value of trade payables approximates fair value.

25. Acquisition and disposal of subsidiaries and other entities

2019 Acquisitions

In 2019, Glencore acquired a 75% controlling interest in Chevron South Africa Proprietary Limited and a 100% interest in Chevron Botswana Proprietary Limited (together "Astron Energy"), a 42.9% additional interest in Polymet Mining Corp ("Polymet") and increased its interest in Ulan and Hail Creek.

The net cash used in the acquisition of subsidiaries and the provisional fair value of assets acquired and liabilities assumed on the acquisition date are detailed below:

US$ million	Astron Energy	Polymet	Ulan	Hail Creek	Other	**Total**
Non-current assets						
Property, plant and equipment	1,013	420	134	40	16	1,623
Intangible assets	335	24	–	–	12	371
Advances and loans[1]	7	13	–	–	1	21
	1,355	457	134	40	29	**2,015**
Current assets						
Inventories	584	–	3	3	–	590
Accounts receivable[1]	294	2	8	3	–	307
Cash and cash equivalents	50	6	1	1	1	59
	928	8	12	7	1	**956**
Non-controlling interest	(260)	(111)	–	–	–	**(371)**
Non-current liabilities						
Borrowings	(151)	(1)	–	–	(2)	(154)
Deferred tax liabilities	(199)	–	–	–	(4)	(203)
Provisions including post-retirement benefits	(48)	(63)	(5)	(2)	–	(118)
	(398)	(64)	(5)	(2)	(6)	**(475)**
Current liabilities						
Borrowings	(130)	–	–	–	–	(130)
Accounts payable	(487)	(7)	(17)	(5)	(1)	(517)
Provisions	(3)	(4)	–	(1)	–	(8)
	(620)	(11)	(17)	(6)	(1)	**(655)**
Total fair value of net assets acquired	**1,005**	**279**	**124**	**39**	**23**	**1,470**
Less: cash and cash equivalents acquired	(50)	(6)	(1)	(1)	(1)	(59)
Less: amounts previously recognised as exchangeable loan	(1,005)	–	–	–	–	(1,005)
Less: amounts previously recognised as investments	–	(36)	–	–	(4)	(40)
Less: amounts previously recognised as non-current loan	–	(243)	–	–	–	(243)
Net cash (received)/used in acquisition of subsidiaries	**(50)**	**(6)**	**123**	**38**	**18**	**123**
Acquisition related costs	–	–	6	–	–	6

1 There is no material difference between the gross contractual amounts for loans and advances and accounts receivable and their fair value.

Astron Energy

On 6 October 2017, Glencore entered into an agreement with Off the Shelf Investments Fifty Six (RF) Proprietary Limited ("OTS") to acquire from OTS (i) a 75% stake in Chevron South Africa Proprietary Limited (Chevron SA) and certain related interests and (ii) the entire issued share capital of Chevron Botswana Proprietary Limited (together the "Astron Energy") following closing of OTS's exercise of its pre-emptive right to acquire Astron Energy from the Chevron group. OTS's acquisition from Chevron closed on 1 October 2018, at which time Glencore advanced $1,044 million to OTS under an exchangeable loan arrangement. On 8 April 2019, the loan was exchanged into the 75% stake in Chevron SA and the 100% stake in Chevron Botswana acquired by OTS. As Glencore holds the majority of the voting shares, providing it the ability to appoint a controlling number of directors to the board, Glencore is required to account for Astron Energy using the full consolidation method in accordance with IFRS 10.

The fair values are provisional and expected to be finalised within 12 months of the acquisition. It is expected that adjustments could be made to the allocation of value between intangible assets, plant and equipment, deferred taxes and provisions.

If the acquisition had taken place effective 1 January 2019, the operation would have contributed additional revenue of $1,914 million and additional attributable net loss of $1 million. From the date of acquisition, the operation contributed $3,888 million of revenue and $71 million of attributable net loss.

25. Acquisition and disposal of subsidiaries and other entities continued

Polymet

On 26 June 2019, Glencore concluded the acquisition (via a rights issue) of an additional 42.9% interest in Polymet Mining Corp ("Polymet"), a company in the early stages of developing the NorthMet polymetallic (copper, nickel and precious metals) deposit in Minnesota for a total consideration of $243 million. Polymet is listed on the Toronto and New York stock exchanges. As noted, the consideration was satisfied through Glencore's participation in Polymet's rights issue, in which the proceeds raised were used to repay loans previously extended to Polymet by Glencore. As such, Glencore did not commit any new funds to Polymet. Following the capital raise, Glencore's voting interest increased from 28.8% to 71.7%.

As Glencore holds the majority of the voting rights, providing it the ability to appoint a controlling number of directors to the board, Glencore is required to account for Polymet using the full consolidation method in accordance with IFRS 10.

Prior to acquisition, Glencore owned a 28.8% interest in Polymet which was accounted for as an associate. In accordance with IFRS 3: Business Combinations, this equity interest is required to be revalued, at the date of acquisition, to its fair value with any resulting gain or loss recognised in the statement of income. The fair value of the existing interest was determined to be $36 million, by reference to the Polymet share price on the date of acquisition and as a result, a loss of $38 million was recognised in loss on disposals and investments.

The fair values are provisional and expected to be finalised within 12 months of the acquisition. It is expected that adjustments could be made to the allocation of value between intangible assets, plant and equipment, deferred taxes and provisions.

If the acquisition had taken place effective 1 January 2019, the operation would have contributed additional revenue of $Nil and additional attributable net loss of $2 million. From the date of acquisition, the operation contributed $Nil of revenue and attributable net loss of $3 million.

Ulan/Hail Creek

In January 2019, Glencore completed the acquisition of an additional 10% of Ulan and 2.7% of Hail Creek for a net consideration of $124 million and $39 million respectively, increasing Glencore's interest in Ulan and Hail Creek to 100% and 84.7%, respectively.

25. Acquisition and disposal of subsidiaries and other entities continued

2018 Acquisitions

In 2018, Glencore acquired a 49% interest in Hunter Valley operations coal mine in New South Wales ("HVO"), an 82% interest in Hail Creek coal mine as well as a 71% interest in the Valeria coal resource in Queensland ("Hail Creek"), a 78% interest in ALE Combustiveis ("Ale"), a Brazilian fuel distributor and other businesses, none of which are individually material. The net cash used in the acquisition of subsidiaries and the fair value of assets acquired and liabilities assumed on the acquisition date are detailed below:

US$ million	Ale provisional fair values as reported at 31 December 2018	Fair value adjustments to the provisional allocation in 2019	Total Ale fair values	HVO	Hail Creek	Other	Total
Non-current assets							
Property, plant and equipment	46	(5)	41	1,402	1,701	8	3,152
Intangible assets	426	(153)	273	–	–	1	274
Investments in associates and joint ventures	–	–	–	32	77	–	109
Advances and loans[1]	54	–	54	14	5	–	73
Deferred tax assets	–	14	14	–	–	–	14
	526	(144)	382	1,448	1,783	9	**3,622**
Current assets							
Inventories	90	7	97	50	68	–	215
Accounts receivable[1]	100	–	100	69	114	2	285
Cash and cash equivalents	90	–	90	11	23	1	125
	280	7	287	130	205	3	**625**
Non-controlling interest	(41)	–	(41)	–	–	–	**(41)**
Non-current liabilities							
Borrowings	(189)	–	(189)	–	–	–	(189)
Deferred income	–	–	–	(200)	–	–	(200)
Deferred tax liabilities	(140)	137	(3)	–	–	(2)	(5)
Provisions	(41)	–	(41)	(66)	(69)	–	(176)
	(370)	137	(233)	(266)	(69)	(2)	**(570)**
Current liabilities			–				
Borrowings	(74)	–	(74)	–	–	–	(74)
Accounts payable	(98)	–	(98)	(52)	(166)	–	(316)
Deferred income	–	–	–	(20)	–	–	(20)
Provisions	–	–	–	(9)	(2)	–	(11)
	(172)	–	(172)	(81)	(168)	–	**(421)**
Total fair value of net assets acquired	**223**	**–**	**223**	**1,231**	**1,751**	**10**	**3,215**
Less: cash and cash equivalents acquired	(90)	–	(90)	(11)	(23)	(1)	(125)
Less: deferred consideration	(82)	–	(82)	(82)	–	(4)	(168)
Net cash used in acquisition of subsidiaries	**51**	**–**	**51**	**1,138**	**1,728**	**5**	**2,922**
Acquisition related costs	–	–	–	59	83	–	142

1 There is no material difference between the gross contractual amounts for advances and loans and accounts receivable and their fair value.

ALE Combustiveis

On 31 August 2018, Glencore completed the acquisition of a 78% interest in ALE Combusitveis, a Brazilian fuel distributor, for a cash consideration of $141 million on closing and $82 million due over six years. The investment provides Glencore with a strong platform to participate in the expected significant domestic growth opportunities across the fuels sector in Brazil with the majority of the demand increase expected to be met by imports. As Glencore holds the majority of the voting shares, providing it the ability to appoint a controlling number of directors to the board, Glencore is required to account for ALE using the full consolidation method in accordance with IFRS 10.

25. Acquisition and disposal of subsidiaries and other entities continued

The above fair value adjustments to the provisionally reported values primarily relate to the allocation of value between intangible asset and fixed asset classes and deferred taxes. The acquisition accounting for Ale has now been finalised.

If the acquisition had taken place effective 1 January 2018, the operation would have contributed additional revenue of $2,439 million and additional attributable net loss of $15 million for the year ended 31 December 2018. From the date of acquisition, the operation contributed $969 million of revenue and $2 million of attributable net loss for the year ended 31 December 2018.

Hunter Valley operations

On 4 May 2018, Glencore completed the acquisition of a 49% interest in the HVO coal mine in New South Wales for a consideration of $1,231 million, comprising $1,149 million cash and $82 million of deferred consideration payable over 5 years, $61 million of which is contingent on future coal prices. Under the coal price contingent royalty arrangement, a production based royalty amount is due should actual prevailing prices be in excess of a royalty trigger price of $75/mt, commencing in September 2020 and lasting for a period of 10 years. The contingent portion of the deferred consideration is a level 3 fair value measurement, and was determined using forecasted production estimates and assumed actual coal prices higher than the royalty trigger price over the royalty period. Should production volumes increase/decrease by 10%, the contingent consideration due would increase/decrease by $6 million and for any given quarter should prevailing coal prices be lower than $75/mt (escalating by CPI), no amounts would be due under the price contingent royalty arrangement. HVO lies adjacent to numerous existing Glencore mines in the Hunter Valley and is expected to unlock significant mining and operating synergies. The investment is structured through an unincorporated joint venture with each party's exposure equating to its rights to the assets and obligations for the liabilities of HVO. As a joint operation, the 49% interest is accounted for by recognising the Group's share of HVO's assets, liabilities, revenue and expenses as prescribed by IFRS 11. In conjunction with the acquisition, $59 million of stamp duty and related costs were incurred. The acquisition accounting for HVO has now been finalised, with no adjustments to the previously reported provisional fair values.

If the acquisition had taken place effective 1 January 2018, the operation would have contributed additional revenue of $192 million and additional attributable net income of $29 million for the year ended 31 December 2018. From the date of acquisition, the operation contributed $611 million of revenue and $118 million of attributable net income for the year ended 31 December 2018.

Hail Creek coal mine

On 1 August 2018, Glencore completed the acquisition of an 82% interest in the Hail Creek coal mine and adjacent coal resources, as well as a 71% interest in the Valeria coal resource in central Queensland for a total cash consideration of $1,751 million. Hail Creek is a large-scale, long-life and low-cost mine producing two-thirds premium quality hard coking coal and one-third thermal coal for export. The investment is structured as an unincorporated joint venture with each party's exposure equating to its rights to the assets and obligations for the liabilities of Hail Creek. However, the key decision making powers do not require unanimous consent of the participants. As there is neither control nor joint control over the entire arrangement, Hail Creek is considered a deemed separate entity under IFRS 10 and is accounted for by recognising the Group's share of Hail Creek's assets, liabilities, revenue and expenses as prescribed by IFRS 10. In conjunction with the acquisition, $83 million of stamp duty and related costs were incurred. The acquisition accounting for Hail Creek has now been finalised, with no adjustments to the previously reported provisional fair values.

If the acquisition had taken place effective 1 January 2018, the operation would have contributed additional revenue of $639 million and additional attributable net income of $149 million for the year ended 31 December 2018. From the date of acquisition, the operation contributed $345 million of revenue and $95 million of attributable net income for the year ended 31 December 2018.

25. Acquisition and disposal of subsidiaries and other entities continued

2019 Disposals

In 2019, Glencore disposed of its controlling interest in Terminales Portuarios Chancay S.A.. The carrying value of the assets and liabilities over which control was lost and the net cash received from the disposal are detailed below:

US$ million	Terminales Portuarios Chancay	Other	**Total**
Non-current assets			
Property, plant and equipment	55	–	55
Intangible assets	33	–	33
Advances and loans	2	–	2
Deferred tax asset	1	–	1
	91	–	**91**
Current assets			
Accounts receivable	44	–	44
Cash and cash equivalents	1	–	1
	45	–	**45**
Current liabilities			
Accounts payable	(1)	(3)	(4)
	(1)	(3)	**(4)**
Carrying value of net assets disposed	**135**	**(3)**	**132**
Cash and cash equivalents received	–	(6)	(6)
Retained interest recognised as investment	(150)	–	(150)
Future consideration	(11)	(6)	(17)
Net gain on disposal	**(26)**	**(15)**	**(41)**
Cash and cash equivalents received	–	6	6
Less: cash and cash equivalents disposed	(1)	–	(1)
Net cash (used in)/received from disposal	**(1)**	**6**	**5**

Terminales Portuarios Chancay

In April 2019, Glencore disposed of a 60% interest in Terminales Portuarios Chancay S.A., a Peruvian port, for cash consideration of $11 million. Glencore is no longer able to unilaterally direct the key strategic, operating and capital decisions of Terminales Portuarios Chancay S.A. and was deemed to have disposed of its controlling interest at fair value. The difference to the net carrying value was recognised through the statement of income, with Glencore subsequently accounting for its remaining share using the equity method in accordance with IAS 28 (see note 10).

25. Acquisition and disposal of subsidiaries and other entities continued

2018 Disposals

In 2018, Glencore disposed of its controlling interest in Glencore Manganese France SAS, Glencore Manganese Norway AS and Tahmoor Coal Pty Ltd.

Mototolo

On 1 November 2018, Glencore disposed of its 40% interest of the Mototolo joint venture, a Platinum mine in South Africa, for a cash consideration of $68 million.

The carrying value of the assets and liabilities over which control was lost and the net cash received from these disposals are detailed below:

US$ million	Mototolo	Glencore Manganese and Tahmoor Coal	Others	**Total**
Non-current assets				
Property, plant and equipment	68	87	39	194
	68	87	39	**194**
Current assets				
Inventories	3	27	4	34
Accounts receivable	34	39	6	79
Cash and cash equivalents	7	32	3	42
	44	98	13	**155**
Non-controlling interest	(19)	–	(1)	**(20)**
Non-current liabilities				
Deferred tax liabilities	–	–	(3)	(3)
Provisions	(4)	(37)	(28)	(69)
	(4)	(37)	(31)	**(72)**
Current liabilities				
Accounts payable	(20)	(85)	(24)	(129)
Provisions	(4)	–	–	(4)
	(24)	(85)	(24)	**(133)**
Carrying value of net assets disposed	**65**	**63**	**(4)**	**124**
Cash and cash equivalents received	(68)	(48)	(14)	(130)
Intangible assets (offtake agreement)	–	(36)	–	(36)
Items recycled to the statement of income	197	14	7	218
Future consideration	(57)	–	–	(57)
Transaction costs	–	3	–	3
Net loss/(gain) on disposal	**137**	**(4)**	**(11)**	**122**
Cash and cash equivalents received	68	48	14	130
Less: cash and cash equivalents disposed	(7)	(32)	(3)	(42)
Net cash received from disposal	**61**	**16**	**11**	**88**

26. Financial and capital risk management

Financial risks arising in the normal course of business from Glencore's operations comprise market risk (including commodity price risk, interest rate risk and currency risk), credit risk (including performance risk) and liquidity risk. It is Glencore's policy and practice to identify and, where appropriate and practical, actively manage such risks (for management of "margin" risk within Glencore's extensive and diversified industrial portfolio, refer net present value at risk below) to support its objectives in managing its capital and future financial security and flexibility. Glencore's overall risk management programme focuses on the unpredictability of financial markets and seeks to protect its financial security and flexibility by using derivative financial instruments where possible to substantially hedge these financial risks. Glencore's finance and risk professionals, working in coordination with the commodity departments, monitor, manage and report regularly to senior management and the Board of Directors on the approach and effectiveness in managing financial risks along with the financial exposures facing the Group.

Glencore's objectives in managing its "capital attributable to equity holders" include preserving its overall financial health and strength for the benefit of all stakeholders, maintaining an optimal capital structure in order to provide a high degree of financial flexibility at an attractive cost of capital and safeguarding its ability to continue as a going concern, while generating sustainable long-term profitability. Central to meeting these objectives is maintaining an investment grade credit rating status. Glencore's current credit ratings are Baa1 (stable outlook) from Moody's and BBB+ (stable) from S&P.

Distribution policy and other capital management initiatives

Glencore's cash distribution policy comprises two components: (1) a fixed $1 billion component and (2) a variable element representing a minimum 25% of free cash flow generated by our industrial assets during the year. The actual variable distribution component (minimum 25% pay-out guidance) will reflect prevailing balance sheet position, market conditions and outlook and be confirmed annually in respect of prior period's cash flows. Distributions are expected to be formally declared by the Board annually (with the preliminary full-year results). Distributions, when declared, will be settled equally in May and September of the year they are declared in. In addition and acknowledging the cyclical nature of the industry, in periods of strong earnings and cash generation the Board, considering all relevant factors, could formally declare an additional distribution to be included with the distribution confirmed with respect to the prior year and/or initiate or continue share buy-back programmes. Notwithstanding that the distribution is declared and paid in U.S. dollars, shareholders will be able to elect to receive their distribution payments in Pounds Sterling, Euros or Swiss Francs based on the exchange rates in effect around the date of payment. Shareholders on the JSE will receive their distributions in South African Rand.

Commodity price risk

Glencore is exposed to price movements for the inventory it holds and the products it produces which are not held to meet priced forward contract obligations and forward priced purchase or sale contracts. Glencore manages a significant portion of this exposure through futures and options transactions on worldwide commodity exchanges or in over the counter (OTC) markets, to the extent available. Commodity price risk management activities are considered an integral part of Glencore's physical commodity marketing activities and the related assets and liabilities are included in other financial assets from and other financial liabilities to derivative counterparties, including clearing brokers and exchanges. Whilst it is Glencore's policy to substantially hedge its commodity price risks, there remains the possibility that the hedging instruments chosen may not always provide effective mitigation of the underlying price risk. The hedging instruments available to the marketing businesses may differ in specific characteristics to the risk exposure to be hedged, resulting in an ongoing and unavoidable basis risk exposure. Residual basis risk exposures represent a key focus point for Glencore's commodity department teams who actively engage in the management of such.

26. Financial and capital risk management continued

Value at risk
One of the tools used by Glencore to monitor and limit its primary market risk exposure, principally commodity price risk related to its physical marketing activities, is of a value at risk (VaR) computation. VaR is a risk measurement technique which estimates a threshold for potential loss that could occur on risk positions as a result of movements in risk factors over a specified time horizon, given a specific level of confidence and based on a specific price history. The VaR methodology is a statistically defined, probability-based approach that takes into account market volatilities, as well as risk diversification by recognising offsetting positions and correlations between commodities and markets. In this way, risks can be measured consistently across markets and commodities and risk measures can be aggregated to derive a single risk value.

Glencore uses a VaR approach based on Monte Carlo simulations computed at a 95% confidence level and utilising a weighted data history for a one-day time horizon. Glencore's Board has set an unchanged consolidated VaR limit (one day 95% confidence level) of $100 million representing less than 0.2% of total equity, which the Board reviews annually. There were no breaches of this limit during the year.

Position sheets are regularly distributed and monitored and daily Monte Carlo simulations are applied to the various business groups' net marketing positions to determine potential losses.

Market risk VaR (one-day 95% confidence level) ranges and year-end positions were as follows:

US$ million	**2019**	2018
Year-end position	18	33
Average during the year	27	34
High during the year	43	76
Low during the year	18	16

VaR does not purport to represent actual gains or losses in fair value in earnings to be incurred by Glencore, nor does Glencore claim that these VaR results are indicative of future market movements or representative of any actual impact on its future results. VaR should always be viewed in the context of its limitations; notably, the use of historical data as a proxy for estimating future events, market illiquidity risks and tail risks. Glencore recognises these limitations, and thus complements and continuously refines its VaR analysis by analysing forward looking stress scenarios, benchmarking against an alternative VaR computation based on historical simulations and back testing calculated VaR against the hypothetical portfolio returns arising in the next business day.

Glencore's VaR computation currently covers its business in the key base metals (including aluminium, nickel, zinc, copper and lead), coal, iron ore and oil/natural gas and assesses the open priced positions which are subject to price risk, including inventories of these commodities. Due to the lack of a liquid terminal market, Glencore does not include a VaR calculation for products such as alumina, molybdenum, cobalt, freight and some risk associated with metals' concentrates as it does not consider the nature of these markets to be suited to this type of analysis. Alternative measures are used to monitor exposures related to these products.

Net present value at risk
Glencore's future cash flows related to its forecast Industrial production activities are also exposed to commodity price movements. Glencore manages this exposure through a combination of portfolio diversification, occasional shorter-term hedging via futures and options transactions, insurance products and continuous internal monitoring, reporting and quantification of the underlying operations' estimated cash flows and valuations.

Interest rate risk
Glencore is exposed to various risks associated with the effects of fluctuations in the prevailing levels of market interest rates on its assets and liabilities and cash flows. Matching of assets and liabilities is utilised as the dominant method to hedge interest rate risks; other methods include the use of interest rate swaps and similar derivative instruments. Floating rate debt which is predominantly used to fund fast turning working capital (interest is internally charged on the funding of this working capital) is primarily based on US$ LIBOR plus an appropriate premium. Accordingly, prevailing market interest rates are continuously factored into transactional pricing and terms.

Assuming the amount of floating rate liabilities at the reporting period end were outstanding for the whole year, interest rates were 50 basis points higher/lower and all other variables held constant, Glencore's income and equity for the year ended 31 December 2019 would decrease/increase by $126 million (2018: $135 million).

Interest rate benchmark reform
The Group is closely monitoring the market and the output from the various industry working groups managing the transition to new benchmark interest rates. This includes announcements made by LIBOR regulators including the Bank of England regarding the transition away from GBP LIBOR to the Sterling Overnight Index Average Rate (SONIA) and the Federal Reserve Bank of New York regarding the transition away from USD LIBOR to the Secured Overnight Financing Rate (SOFR). In the UK, the Financial Conduct Authority has made clear that, at the end of 2021, it will no longer seek to persuade, or compel, banks to submit to LIBOR.

26. Financial and capital risk management continued

In response to the announcements, the Group is working to prepare and deliver on an action plan, encompassing treasury, legal, risk management, accounting and IT functions, to enable a smooth transition to alternative benchmark rates. The Group's existing USD LIBOR linked contracts do not include adequate and robust fall back provisions for a cessation of the referenced benchmark interest rate. Different working groups within the finance industry are working on fall back language for different instruments and different IBORs, which the Group is monitoring closely and will look to implement these when appropriate and can be practically implemented by the Group and its financial counterparties.

Currency risk

The U.S. dollar is the predominant functional currency of the Group. Currency risk is the risk of loss from movements in exchange rates related to transactions and balances in currencies other than the U.S. dollar. Such transactions include operating expenditure, capital expenditure and to a lesser extent purchases and sales in currencies other than the functional currency. Purchases or sales of commodities concluded in currencies other than the functional currency, apart from certain limited domestic sales at industrial operations which act as a hedge against local operating costs, are ordinarily economically hedged through forward exchange contracts. Consequently, foreign exchange movements against the U.S. dollar on recognised transactions would have an immaterial financial impact. Glencore enters into currency hedging transactions with leading financial institutions.

Glencore's debt related payments (both principal and interest) are primarily denominated in or swapped using hedging instruments into U.S. dollars. Glencore's operating expenses, being a small portion of its revenue base, are incurred in a mix of currencies of which the U.S. dollar, Swiss Franc, Pound Sterling, Canadian dollar, Australian dollar, Euro, Kazakhstan Tenge, Colombian Peso and South African Rand are the predominant currencies.

Glencore has issued Euro, Swiss Franc, Sterling and Yen denominated bonds (see note 20). Cross currency swaps were concluded to hedge the currency risk on the principal and related interest payments of these bonds. These contracts were designated as fair value or cash flow hedges of the associated foreign currency risks. The critical terms of these swap contracts and their corresponding hedged items are matched and the Group expects a highly effective hedging relationship with the swap contracts and the value of the corresponding hedged items to change systematically in opposite direction in response to movements in the underlying exchange rates. The corresponding fair value and notional amounts of these derivatives is as follows:

	Notional amounts		Average FX rates		Carrying amount Assets (Note 28)		Carrying amount Liabilities (Note 28)		Average maturity[1]
US$ million	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018	
Cross currency swap agreements									
Cash flow hedges - currency risk									
Eurobonds	1,777	1,117	1.11	1.12	6	53	4	–	2024
Sterling bonds	1,783	2,906	1.79	1.77	–	–	454	785	2021
Australian dollar bonds	–	453	–	0.91	–	3	–	101	–
Swiss franc bonds	256	–	1.02	–	–	–	4	–	2025
Fair value hedges - currency and interest rate risk									
Eurobonds	6,664	6,100	1.24	1.26	128	153	513	435	2022
Yen bonds	81	81	0.01	0.01	10	10	–	–	2022
Sterling bonds	663	–	1.33	–	28	–	–	–	2026
Swiss franc bonds	440	1,148	1.04	1.04	–	–	2	28	2022
	11,664	11,805			172	219	977	1,349	
Interest rate swap agreements									
Fair value hedges - interest rate risk									
US$ bonds	5,670	5,584	–	–	235	11	1	62	2025
	17,334	**17,389**			**407**	**230**	**978**	**1,411**	

1 Refer to note 20 for details.

26. Financial and capital risk management continued

The gross liquidity risk relating to the above cross currency swaps entered into for the purposes of hedging foreign currency and interest rate risks arising from the Group's non-U.S. dollar denominated bonds is presented below. The amounts reflect the expected gross settlement of the U.S. dollar pay leg of these swaps. The inflows from the related foreign currency receive leg of these swaps are not presented in the below table, but would approximate the foreign currency equivalent of the US dollar pay leg. Counterparty settlement date risk related to these swaps is limited, as the Group has entered into margining arrangements for both the outflow and inflow legs of the swap.

US$ million	After 5 years	Due 3 - 5 years	Due 2 - 3 years	Due 1 - 2 years	Due 0 - 1 year	**Total**
2019	3,099	2,804	1,987	2,688	1,909	**12,487**
2018	1,809	3,722	2,650	1,896	1,738	**11,815**

The carrying amounts of the fair value hedged items are as follows:

	Carrying amount of the hedged item (Note 20)		Of which, accumulated amount of fair value hedge adjustments	
US$ million	**2019**	2018	**2019**	2018
Foreign exchange and interest rate risk				
Eurobonds	6,213	5,748	(154)	(143)
Yen bonds	92	91	–	–
Swiss franc bonds	957	1,122	(1)	(2)
Sterling bonds	672	–	(12)	–
US$ bonds	5,850	5,492	(213)	60
	13,784	**12,453**	**(380)**	**(85)**

Credit risk

Credit risk arises from the possibility that counterparties may not be able to settle obligations due to Glencore within their agreed payment terms. Financial assets which potentially expose Glencore to credit risk consist principally of cash and cash equivalents, receivables and advances, derivative instruments and non-current advances and loans. Glencore's credit management process includes the assessment, monitoring and reporting of counterparty exposure on a regular basis. Glencore's cash and cash equivalents are placed overnight with a diverse group of highly credit rated financial institutions. Margin calls paid are similarly held with credit rated financial institutions. Glencore determines these instruments to have low credit risk at the reporting date. Credit risk with respect to receivables and advances is mitigated by the large number of customers comprising Glencore's customer base, their diversity across various industries and geographical areas, as well as Glencore's policy to mitigate these risks through letters of credit, netting, collateral and insurance arrangements where appropriate. Additionally, it is Glencore's policy that transactions and activities in trade related financial instruments be concluded under master netting agreements or long form confirmations to enable offsetting of balances due to/from a common counterparty in the event of default by the counterparty. Glencore actively and continuously monitors the credit quality of its counterparties through internal reviews and a credit scoring process, which includes, where available, public credit ratings. Balances with counterparties not having a public investment grade or equivalent internal rating are typically enhanced to investment grade through the extensive use of credit enhancement products, such as letters of credit or insurance products. Glencore has a diverse customer base, with no customer representing more than 4.7% (2018: 3.9%) of its trade receivables (on a gross basis taking into account credit enhancements) or accounting for more than 3.5% of its revenues over the year ended 31 December 2019 (2018: 2.6%).

The maximum exposure to credit risk (including performance risk – see below), without considering netting agreements or without taking account of any collateral held or other credit enhancements, is equal to the carrying amount of Glencore's financial assets (see note 27) and physically-settled advances (see notes 11 and 13).

26. Financial and capital risk management continued

Performance risk

Performance risk (part of the broader credit risk subject matter, discussed above) is inherent in contracts, with agreements in the future, to physically purchase or sell commodities with fixed price attributes, and arises from the possibility that counterparties may not be willing or able to meet their future contractual physical sale or purchase obligations to/from Glencore. Glencore undertakes the assessment, monitoring and reporting of performance risk within its overall credit management process. Glencore's market breadth, diversified supplier and customer base as well as the standard pricing mechanism in the vast majority of Glencore's commodity portfolio which does not fix prices beyond three months, with the main exception being coal, where longer-term fixed price contracts are common, ensure that performance risk is adequately mitigated. The commodity industry has trended towards shorter term fixed price contract periods, in part to mitigate against such potential performance risk, but also due to the continuous development of transparent and liquid spot commodity markets, with their associated derivative products and indexes.

Liquidity risk

Liquidity risk is the risk that Glencore is unable to meet its payment obligations when due, or that it is unable, on an ongoing basis, to borrow funds in the market on an unsecured or secured basis at an acceptable price to fund actual or proposed commitments. Prudent liquidity risk management implies maintaining sufficient cash and cash equivalents and availability of adequate committed funding facilities. Glencore has set itself an internal minimum liquidity target to maintain at all times, including via available committed undrawn credit facilities of $3 billion (2018: $3 billion), which has purposely been substantially exceeded in recent years, accounting for the more volatile market backdrop. Glencore's credit profile, diversified funding sources and committed credit facilities, ensure that sufficient liquid funds are maintained to meet its liquidity requirements. As part of its liquidity management, Glencore closely monitors and plans for its future capital expenditure, working capital needs and proposed investments, as well as credit facility refinancing/extension requirements, well ahead of time (see notes 1, 11, 20, 21 and 24).

As at 31 December 2019, Glencore had available committed undrawn credit facilities and cash amounting to $10,141 million (2018: $10,163 million), refer to Other reconciliations section. The maturity profile of Glencore's financial liabilities based on the contractual terms is as follows:

2019

US$ million	After 5 years	Due 3 - 5 years	Due 2 - 3 years	Due 1 - 2 years	Due 0 - 1 year	**Total**
Borrowings excluding lease liabilities	8,294	6,343	4,000	9,272	7,492	35,401
Expected future interest payments	2,586	866	613	834	925	5,824
Lease liabilities under IFRS 16 - undiscounted	618	289	239	385	569	2,100
Accounts payable	–	–	–	–	26,193	26,193
Other financial liabilities	379	–	–	–	3,722	4,101
Total	**11,877**	**7,498**	**4,852**	**10,491**	**38,901**	**73,619**
Current assets					41,838	41,838

2018

US$ million	After 5 years	Due 3 - 5 years	Due 2 - 3 years	Due 1 - 2 years	Due 0 - 1 year	**Total**
Borrowings excluding finance lease obligations	7,104	7,134	3,561	8,348	8,460	34,607
Expected future interest payments	2,651	842	621	779	828	5,721
Finance lease obligations under IAS 17 - undiscounted	174	43	83	77	134	511
Accounts payable	–	–	–	–	26,484	26,484
Other financial liabilities	529	–	–	–	3,243	3,772
Total	**10,458**	**8,019**	**4,265**	**9,204**	**39,149**	**71,095**
Current assets					44,268	44,268

27. Financial instruments

Fair value of financial instruments

The following tables present the carrying values and fair values of Glencore's financial instruments. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction in the principal (most advantageous) market at the measurement date under current market conditions. Where available, market values have been used to determine fair values. When market values are not available, fair values have been calculated by discounting expected cash flows at prevailing market interest and exchange rates. The estimated fair values have been determined using market information and appropriate valuation methodologies, but are not necessarily indicative of the amounts that Glencore could realise in the normal course of business.

The financial assets and liabilities are presented by class in the tables below at their carrying values, which generally approximate the fair values with the exception of $37,043 million (2018: $34,994 million) of borrowings, the fair value of which at 31 December 2019 was $37,670 million (2018: $34,863 million) based on observable market prices applied to the borrowing portfolio (a Level 2 fair value measurement).

2019 US$ million	Amortised cost	FVTPL[1]	FVTOCI[2]	**Total**
Assets				
Other investments[3]	–	97	2,290	2,387
Non-current other financial assets (see note 28)	–	25	–	25
Advances and loans	952	116	–	1,068
Accounts receivable	6,691	6,540	–	13,231
Other financial assets (see note 28)	–	2,381	–	2,381
Cash and cash equivalents	1,899	–	–	1,899
Total financial assets	**9,542**	**9,159**	**2,290**	**20,991**
Liabilities				
Borrowings	37,043	–	–	37,043
Non-current other financial liabilities (see note 28)	98	281	–	379
Accounts payable	10,686	14,808	–	25,494
Other financial liabilities (see note 28)	–	3,722	–	3,722
Total financial liabilities	**47,827**	**18,811**	**–**	**66,638**

1 FVTPL – Fair value through profit and loss.
2 FVTOCI – Fair value through other comprehensive income.
3 Other investments of $2,345 million are classified as Level 1 measured using quoted market prices with the remaining balance of $42 million being investments in private companies, classified as Level 2 measured using discounted cash flow models.

2018 US$ million	Amortised cost	FVTPL[1]	FVTOCI[2]	**Total**
Assets				
Other investments[3]	–	67	2,000	2,067
Non-current other financial assets (see note 28)	–	51	–	51
Advances and loans	771	155	–	926
Accounts receivable	6,840	7,515	–	14,355
Other financial assets (see note 28)	–	3,482	–	3,482
Cash and cash equivalents	2,046	–	–	2,046
Total financial assets	**9,657**	**11,270**	**2,000**	**22,927**
Liabilities				
Borrowings	34,994	–	–	34,994
Non-current other financial liabilities (see note 28)	189	340	–	529
Accounts payable	10,856	15,073	–	25,929
Other financial liabilities (see note 28)	–	3,243	–	3,243
Total financial liabilities	**46,039**	**18,656**	**–**	**64,695**

1 FVTPL – Fair value through profit and loss.
2 FVTOCI – Fair value through other comprehensive income.
3 Other investments of $1,979 million are classified as Level 1 measured using quoted market prices with the remaining balance of $88 million being investments in private companies, classified as Level 2 measured using discounted cash flow models.

27. Financial instruments continued

Offsetting of financial assets and liabilities

In accordance with IAS 32 the Group reports financial assets and liabilities on a net basis in the consolidated statement of financial position only if there is a legally enforceable right to set off the recognised amounts and there is intention to settle on a net basis, or to realise the asset and settle the liability simultaneously. The financial assets and liabilities subject to offsetting, enforceable master netting and similar agreements as at 31 December 2019 and 2018 were as follows:

2019 US$ million	Amounts eligible for set off under netting agreements Gross amount	 Amounts offset	 **Net amount**	Related amounts not set off under netting agreements Financial instruments	 Financial collateral	 Net amount	**Amounts not subject to netting agreements**	**Total as presented in the consolidated statement of financial position**
Derivative assets[1]	7,334	(6,190)	**1,144**	(365)	(275)	504	**1,237**	**2,381**
Derivative liabilities[1]	(7,959)	6,190	**(1,769)**	365	1,135	(269)	**(1,953)**	**(3,722)**

1 Presented within current other financial assets and current other financial liabilities.

2018 US$ million	Amounts eligible for set off under netting agreements Gross amount	 Amounts offset	 **Net amount**	Related amounts not set off under netting agreements Financial instruments	 Financial collateral	 Net amount	**Amounts not subject to netting agreements**	**Total as presented in the consolidated statement of financial position**
Derivative assets[1]	17,135	(14,823)	**2,312**	(341)	(719)	1,253	**1,170**	**3,482**
Derivative liabilities[1]	(16,577)	14,823	**(1,754)**	341	914	(499)	**(1,489)**	**(3,243)**

1 Presented within current other financial assets and current other financial liabilities.

For the financial assets and liabilities subject to enforceable master netting or similar arrangements above, each agreement between the Group and the counterparty allows for net settlement of the relevant financial assets and liabilities when both elect to settle on a net basis. In the absence of such an election, financial assets and liabilities may be settled on a gross basis, however, each party to the master netting or similar agreement will have the option to settle all such amounts on a net basis in the event of default of the other party. Per the terms of each agreement, an event of default includes failure by a party to make payment when due, failure by a party to perform any obligation required by the agreement (other than payment) if such failure is not remedied within periods of 30 to 60 days after notice of such failure is given to the party or bankruptcy.

28. Fair value measurements

Fair values are primarily determined using quoted market prices or standard pricing models using observable market inputs where available and are presented to reflect the expected gross future cash in/outflows. Glencore classifies the fair values of its financial instruments into a three level hierarchy based on the degree of the source and observability of the inputs that are used to derive the fair value of the financial asset or liability as follows:

Level 1 Inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that Glencore can assess at the measurement date, or

Level 2 Inputs other than quoted inputs included in Level 1 that are observable for the assets or liabilities, either directly or indirectly, or

Level 3 Unobservable inputs for the assets or liabilities, requiring Glencore to make market-based assumptions.

Level 1 classifications primarily include futures with a tenor of less than one year and options that are exchange traded, whereas Level 2 classifications primarily include futures with a tenor greater than one year, over the counter options, swaps and physical forward transactions which derive their fair value primarily from exchange quotes and readily observable broker quotes. Level 3 classifications primarily include physical forward transactions which derive their fair value predominantly from models that use broker quotes and applicable market-based estimates surrounding location, quality and credit differentials and financial liabilities linked to the fair value of certain mining operations. In circumstances where Glencore cannot verify fair value with observable market inputs (Level 3 fair values), it is possible that a different valuation model could produce a materially different estimate of fair value.

28. Fair value measurements continued

It is Glencore's policy that transactions and activities in trade related financial instruments be concluded under master netting agreements or long form confirmations to enable balances due to/from a common counterparty to be offset in the event of default, insolvency or bankruptcy by the counterparty.

The following tables show the fair values of the derivative financial instruments including trade related financial and physical forward purchase and sale commitments by type of contract and non-current other financial liabilities as at 31 December 2019 and 2018. Other assets and liabilities which are measured at fair value on a recurring basis are marketing inventories, other investments, cash and cash equivalents. There are no non-recurring fair value measurements.

Financial assets

2019

US$ million	Level 1	Level 2	Level 3	**Total**
Accounts receivable	–	6,540	–	**6,540**
Other financial assets				
Commodity related contracts				
Futures	377	80	–	**457**
Options	14	63	–	**77**
Swaps	80	122	–	**202**
Physical forwards	–	898	317	**1,215**
Financial contracts				
Cross currency swaps	–	175	–	**175**
Foreign currency and interest rate contracts	–	255	–	**255**
Current other financial assets	**471**	**1,593**	**317**	**2,381**
Non-current other financial assets				
Purchased call options over Glencore shares[1]	–	25	–	**25**
Non-current other financial assets	**–**	**25**	**–**	**25**
Total	**471**	**8,158**	**317**	**8,946**

1 Call options over the Company's shares in relation to conversion rights of the $500 million non-dilutive convertible bond, due in 2025. See note 20.

2018

US$ million	Level 1	Level 2	Level 3	**Total**
Accounts receivable	–	6,471	–	**6,471**
Other financial assets				
Commodity related contracts				
Futures	1,353	79	–	**1,432**
Options	15	–	–	**15**
Swaps	149	483	–	**632**
Physical forwards	–	598	552	**1,150**
Financial contracts				
Cross currency swaps	–	219	–	**219**
Foreign currency and interest rate contracts	–	34	–	**34**
Current other financial assets	**1,517**	**1,413**	**552**	**3,482**
Non-current other financial assets				
Purchased call options over Glencore shares[1]	–	51	–	**51**
Non-current other financial assets	**–**	**51**	**–**	**51**
Total	**1,517**	**7,935**	**552**	**10,004**

1 Call options over the Company's shares in relation to conversion rights of the $500 million non-dilutive convertible bond, due in 2025. See note 20.

28. Fair value measurements continued

Financial liabilities

2019

US$ million	Level 1	Level 2	Level 3	Total
Accounts payable	–	14,808	–	**14,808**
Other financial liabilities				
Commodity related contracts				
Futures	1,141	151	–	**1,292**
Options	85	11	–	**96**
Swaps	90	179	–	**269**
Physical forwards	–	852	208	**1,060**
Financial contracts				
Cross currency swaps	–	979	–	**979**
Foreign currency and interest rate contracts	–	26	–	**26**
Current other financial liabilities	**1,316**	**2,198**	**208**	**3,722**
Non-current other financial liabilities				
Non-discretionary dividend obligation[1]	–	–	161	**161**
Option over non-controlling interest in Ale[2]	–	–	36	**36**
Deferred consideration	–	–	59	**59**
Embedded call options over Glencore shares[3]	–	25	–	**25**
Non-current other financial liabilities	**–**	**25**	**256**	**281**
Total	**1,316**	**17,031**	**464**	**18,811**

2018

US$ million	Level 1	Level 2	Level 3	Total
Accounts payable	–	15,073	–	**15,073**
Other financial liabilities				
Commodity related contracts				
Futures	318	72	–	**390**
Options	93	–	3	**96**
Swaps	45	432	–	**477**
Physical forwards	–	615	247	**862**
Financial contracts				
Cross currency swaps	–	1,349	–	**1,349**
Foreign currency and interest rate contracts	–	69	–	**69**
Current other financial liabilities	**456**	**2,537**	**250**	**3,243**
Non-current other financial liabilities				
Non-discretionary dividend obligation[1]	–	–	188	**188**
Option over non-controlling interest in Ale[2]	–	–	40	**40**
Deferred consideration[2]	–	–	61	**61**
Embedded call options over Glencore shares[3]	–	51	–	**51**
Non-current other financial liabilities	**–**	**51**	**289**	**340**
Total	**456**	**17,661**	**539**	**18,656**

1 A ZAR denominated derivative liability payable to ARM Coal, a partner in one of the Group's principal coal joint operations based in South Africa. The liability arises from ARM Coal's rights as an investor to a share of agreed free cash flows from certain coal operations in South Africa and is valued based on those cash flows using a risk-adjusted discount rate. The derivative liability is settled over the life of those operations (modelled mine life of 25 years as at 31 December 2019) and has no fixed repayment date and is not cancellable within 12 months.

2 See note 25.

3 Embedded call option bifurcated from the 2025 convertible bond. See note 20.

28. Fair value measurements continued

The following table shows the net changes in fair value of Level 3 other financial assets and other financial liabilities:

US$ million	Physical forwards	Options	Other	**Total Level 3**
1 January 2019	305	(3)	(289)	**13**
Total gain/(loss) recognised in cost of goods sold	(105)	–	–	**(105)**
Non-discretionary dividend obligation	–	–	27	**27**
Option over non-controlling interest	–	–	4	**4**
Deferred consideration	–	–	2	**2**
Realised	(91)	3	–	**(88)**
31 December 2019	**109**	**–**	**(256)**	**(147)**
1 January 2018	172	(8)	(513)	**(349)**
Total gain/(loss) recognised in cost of goods sold	207	(3)	–	**204**
Non-discretionary dividend obligation	–	–	325	**325**
Option over non-controlling interest	–	–	(40)	**(40)**
Deferred consideration	–	–	(61)	**(61)**
Realised	(74)	8	–	**(66)**
31 December 2018	**305**	**(3)**	**(289)**	**13**

During the year, no amounts were transferred between Level 1 and Level 2 of the fair value hierarchy and no amounts were transferred into or out of Level 3 of the fair value hierarchy for either other financial assets or other financial liabilities.

Some of the Group's financial assets and financial liabilities are measured at fair value at the end of each reporting period. The following table provides information about how the fair values of these financial assets and financial liabilities are determined, in particular, the valuation techniques and inputs used.

28. Fair value measurements continued

Fair value of financial assets/financial liabilities

US$ million			2019	2018
Futures – Level 1		Assets	377	1,353
		Liabilities	(1,141)	(318)
Valuation techniques and key inputs:	Quoted bid prices in an active market			
Significant unobservable inputs:	None			
Futures – Level 2		Assets	80	79
		Liabilities	(151)	(72)
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money and counterparty credit considerations, as required.			
Significant unobservable inputs:	None			
Options – Level 1		Assets	14	15
		Liabilities	(85)	(93)
Valuation techniques and key inputs:	Quoted bid prices in an active market			
Significant unobservable inputs:	None			
Options – Level 2		Assets	63	–
		Liabilities	(11)	–
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money and counterparty credit considerations, as required.			
Significant unobservable inputs:	None			
Options – Level 3		Assets	–	–
		Liabilities	–	(3)
Valuation techniques and key inputs:	Standard option pricing model			
Significant unobservable inputs:	Prices are adjusted by volatility differentials. This significant unobservable input generally represents 2% – 20% of the overall value of the instruments. A change to a reasonably possible alternative assumption would not result in a material change in the underlying value.			
Swaps – Level 1		Assets	80	149
		Liabilities	(90)	(45)
Valuation techniques and key inputs:	Quoted bid prices in an active market			
Significant unobservable inputs:	None			
Swaps – Level 2		Assets	122	483
		Liabilities	(179)	(432)
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money and counterparty credit considerations, as required.			
Significant unobservable inputs:	None			

28. Fair value measurements continued

US$ million			2019	2018
Physical Forwards – Level 2		Assets	**898**	598
		Liabilities	**(852)**	(615)
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money, and counterparty credit considerations, such as history of non-performance, collateral held and current market developments, as required.			
Significant unobservable inputs:	None			
Physical Forwards – Level 3		Assets	**317**	552
		Liabilities	**(208)**	(247)
Valuation techniques and key inputs:	Discounted cash flow model			
Significant unobservable inputs:	Valuation of the Group's commodity physical forward contracts categorised within this level is based on observable market prices that are adjusted by unobservable differentials, as required, including: – Quality; – Geographic location; – Local supply & demand; – Customer requirements; and – Counterparty credit considerations. These significant unobservable inputs generally represent 2%–30% of the overall value of the instruments. The valuation prices are applied consistently to value physical forward sale and purchase contracts, and changing a particular input to reasonably possible alternative assumptions does not result in a material change in the underlying value of the portfolio.			
Cross currency swaps – Level 2		Assets	**175**	219
		Liabilities	**(979)**	(1,349)
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money and counterparty credit considerations, as required.			
Significant unobservable inputs:	None			
Foreign currency and interest rate contracts – Level 2		Assets	**255**	34
		Liabilities	**(26)**	(69)
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money and counterparty credit considerations, as required.			
Significant unobservable inputs:	None			
Call options over Glencore shares – Level 2		Assets	**25**	51
		Liabilities	**(25)**	(51)
Valuation techniques and key inputs:	Option pricing model – Current price of Glencore shares; – Strike price; – Maturity date of the underlying convertible debt security; – Risk-free rate; and – Volatility.			
Significant unobservable inputs:	None			

28. Fair value measurements continued

US$ million			2019	2018
Accounts receivable and payable – Level 2		Assets	**6,540**	6,471
		Liabilities	**(14,808)**	(15,073)
Comprised of trade receivables/payables containing an embedded commodity derivative, which are designated and measured at fair value through profit and loss until final settlement.				
Valuation techniques and key inputs:	Discounted cash flow model Inputs include observable quoted commodity prices sourced from exchanges or traded reference indices in active markets for identical assets or liabilities. Prices are adjusted by a discount rate which captures the time value of money and counterparty credit considerations, as required.			
Significant unobservable inputs:	None			
Non-discretionary dividend obligation – Level 3		Assets	**–**	–
		Liabilities	**(161)**	(188)
Valuation techniques:	Discounted cash flow model			
Significant observable inputs:	– Forecast commodity prices; – Discount rates using weighted average cost of capital methodology; – Production models; – Operating costs; and – Capital expenditures. The resultant liability is essentially a discounted cash flow valuation of the underlying mining operation. Increases/decreases in forecast commodity prices will result in an increase/decrease to the value of the liability though this will be partially offset by associated increases/decreases in the assumed production levels, operating costs and capital expenditures, which are inherently linked to forecast commodity prices. The valuation remains sensitive to price and a 10% increase/decrease in commodity price assumptions would result in an $109 million adjustment to the current carrying value.			
Option over non-controlling interest in Ale – Level 3		Assets	**–**	–
		Liabilities	**(36)**	(40)
Valuation techniques and key inputs:	Discounted cash flow model			
Significant unobservable inputs:	The resultant liability is the value of the remaining minority stake in the subsidiary, measured as the higher value of the acquisition date valuation of the shares, and a discounted future earnings based valuation. The valuation is additionally sensitive to movement in the spot exchange rates between the Brazilian Real and US Dollar.			

29. Auditor's remuneration

US$ million	2019	2018
Remuneration in respect of the audit of Glencore's consolidated financial statements	3	3
Other audit fees, primarily in respect of audits of accounts of subsidiaries	18	18
Audit-related assurance services[1]	3	3
Total audit and related assurance fees	**24**	**24**
Transaction services	–	–
Taxation compliance services	2	2
Other taxation advisory services	2	2
Other assurance services	2	2
Total non-audit fees	**6**	**6**
Total professional fees	**30**	**30**

1 Audit-related assurance services primarily related to interim reviews of the Group's half-year accounts and quarterly accounts of the Group's publicly listed subsidiaries.

30. Future commitments

Capital expenditure for the acquisition of property, plant and equipment is generally funded through the cash flow generated by the respective industrial entities. As at 31 December 2019, $1,240 million (2018: $1,321 million), of which 89% (2018: 88%) relates to expenditure to be incurred over the next year, was contractually committed for the acquisition of property, plant and equipment.

Certain of Glencore's exploration tenements and licences require it to spend a minimum amount per year on development activities, a significant portion of which would have been incurred in the ordinary course of operations. As at 31 December 2019, $126 million (2018: $86 million) of such development expenditures are to be incurred, of which 37% (2018: 20%) are for commitments to be settled over the next year.

As part of Glencore's ordinary sourcing and procurement of physical commodities and other ordinary marketing obligations, the selling party may request that a financial institution act as either a) the paying party upon the delivery of product and qualifying documents through the issuance of a letter of credit or b) the guarantor by way of issuing a bank guarantee accepting responsibility for Glencore's contractual obligations. Similarly, Glencore is required to post rehabilitation and pension guarantees in respect of some of these future, primarily industrial, long-term obligations. As at 31 December 2019, $9,628 million (2018: $10,842 million) of procurement and $3,953 million (2018: $3,692 million) of rehabilitation and pension commitments have been issued on behalf of Glencore, which will generally be settled simultaneously with the payment for such commodity and rehabilitation and pension obligations.

Astron related commitments

As part of the regulatory approval process pertaining to the acquisition of a 75% shareholding in Astron Energy, Glencore and Astron Energy entered into certain commitments (subject to variation for good cause) with the South Africa Competition Tribunal and the South African Economic Development Department. These commitments include investment expenditure of up to ZAR 6.5 billion ($467 million) over the period to 2024 so as to debottleneck and improve the performance of the Cape Town oil refinery, contribute to the rebranding of certain retail sites and establish a development fund to support small and black-owned businesses in Astron Energy's value chain. In addition, Glencore has agreed to increase the level of BEE shareholding in Astron Energy from 25% to 35% in tranches up to 2026 which will include a minimum additional 3% held by qualifying employee stock ownership plans in 2021.

Acquisition of land by Katanga

On 19 December 2019, Kamoto Copper Company ("KCC") entered into an agreement with La Générale des Carrières et des Mines ("Gécamines"), Katanga Mining Limited's 25% joint venture partner in KCC, to acquire from Gécamines a comprehensive land package covering areas adjacent to KCC's existing mining concessions for $250 million. The land includes multiple blocks for construction of a new long-term tailings facility and the possible exploitation of additional resources that will enhance KCC's ability to more efficiently operate its mines, facilities and other key infrastructure requirements. The acquisition is expected to close during the course of 2020.

31. Contingent liabilities

The amount of corporate guarantees in favour of third parties as at 31 December 2019 was $Nil (2018: $Nil). Also see note 10. The Group is subject to various legal and regulatory proceedings as detailed below. These contingent liabilities are reviewed on a regular basis and where appropriate an estimate is made of the potential financial impact on the Group. As at 31 December 2019 and 2018, it was not feasible to make such an assessment.

Legal and regulatory proceedings

The Group is subject to a number of investigations by regulatory and enforcement authorities

- The United States Department of Justice is investigating the Group with respect to compliance with the Foreign Corrupt Practices Act and United States money laundering statutes related to the Group's business in certain overseas jurisdictions, from 2007.
- The United States Commodity Futures Trading Commission ("CFTC") is investigating whether Glencore and its subsidiaries may have violated certain provisions of the Commodity Exchange Act and/or CFTC Regulations including through corrupt practices in connection with commodities trading.
- The United Kingdom Serious Fraud Office is investigating the Group in respect of suspicions of bribery in the conduct of business of the Group.
- The Brazilian authorities are investigating the Group in relation to "Operation car wash", which relates to bribery allegations concerning Petrobras.

The Group is named in a securities class action suit in the United States District Court of New Jersey in connection with the various investigations.

The Group has engaged external legal counsel and forensic experts to assist the Group in responding to the various investigations and to perform additional investigations at the request of the Investigations Committee covering various aspects of the Group's business.

The timing and amount of any financial obligations (such as fines, penalties or damages, which could be material) or other consequences, including external costs arising from any of the various investigations and the class action suit are not possible to predict and estimate at the end of the reporting period.

Other claims and unresolved disputes that are pending against Glencore, along with the timing of resolution and potential outcome (including any future financial obligations), are not possible to predict and estimate.

As no present obligation exists at 31 December 2019, the recognition criteria of *IAS 37 Provisions, Contingent Liabilities and Contingent Assets* have not been met. Consequently, no liability has been recognised in relation to these matters in the consolidated statement of financial position at the end of the reporting period.

Environmental contingencies

Glencore's operations are subject to various environmental laws and regulations. Glencore is not aware of any material non-compliance with those laws and regulations. Glencore accrues for environmental contingencies when such contingencies are probable and reasonably estimable. Such accruals are adjusted as new information develops or circumstances change. Recoveries of environmental remediation costs from insurance companies and other parties are recorded as assets when the recoveries are virtually certain. At this time, Glencore is unaware of any material environmental incidents at its locations. Any potential liability arising from environmental incidents in the ordinary course of the Group's business would not usually be expected to have a material adverse effect on its consolidated income, financial position or cash flows.

32. Related party transactions

In the normal course of business, Glencore enters into various arm's length transactions with related parties, including fixed price commitments to sell and to purchase commodities, forward sale and purchase contracts, agency agreements and management service agreements. Outstanding balances at period end are unsecured and settlement occurs in cash (see notes 11, 13 and 24). There have been no guarantees provided or received for any related party receivables or payables.

All transactions between Glencore and its subsidiaries are eliminated on consolidation along with any unrealised profits and losses between its subsidiaries, associates and joint ventures. In 2019, sales and purchases with associates and joint ventures amounted to $3,727 million (2018: $1,690 million) and $4,923 million (2018: $4,211 million) respectively.

33. Principal subsidiaries with material non-controlling interests

Non-controlling interest is comprised of the following:

US$ million	**2019**	2018
Volcan	1,217	1,608
Kazzinc	1,298	1,356
Koniambo	(3,607)	(3,177)
Katanga (see KML and KCC debt restructuring notes below)	159	11
Other[1]	(105)	(153)
Total	**(1,038)**	**(355)**

1 Other comprises various subsidiaries in which no individual balance attributable to non-controlling interests is material.

2019 KML Debt Restructuring

On 19 December 2019, Katanga Mining Limited ("KML"), the entity publically listed on the Toronto Stock Exchange which in turn owns a 75% interest in KCC (see below) completed a $5.8 billion (Canadian $7,678 million) rights offering fully underwritten by Glencore. The proceeds raised under the rights offering were used to repay loans extended to KML by Glencore, such that, Glencore did not commit any new funds to KML. Following the capital raise, Glencore's voting interest increased from 86.3% to 99.5%.

Under IFRS 10, changes in a parent's ownership interests in a subsidiary that do not result in the parent losing control of the subsidiary are equity transactions (i.e. transactions with owners in their capacity as owners) whereby the carrying amounts of the controlling and non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiary. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognised directly in equity and attributed to the owners of the parent. As a result of the essentially 'debt for equity' conversion, an amount of $378 million was recognised directly in 'other equity reserves' (see note 16).

2018 KCC Debt Restructuring

Kamoto Copper Company ("KCC"), the 75% owned Katanga (in turn then 86% held by Glencore) group entity carrying out mining activities in the DRC, had a significant net deficit balance sheet position that was required to be recapitalised under DRC law by 31 December 2017. Notwithstanding the various discussions with KCC's state-owned minority partner, La Générale des Carrières et des Mines ("Gécamines") in this regard, in April 2018, Gécamines commenced legal proceedings in the DRC to dissolve KCC, following KCC's failure to address its capital deficiency.

In June 2018, an agreement was reached with Gécamines to regularise the capital deficiency by converting $5.6 billion of existing intercompany debt owed by KCC to Katanga Mining Limited ("KML") Group (eliminated on consolidation) into equity. To ensure Gécamines' 25% interest was not diluted (contractually required), $1.4 billion (25%) of the total debt converted to equity was effectively transferred from KML to Gécamines.

Under IFRS 10, changes in a parent's ownership interest in a subsidiary that do not result in the parent losing control of the subsidiary are equity transactions (i.e. transactions with owners in their capacity as owners) whereby the carrying amounts of the controlling and non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiary. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognised directly in equity and attributed to the owners of the parent. As a result of the debt for equity conversion / transaction, the transferred portion of the converted debt resulted in a $1,207 million loss being recognised directly in 'other equity reserves', offset by a gain of an equal amount recognised in the 'non-controlling interests' equity reserve account.

In addition, it was agreed to:

- pay Gécamines $150 million to settle various historical commercial disputes;
- fund, on behalf of Gécamines, $41 million of outstanding unpaid invoices for contractors in charge of an earlier replacement reserves program; and
- waive KCC's right to $57 million of exploration and drilling expenditures incurred on behalf of Gécamines.

These amounts, totalling $248 million, have been expensed in the consolidated financial statements.

33. Principal subsidiaries with material non-controlling interests continued

Summarised financial information in respect of Glencore's subsidiaries that have material non-controlling interest as at 31 December 2019, reflecting 100% of the underlying subsidiary's relevant figures, is set out below.

US$ million	Kazzinc	Koniambo	Katanga	Volcan
31 December 2019				
Non-current assets	4,229	1,648	5,340	4,230
Current assets	1,133	369	1,261	255
Total assets	**5,362**	**2,017**	**6,601**	**4,485**
Non-current liabilities	785	11,857	1,674	1,778
Current liabilities	287	106	1,285	555
Total liabilities	**1,072**	**11,963**	**2,959**	**2,333**
Net assets	**4,290**	**(9,946)**	**3,642**	**2,152**
Equity attributable to owners of the Company	2,992	(6,339)	3,483	935
Non-controlling interest	1,298	(3,607)	159	1,217
Non-controlling interest %	30.3%	51.0%	0.5%	76.7%
2019				
Revenue	2,917	315	1,386	756
Expenses	(2,458)	(1,159)	(2,302)	(1,259)
Net profit/(loss) for the year	**459**	**(844)**	**(916)**	**(503)**
Profit/(loss) attributable to owners of the Company	320	(414)	(765)	(117)
Profit/(loss) attributable to non-controlling interests	139	(430)	(151)	(386)
Other comprehensive income attributable to owners of the Company	–	–	–	–
Other comprehensive income attributable to non-controlling interests	–	–	–	–
Total comprehensive income/(loss) for the year	**459**	**(844)**	**(916)**	**(503)**
Dividends paid to non-controlling interests	(196)	–	–	–
Net cash inflow/(outflow) from operating activities	750	(172)	(115)	178
Net cash outflow from investing activities	(427)	(39)	(509)	(172)
Net cash (outflow)/inflow from financing activities	(325)	219	828	(33)
Total net cash (outflow)/inflow	**(2)**	**8**	**204**	**(27)**

33. Principal subsidiaries with material non-controlling interests continued

US$ million	Kazzinc	Koniambo	Katanga	Volcan
31 December 2018				
Non-current assets	4,623	1,718	4,488	4,738
Current assets	972	338	899	387
Total assets	**5,595**	**2,056**	**5,387**	**5,125**
Non-current liabilities	855	11,044	6,354	1,910
Current liabilities	260	115	984	553
Total liabilities	**1,115**	**11,159**	**7,338**	**2,463**
Net assets	**4,480**	**(9,103)**	**(1,951)**	**2,662**
Equity attributable to owners of the Company	3,124	(5,926)	(1,962)	1,054
Non-controlling interest	1,356	(3,177)	11 [1]	1,608
Non-controlling interest %	30.3%	51.0%	13.7%	76.7%
2018				
Revenue	3,169	–	1,269	800
Expenses	(2,737)	(533)	(2,033)	(950)
Net profit/(loss) for the year	**432**	**(533)**	**(764)**	**(150)**
Profit/(loss) attributable to owners of the Company	301	(261)	(587)	(35)
Profit/(loss) attributable to non-controlling interests	131	(272)	(177) [1]	(115)
Other comprehensive income attributable to owners of the Company	–	–	–	–
Other comprehensive income attributable to non-controlling interests	–	–	–	–
Total comprehensive income/(loss) for the year	**432**	**(533)**	**(764)**	**(150)**
Dividends paid to non-controlling interests	(211)	–	–	(13)
Net cash inflow from operating activities	979	–	48	259
Net cash outflow from investing activities	(319)	(215)	(377)	(217)
Net cash (outflow)/inflow from financing activities	(854)	205	296	(81)
Total net cash outflow	**(194)**	**(10)**	**(33)**	**(39)**

1 Glencore has an 86.3% interest in Katanga Mining Limited, which in turn has a 75% interest in Kamoto Copper Company (KCC), the entity engaged in copper mining activities. The "non-controlling interest" balance includes $321 million and the "profit/(loss) attributable to non-controlling interests" balance includes negative $84 million, related to non-controlling interest arising at the KCC level.

Alternative performance measures

Alternative performance measures are denoted by the symbol ◊

When assessing and discussing the Group's reported financial performance, financial position and cash flows, Glencore makes reference to Alternative performance measures (APMs), which are not defined or specified under the requirements of IFRS, but are derived from the financial statements prepared in accordance with IFRS. The APMs are consistent with how the business performance is measured and reported within the internal management reporting to the Board and management and assist in providing meaningful analysis of the Group's results both internally and externally in discussions with the financial analyst and investment community.

The Group uses APMs to aid the comparability of information between reporting periods and segments and to aid the understanding of the activity taking place across the Group by adjusting for items that are of an infrequent nature and by aggregating or disaggregating (notably in the case of relevant material associates and joint ventures accounted for on an equity basis) certain IFRS measures. APMs are also used to approximate the underlying operating cash flow generation of the operations (Adjusted EBITDA).

Investments in the extractive industry are typically significant and the initial spend generally occurs over several years, "upfront", prior to the operations generating cash. As a result, the investments are sometimes made with partners and an assessment to approximate the operating cash flow generation/pay-back of the investment (Adjusted EBITDA) is required. Against this backdrop, the key APMs used by Glencore are Adjusted EBITDA, Net funding/Net debt and the disaggregation of the equivalent key APMs of our relevant material associates and joint ventures ("Proportionate adjustment") to enable a consistent evaluation of the financial performance and returns attributable to the Group.

Adjusted EBITDA is a useful approximation of the operating cash flow generation by eliminating depreciation and amortisation adjustments. Adjusted EBITDA is not a direct measure of our liquidity, which is shown by our cash flow statement and needs to be considered in the context of our financial commitments.

Proportionate adjustments are useful to enable a consistent evaluation of the financial performance and returns available to the Group, irrespective of the differing accounting treatments required to account for our minority/joint ownership interests of our relevant material investments.

Net funding is an aggregation of IFRS measures (Borrowings less cash and cash equivalents) and Net debt is Net funding less Readily marketable inventories and provides a measure of our financial leverage and, through Net debt to Adjusted EBITDA relationships, provides an indication of relative financial strength and flexibility.

APMs used by Glencore may not be comparable with similarly titled measures and disclosures by other companies. APMs have limitations as an analytical tool, and a user of the financial statements should not consider these measures in isolation from, or as a substitute for, analysis of the Group's results of operations; and they may not be indicative of the Group's historical operating results, nor are they meant to be a projection or forecast of its future results.

Listed below are the definitions and reconciliations to the underlying IFRS measures of the various APMs used by the Group.

Proportionate adjustment

For internal reporting and analysis, management evaluates the performance of Antamina copper/zinc mine (34% owned), Cerrejón coal mine (33% owned) and Collahuasi copper mine (44% owned) under the proportionate consolidation method reflecting Glencore's proportionate share of the revenues, expenses, assets and liabilities of these investments.

In November 2017, Glencore completed the acquisition of additional shares in Volcan, thereby increasing its total economic interest from 7.7% to 23.3% (compared to its 63% voting interest). For internal reporting and analysis, management evaluates the performance of Volcan under the equity method, reflecting the Group's relatively low 23.3% economic ownership in this fully ring-fenced listed entity, with its stand-alone, independent and separate capital structure. The impact is that we reflect 23.3% of Volcan's net income in the Group's Adjusted EBIT/EBITDA and its results are excluded from all other APM's including production data.

See reconciliation of revenue and relevant material associates' and joint ventures' Adjusted EBIT to "Share of net income from associates and joint ventures" below.

Alternative performance measures
continued

APMs derived from the statement of income

Revenue
Revenue represents revenue by segment (see note 2 of the financial statements), as reported on the face of the statement of income plus the relevant Proportionate adjustments. See reconciliation table below.

US$ million	**2019**	2018 Restated[1]
Revenue – Marketing activities	194,188	202,674
Revenue – Industrial activities	42,743	44,069
Intersegment eliminations	(19,672)	(23,576)
Revenue - segmental	**217,259**	**223,167**
Proportionate adjustment material associates and joint ventures – revenue	(2,904)	(3,443)
Proportionate adjustment Volcan – revenue	756	800
Revenue – reported measure	**215,111**	**220,524**

1 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).

Share of income from material associates and joint ventures

US$ million	**2019**	2018
Associates' and joint ventures' Adjusted EBITDA	1,754	2,212
Depreciation and amortisation	(745)	(726)
Associates' and joint ventures' Adjusted EBIT	1,009	1,486
Impairment, net of tax[1]	(435)	–
Net finance costs	5	7
Income tax expense	(342)	(536)
	(772)	(529)
Share of income from relevant material associates and joint ventures	**237**	**957**
Share of income from other associates	(123)	86
Share of income from associates and joint ventures[2]	**114**	**1,043**

1 Industrial activities segment comprises an impairment of $435 million, net of taxes of $213 million relating to Cerrejón, resulting from lower API2 coal price assumptions and reduced production estimates, including in relation to updated mine-life approval expectations.

2 Comprises share in losses of $58 million (2018: gain of $14 million) from Marketing activities and share in earnings of $172 million (2018: $1,029 million) from Industrial activities.

Adjusted EBIT/EBITDA
Adjusted EBIT/EBITDA provide insight into our overall business performance (a combination of cost management, seizing market opportunities and growth), and are the corresponding flow drivers towards our objective of achieving industry-leading returns.

Adjusted EBIT is the net result of revenue less cost of goods sold and selling and administrative expenses, plus share of income from associates and joint ventures, dividend income and the attributable share of Adjusted EBIT of relevant material associates and joint ventures, which are accounted for internally by means of proportionate consolidation, excluding Significant items, see definition below.

Adjusted EBITDA consists of Adjusted EBIT plus depreciation and amortisation, including the related Proportionate adjustments. See reconciliation table below.

Alternative performance measures
continued

US$ million	2019	2018 Restated[1]
Reported measures		
Revenue	215,111	220,524
Cost of goods sold	(210,434)	(211,468)
Selling and administrative expenses	(1,391)	(1,381)
Share of income from associates and joint ventures	114	1,043
Dividend income	49	21
	3,449	**8,739**
Adjustments to reported measures		
Share of associates' significant items	219	40
Share of associates' significant items – Volcan	73	–
Movement in unrealised inter-segment profit elimination	(468)	(237)
Proportionate adjustment material associates and joint ventures – net finance, impairment and income tax expense	772	529
Proportionate adjustment Volcan – net finance, income tax expense and non-controlling interests	106	72
Adjusted EBIT	**4,151**	**9,143**
Depreciation and amortisation	7,161	6,325
Proportionate adjustment material associates and joint ventures – depreciation	745	726
Proportionate adjustment Volcan - depreciation	(456)	(427)
Adjusted EBITDA	**11,601**	**15,767**

1 Adjusted to present mark-to-market movements on physical forward sales contracts within revenue (see note 1).

Significant items

Significant items of income and expense which, due to their nature and variable financial impact or the expected infrequency of the events giving rise to them, are separated for internal reporting and analysis of Glencore's results to aid in an understanding and comparative basis of the underlying financial performance. Refer to reconciliation below.

Reconciliation of net significant items 2019

US$ million	Gross significant charges	Non-controlling interests' share	Significant items tax	**Equity holders' share**
Share of Associates' significant items[1]	(219)	–	–	(219)
Share of Associates' significant items - Volcan	(73)	–	–	(73)
Movement in unrealised inter-segment profit elimination[1]	468	–	(46)	422
Net loss on disposals of non-current assets[2]	(43)	–	–	(43)
Other expense – net[3]	(173)	–	–	(173)
Impairments[4]	(2,408)	286	232	(1,890)
Impairments - net, related to material associates and joint ventures[5]	(435)	–	–	(435)
Tax significant items in their own right[6]	–	–	(435)	(435)
Total significant items	**(2,883)**	**286**	**(249)**	**(2,846)**

1 See note 2 of the financial statements.
2 See note 4 of the financial statements.
3 See note 5 of the financial statements.
4 See note 6 of the financial statements.
5 See Proportionate adjustment reconciliation above.
6 Tax expenses related to foreign exchange fluctuations ($12 million) and tax losses not recognised ($543 million), net of tax credits related to the recognition of temporary differences arising from retrospective changes in tax restructuring regulations ($120 million), see note 7 of the financial statements.

Alternative performance measures

continued

Reconciliation of net significant items 2018

US$ million	Gross significant charges	Non-controlling interests' share	Significant items tax	**Equity holders' share**
Share of Associates' significant items[1]	(40)	–	–	(40)
Movement in unrealised inter-segment profit elimination[1]	237	–	(23)	214
Net loss on disposals of non-current assets[2]	(139)	–	–	(139)
Other expense – net[3]	(764)	58	–	(706)
Impairments[4]	(1,643)	236	191	(1,216)
Tax significant items in their own right[5]	–	–	(470)	(470)
Total significant items	**(2,349)**	**294**	**(302)**	**(2,357)**

1 See note 2 of the financial statements.
2 See note 4 of the financial statements.
3 See note 5 of the financial statements.
4 See note 6 of the financial statements.
5 Tax expenses related to foreign exchange fluctuations ($130 million) and tax losses not recognised ($340 million), see note 7 of the financial statements.

Net income attributable to equity shareholder pre-significant items

Net income attributable to equity shareholders pre-significant items is a measure of our ability to generate shareholder returns. The calculation of tax items to be excluded from Net income, includes the tax effect of significant items and significant tax items themselves. Refer to reconciliation below.

US$ million	**2019**	2018
(Loss)/income attributable to equity holders of the Parent	(404)	3,408
Significant items	2,846	2,357
Income attributable to equity holders of the Parent pre-significant items	**2,442**	**5,765**

APMs derived from the statement of financial position

Net funding/Net debt and Net debt to Adjusted EBITDA

Net funding/debt demonstrates how our debt is being managed and is an important factor in ensuring we maintain investment grade credit rating status and a competitive cost of capital. Net debt is defined as total current and non-current borrowings less cash and cash equivalents, readily marketable inventories and related Proportionate adjustments. Consistent with the general approach in relation to our internal reporting and evaluation of Volcan, its consolidated net debt has also been adjusted to reflect the Group's relatively low 23.3% economic ownership (compared to its 63.0% voting interest) in this still fully ring-fenced listed entity, with its standalone, independent and separate capital structure. Furthermore, the relationship of Net debt to Adjusted EBITDA provides an indication of financial flexibility. See reconciliation table below.

Readily marketable inventories (RMI)

RMI comprising the core inventories which underpin and facilitate Glencore's marketing activities, represent inventories, that in Glencore's assessment, are readily convertible into cash in the short term due to their liquid nature, widely available markets and the fact that price risk is primarily covered either by a forward physical sale or hedge transaction. Glencore regularly assesses the composition of these inventories and their applicability, relevance and availability to the marketing activities. As at 31 December 2019, $16,810 million (2018: $17,428 million) of inventories were considered readily marketable. This comprises $10,516 million (2018: $11,449 million) carried at fair value less costs of disposal and $6,294 million (2018: $5,979 million) carried at the lower of cost or net realisable value. Total readily marketable inventories includes $148 million (2018: $171 million) related to the relevant material associates and joint ventures (see note 2) presented under the proportionate consolidation method, comprising inventory carried at lower of cost or net realisable value. Given the highly liquid nature of these inventories, which represent a significant share of current assets, the Group believes it is appropriate to consider them together with cash equivalents in analysing Group net debt levels and computing certain debt coverage ratios and credit trends.

Alternative performance measures
continued

Net funding/net debt at 31 December 2019

US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	**Adjusted measure**
Non-current borrowings	29,067	95	(576)	28,586
Current borrowings	7,976	31	(221)	7,786
Total borrowings	**37,043**	**126**	**(797)**	**36,372**
Less: cash and cash equivalents	(1,899)	(143)	36	(2,006)
Net funding	**35,144**	**(17)**	**(761)**	**34,366**
Less: Readily marketable inventories	(16,662)	(148)	–	(16,810)
Net debt	**18,482**	**(165)**	**(761)**	**17,556**
Adjusted EBITDA				**11,601**
Net debt to Adjusted EBITDA				**1.51**

Net funding/net debt at 31 December 2018

US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	**Adjusted measure**
Non-current borrowings	26,424	91	(588)	25,927
Current borrowings	8,570	16	(193)	8,393
Total borrowings	**34,994**	**107**	**(781)**	**34,320**
Less: cash and cash equivalents	(2,046)	(199)	63	(2,182)
Net funding	**32,948**	**(92)**	**(718)**	**32,138**
Less: Readily marketable inventories	(17,257)	(171)	–	(17,428)
Net debt	**15,691**	**(263)**	**(718)**	**14,710**
Adjusted EBITDA				**15,767**
Net debt to Adjusted EBITDA				**0.93**

Capital expenditure ("Capex")

Capital expenditure is expenditure capitalised as property, plant and equipment. For internal reporting and analysis, Capex includes related Proportionate adjustments. See reconciliation table below.

US$ million	**2019**	2018
Capital expenditure – Marketing activities	438	89
Capital expenditure – Industrial activities	5,349	5,077
Capital expenditure - segmental	**5,787**	**5,166**
Proportionate adjustment material associates and joint ventures – capital expenditure	(609)	(577)
Proportionate adjustment Volcan – capital expenditure	190	188
Capital expenditure – reported measure	**5,368**	**4,777**

APMs derived from the statement of cash flows

Net purchase and sale of property, plant and equipment

Net purchase and sale of property, plant and equipment is cash purchase of property, plant and equipment, net of proceeds from sale of property, plant and equipment. For internal reporting and analysis, Net purchase and sale of property, plant and equipment includes proportionate adjustments. See reconciliation table below.

2019 US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	**Adjusted measure**
Purchase of property, plant and equipment	(4,712)	(603)	180	(5,135)
Proceeds from sale of property, plant and equipment	178	–	(9)	169
Net purchase and sale of property, plant and equipment	**(4,534)**	**(603)**	**171**	**(4,966)**

2018 US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	**Adjusted measure**
Purchase of property, plant and equipment	(4,687)	(539)	188	(5,038)
Proceeds from sale of property, plant and equipment	136	3	–	139
Net purchase and sale of property, plant and equipment	**(4,551)**	**(536)**	**188**	**(4,899)**

Funds from operations (FFO) and FFO to Net debt

FFO is a measure that reflects our ability to generate cash for investment, debt servicing and distributions to shareholders.
It comprises cash provided by operating activities before working capital changes, less tax and net interest payments plus dividends received and related Proportionate adjustments. Furthermore, the relationship of FFO to net debt is an indication of our financial flexibility and strength. See reconciliation table below.

2019 US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	**Adjusted measure**
Cash generated by operating activities before working capital changes	10,346	–	–	10,346
Addback EBITDA of relevant material associates and joint ventures	–	1,754	(232)	1,522
Non-cash adjustments included within EBITDA	–	7	6	13
Adjusted cash generated by operating activities before working capital changes	10,346	1,761	(226)	11,881
Income taxes paid	(2,301)	(544)	31	(2,814)
Interest received	200	2	(1)	201
Interest paid	(1,604)	(8)	43	(1,569)
Dividends received from associates and joint ventures	942	(776)	–	166
Funds from operations (FFO)	**7,583**	**435**	**(153)**	**7,865**
Net debt				**17,556**
FFO to net debt				**44.8%**

Alternative performance measures
continued

2018 US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	**Adjusted measure**
Cash generated by operating activities before working capital changes	13,210	–	–	13,210
Addback EBITDA of relevant material associates and joint ventures	–	2,212	(319)	1,893
Non-cash adjustments included within EBITDA	–	(6)	–	(6)
Adjusted cash generated by operating activities before working capital changes	13,210	2,206	(319)	15,097
Income taxes paid	(1,740)	(725)	59	(2,406)
Interest received	183	4	–	187
Interest paid	(1,419)	(6)	38	(1,387)
Dividends received from associates and joint ventures	1,139	(1,039)	4	104
Funds from operations (FFO)	**11,373**	**440**	**(218)**	**11,595**
Net debt				**14,710**
FFO to net debt				**78.8%**

Other reconciliations

Available committed liquidity[1]

US$ million	2019	2018
Cash and cash equivalents – reported	1,899	2,046
Proportionate adjustment – cash and cash equivalents	107	136
Headline committed syndicated revolving credit facilities	14,425	14,200
Amount drawn under syndicated revolving credit facilities	(5,615)	(5,623)
Amounts drawn under U.S. commercial paper programme	(675)	(596)
Total	**10,141**	**10,163**

1 Presented on an adjusted measured basis.

Cash flow related adjustments 2019

US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	Adjusted measure
Funds from operations (FFO)	7,583	435	(153)	7,865
Working capital changes	2,088	122	(35)	2,175
Net cash used in acquisitions of subsidiaries	(123)	–	–	(123)
Net cash received from disposal of subsidiaries	5	–	1	6
Purchase of investments	(125)	–	–	(125)
Proceeds from sale of investments	119	–	–	119
Purchase of property, plant and equipment	(4,712)	(603)	180	(5,135)
Proceeds from sale of property, plant and equipment	178	–	(9)	169
Margin receipt in respect of financing related hedging activities	529	–	–	529
Acquisition of non-controlling interests in subsidiaries	(24)	–	–	(24)
Return of capital/distributions to non-controlling interests	(305)	–	–	(305)
Purchase of own shares	(2,318)	–	–	(2,318)
Disposal of own shares	6	–	–	6
Distributions paid to equity holders of the Parent	(2,710)	–	–	(2,710)
Cash movement in net funding	**191**	**(46)**	**(16)**	**129**

Cash flow related adjustments 2018

US$ million	Reported measure	Proportionate adjustment material associates and joint ventures	Proportionate adjustment Volcan	Adjusted measure
Funds from operations (FFO)	11,373	444	(222)	11,595
Working capital changes	1,325	164	37	1,526
Net cash used in acquisitions of subsidiaries	(2,922)	–	–	(2,922)
Net cash received from disposal of subsidiaries	88	–	–	88
Exchangeable loan provided for the acquisition of Astron Energy	(1,044)	–	–	(1,044)
Purchase of investments	(19)	–	–	(19)
Proceeds from sale of investments	16	–	–	16
Purchase of property, plant and equipment	(4,687)	(539)	188	(5,038)
Proceeds from sale of property, plant and equipment	136	3	–	139
Margin payments in respect of financing related hedging activities	(507)	–	–	(507)
Acquisition of non-controlling interests in subsidiaries	(58)	–	–	(58)
Return of capital/distributions to non-controlling interests	(343)	13	–	(330)
Purchase of own shares	(2,005)	–	–	(2,005)
Disposal of own shares	27	–	–	27
Distributions paid to equity holders of the Parent	(2,836)	–	–	(2,836)
Cash movement in net funding	**(1,456)**	**85**	**3**	**(1,368)**

Other reconciliations
continued

Reconciliation of tax expense 2019

US$ million	Total
Adjusted EBIT, pre-significant items	4,151
Net finance costs	(1,713)
Adjustments for:	
Net finance income from material associates and joint ventures	5
Proportional adjustment and net finance costs - Volcan	82
Share of income from other associates pre-significant items	(96)
Profit on a proportionate consolidation basis before tax and pre-significant items	**2,429**
Income tax expense, pre-significant items	(369)
Adjustments for:	
Tax expense from material associates and joint ventures	(342)
Tax credit from Volcan	(29)
Tax expense on a proportionate consolidation basis	**(740)**
Applicable tax rate	**30.5%**

US$ million	Pre-significant tax expense	Significant items tax[1]	**Total tax expense**
Tax expense on a proportionate consolidation basis	740	142	882
Adjustment in respect of material associates and joint ventures – tax	(342)	213	(129)
Adjustment in respect of Volcan – tax	(29)	(106)	(135)
Tax expense on the basis of the income statement	**369**	**249**	**618**

1 See table above.

Reconciliation of tax expense 2018

US$ million	Total
Adjusted EBIT, pre-significant items	9,143
Net finance costs	(1,514)
Adjustments for:	
Net finance cost from material associates and joint ventures	7
Proportional adjustment and net finance costs - Volcan	83
Share of income from other associates pre-significant items	(126)
Profit on a proportionate consolidation basis before tax and pre-significant items	**7,593**
Income tax expense, pre-significant items	(1,761)
Adjustments for:	
Tax expense from material associates and joint ventures	(536)
Tax credit from Volcan	(5)
Tax expense on a proportionate consolidation basis	**(2,302)**
Applicable tax rate	**30.3%**

US$ million	Pre-significant tax expense	Significant items tax[1]	**Total tax expense**
Tax expense on a proportionate consolidation basis	2,302	302	2,604
Adjustment in respect of material associates and joint ventures – tax	(536)	–	(536)
Adjustment in respect of Volcan – tax	(5)	–	(5)
Tax expense on the basis of the income statement	**1,761**	**302**	**2,063**

1 See table above.

Production by quarter – Q4 2018 to Q4 2019

Metals and minerals

Production from own sources – Total[1]

		Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Copper	kt	390.6	320.7	342.3	352.8	355.4	1,371.2	1,453.7	(6)	(9)
Cobalt	kt	13.7	10.9	10.4	13.1	11.9	46.3	42.2	10	(13)
Zinc	kt	282.1	262.3	273.6	273.3	268.3	1,077.5	1,068.1	1	(5)
Lead	kt	76.8	73.9	73.6	72.3	60.2	280.0	273.3	2	(22)
Nickel	kt	32.9	27.1	28.3	34.0	31.2	120.6	123.8	(3)	(5)
Gold	koz	229	202	221	199	226	848	1,003	(15)	(1)
Silver	koz	8,541	7,620	7,870	8,243	8,285	32,018	34,880	(8)	(3)
Ferrochrome	kt	435	402	397	231	408	1,438	1,580	(9)	(6)
Coal	mt	32.7	33.2	35.0	35.8	35.5	139.5	129.4	8	9
Oil (entitlement interest basis)	kbbl	1,270	1,145	1,095	1,398	1,880	5,518	4,626	19	48

Production from own sources – Copper assets[1]

			Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Collahuasi[2]	**Copper in concentrates**	**kt**	**69.2**	**57.3**	**54.7**	**64.5**	**72.3**	**248.8**	**246.0**	**1**	**4**
	Silver in concentrates	**koz**	**893**	**699**	**538**	**731**	**910**	**2,878**	**3,244**	**(11)**	**2**
Antamina[3]	**Copper in concentrates**	**kt**	**39.9**	**35.9**	**38.8**	**39.1**	**37.6**	**151.4**	**150.6**	**1**	**(6)**
	Zinc in concentrates	**kt**	**28.8**	**24.7**	**26.7**	**24.3**	**26.7**	**102.4**	**138.1**	**(26)**	**(7)**
	Silver in concentrates	**koz**	**1,309**	**1,180**	**1,343**	**1,224**	**1,304**	**5,051**	**5,550**	**(9)**	**–**
Other South America (Antapaccay, Lomas Bayas)											
Antapaccay	Copper in concentrates	kt	52.3	47.0	53.5	49.6	47.5	197.6	205.4	(4)	(9)
	Gold in concentrates	koz	27	18	26	18	23	85	132	(36)	(15)
	Silver in concentrates	koz	406	381	455	402	338	1,576	1,523	3	(17)
Lomas Bayas	Copper metal	kt	19.8	19.9	20.1	19.7	19.2	78.9	72.8	8	(3)
Alumbrera	Copper in concentrates	kt	–	–	–	–	–	–	17.4	(100)	–
	Gold in concentrates and in doré	koz	–	–	–	–	–	–	120	(100)	–
	Silver in concentrates and in doré	koz	–	–	–	–	–	–	156	(100)	–
Punitaqui	Copper in concentrates	kt	0.3	–	–	–	–	–	3.1	(100)	(100)
	Gold in concentrates	koz	–	–	–	–	–	–	4	(100)	–
	Silver in concentrates	koz	4	–	–	–	–	–	43	(100)	(100)
	Total Copper metal	**kt**	**19.8**	**19.9**	**20.1**	**19.7**	**19.2**	**78.9**	**72.8**	**8**	**(3)**
	Total Copper in concentrates	**kt**	**52.6**	**47.0**	**53.5**	**49.6**	**47.5**	**197.6**	**225.9**	**(13)**	**(10)**
	Total Gold in concentrates and in doré	**koz**	**27**	**18**	**26**	**18**	**23**	**85**	**256**	**(67)**	**(15)**
	Total Silver in concentrates and in doré	**koz**	**410**	**381**	**455**	**402**	**338**	**1,576**	**1,722**	**(8)**	**(18)**

Production by quarter – Q4 2018 to Q4 2019

continued

Metals and minerals

Production from own sources – Copper assets[1] continued

			Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Australia (Mount Isa, Ernest Henry, Townsville, Cobar)											
Mount Isa, Ernest Henry, Townsville, Cobar											
	Copper metal	kt	44.0	23.8	40.2	41.3	45.8	151.1	151.5	–	4
	Copper in concentrates	kt	4.3	–	–	–	–	–	10.9	(100)	(100)
	Gold	koz	22	27	27	28	18	100	74	35	(18)
	Silver	koz	237	284	321	304	245	1,154	854	35	3
	Silver in concentrates	koz	21	–	–	–	–	–	50	(100)	(100)
Mount Isa, Ernest Henry, Townsville – total production including third party feed											
	Copper metal	*kt*	*57.5*	*38.1*	*60.3*	*60.9*	*61.2*	*220.5*	*206.6*	*7*	*6*
	Copper in concentrates	*kt*	*4.3*	–	–	–	–	–	*10.9*	*(100)*	*(100)*
	Gold	*koz*	*43*	*34*	*34*	*36*	*36*	*140*	*135*	*4*	*(16)*
	Silver	*koz*	*329*	*296*	*335*	*363*	*395*	*1,389*	*1,140*	*22*	*20*
	Silver in concentrates	*koz*	*21*	–	–	–	–	–	*50*	*(100)*	*(100)*
Cobar	Copper in concentrates	kt	12.2	10.4	11.6	10.4	11.1	43.5	48.0	(9)	(9)
	Silver in concentrates	koz	123	106	120	116	119	461	495	(7)	(3)
	Total Copper metal	**kt**	**44.0**	**23.8**	**40.2**	**41.3**	**45.8**	**151.1**	**151.5**	**–**	**4**
	Total Copper in concentrates	**kt**	**16.5**	**10.4**	**11.6**	**10.4**	**11.1**	**43.5**	**58.9**	**(26)**	**(33)**
	Total Gold	**koz**	**22**	**27**	**27**	**28**	**18**	**100**	**74**	**35**	**(18)**
	Total Silver	**koz**	**381**	**390**	**441**	**420**	**364**	**1,615**	**1,399**	**15**	**(4)**
Total Copper department - excl. African Copper											
	Copper	**kt**	**242.0**	**194.3**	**218.9**	**224.6**	**233.5**	**871.3**	**905.7**	**(4)**	**(4)**
	Zinc	**kt**	**28.8**	**24.7**	**26.7**	**24.3**	**26.7**	**102.4**	**138.1**	**(26)**	**(7)**
	Gold	**koz**	**49**	**45**	**53**	**46**	**41**	**185**	**330**	**(44)**	**(16)**
	Silver	**koz**	**2,993**	**2,650**	**2,777**	**2,777**	**2,916**	**11,120**	**11,915**	**(7)**	**(3)**
African Copper (Katanga, Mutanda, Mopani)											
Katanga	Copper metal	kt	49.8	57.2	52.5	59.4	65.4	234.5	152.4	54	31
	Cobalt[4]	kt	4.6	3.5	2.6	4.8	6.2	17.1	11.1	54	35
Mutanda	Copper metal	kt	46.9	28.0	25.7	31.5	18.0	103.2	199.0	(48)	(62)
	Cobalt[4]	kt	8.1	6.4	7.0	7.2	4.5	25.1	27.3	(8)	(44)
Mopani	Copper metal	kt	16.1	10.1	10.3	1.2	–	21.6	59.3	(64)	(100)
	Copper in concentrates	kt	–	–	4.0	3.3	3.3	10.6	–	n.m.	–
African Copper – total production including third party feed											
Mopani	*Copper metal*	*kt*	*31.1*	*21.3*	*27.5*	*2.5*	–	*51.3*	*119.5*	*(57)*	*(100)*
	Copper in concentrates	*kt*	–	–	*4.0*	*3.3*	*3.3*	*10.6*	–	*n.m.*	–
	Total Copper metal	**kt**	**112.8**	**95.3**	**88.5**	**92.1**	**83.4**	**359.3**	**410.7**	**(13)**	**(26)**
	Total Copper in concentrates	**kt**	**–**	**–**	**4.0**	**3.3**	**3.3**	**10.6**	**–**	**n.m.**	**–**
	Total Cobalt[4]	**kt**	**12.7**	**9.9**	**9.6**	**12.0**	**10.7**	**42.2**	**38.4**	**10**	**(16)**
Total Copper department											
	Copper	**kt**	**354.8**	**289.6**	**311.4**	**320.0**	**320.2**	**1241.2**	**1,316.4**	**(6)**	**(10)**
	Cobalt	**kt**	**12.7**	**9.9**	**9.6**	**12.0**	**10.7**	**42.2**	**38.4**	**10**	**(16)**
	Zinc	**kt**	**28.8**	**24.7**	**26.7**	**24.3**	**26.7**	**102.4**	**138.1**	**(26)**	**(7)**
	Gold	**koz**	**49**	**45**	**53**	**46**	**41**	**185**	**330**	**(44)**	**(16)**
	Silver	**koz**	**2,993**	**2,650**	**2,777**	**2,777**	**2,916**	**11,120**	**11,915**	**(7)**	**(3)**

Production by quarter – Q4 2018 to Q4 2019
continued

Metals and minerals

Production from own sources – Zinc assets[1]

			Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Kazzinc											
	Zinc metal	**kt**	**41.9**	**40.3**	**48.7**	**45.0**	**38.5**	**172.5**	**201.2**	**(14)**	**(8)**
	Lead metal	**kt**	**9.6**	**7.9**	**11.3**	**8.2**	**4.2**	**31.6**	**46.9**	**(33)**	**(56)**
	Lead in concentrates	**kt**	**2.8**	**2.8**	**–**	**–**	**–**	**2.8**	**8.7**	**(68)**	**(100)**
	Copper metal[5]	**kt**	**14.1**	**11.1**	**8.1**	**12.1**	**12.7**	**44.0**	**52.4**	**(16)**	**(10)**
	Gold	**koz**	**173**	**150**	**161**	**146**	**177**	**634**	**643**	**(1)**	**2**
	Silver	**koz**	**1,357**	**959**	**1,019**	**1,354**	**1,214**	**4,546**	**6,210**	**(27)**	**(11)**
	Silver in concentrates	**koz**	**98**	**88**	**4**	**–**	**–**	**92**	**303**	**(70)**	**(100)**
Kazzinc – total production including third party feed											
	Zinc metal	*kt*	*76.9*	*74.5*	*76.3*	*66.2*	*76.3*	*293.3*	*309.7*	*(5)*	*(1)*
	Lead metal	*kt*	*35.8*	*32.4*	*35.5*	*31.3*	*29.8*	*129.0*	*149.5*	*(14)*	*(17)*
	Lead in concentrates	*kt*	*2.8*	*2.8*	*–*	*–*	*–*	*2.8*	*8.7*	*(68)*	*(100)*
	Copper metal	*kt*	*19.3*	*16.5*	*11.6*	*17.1*	*19.9*	*65.1*	*70.0*	*(7)*	*3*
	Gold	*koz*	*254*	*206*	*233*	*260*	*263*	*962*	*934*	*3*	*4*
	Silver	*koz*	*5,195*	*4,946*	*5,533*	*6,594*	*6,056*	*23,129*	*20,571*	*12*	*17*
	Silver in concentrates	*koz*	*98*	*88*	*4*	*–*	*–*	*92*	*303*	*(70)*	*(100)*
Australia (Mount Isa, McArthur River)											
Mount Isa	Zinc in concentrates	kt	89.5	81.8	80.7	88.6	75.3	326.4	278.2	17	(16)
	Lead in concentrates	kt	39.2	41.0	40.6	42.6	33.8	158.0	125.9	25	(14)
	Silver in concentrates	koz	1,369	1,525	1,422	1,463	1,108	5,518	4,643	19	(19)
McArthur River	Zinc in concentrates	kt	78.6	69.1	70.0	61.7	70.4	271.2	254.3	7	(10)
	Lead in concentrates	kt	16.5	14.1	13.3	11.9	16.0	55.3	49.9	11	(3)
	Silver in concentrates	koz	588	424	403	323	525	1,675	1,719	(3)	(11)
	Total Zinc in concentrates	**kt**	**168.1**	**150.9**	**150.7**	**150.3**	**145.7**	**597.6**	**532.5**	**12**	**(13)**
	Total Lead in concentrates	**kt**	**55.7**	**55.1**	**53.9**	**54.5**	**49.8**	**213.3**	**175.8**	**21**	**(11)**
	Total Silver in concentrates	**koz**	**1,957**	**1,949**	**1,825**	**1,786**	**1,633**	**7,193**	**6,362**	**13**	**(17)**
North America (Matagami, Kidd)											
Matagami	Zinc in concentrates	kt	8.7	11.2	10.1	11.9	10.6	43.8	35.2	24	22
	Copper in concentrates	kt	1.4	1.3	1.6	1.4	1.3	5.6	5.4	4	(7)
Kidd	Zinc in concentrates	kt	12.6	13.6	17.6	20.6	15.8	67.6	65.9	3	25
	Copper in concentrates	kt	8.1	8.0	8.0	7.9	9.6	33.5	33.6	–	19
	Silver in concentrates	koz	357	258	435	400	561	1,654	1,893	(13)	57
	Total Zinc in concentrates	**kt**	**21.3**	**24.8**	**27.7**	**32.5**	**26.4**	**111.4**	**101.1**	**10**	**24**
	Total Copper in concentrates	**kt**	**9.5**	**9.3**	**9.6**	**9.3**	**10.9**	**39.1**	**39.0**	**–**	**15**
	Total Silver in concentrates	**koz**	**357**	**258**	**435**	**400**	**561**	**1,654**	**1,893**	**(13)**	**57**

Production by quarter – Q4 2018 to Q4 2019
continued

Metals and minerals

Production from own sources – Zinc assets[1] continued

		Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Other Zinc: South America (Argentina, Bolivia, Peru)[6]										
Zinc in concentrates	kt	22.0	21.6	19.8	21.2	31.0	**93.6**	95.2	(2)	41
Lead metal	kt	3.5	–	–	–	–	**–**	13.9	(100)	(100)
Lead in concentrates	kt	5.2	8.1	8.4	9.6	6.2	**32.3**	28.0	15	19
Copper in concentrates	kt	1.0	1.0	0.8	0.5	0.4	**2.7**	4.5	(40)	(60)
Silver metal	koz	190	–	–	–	–	**–**	744	(100)	(100)
Silver in concentrates	koz	1,473	1,592	1,655	1,808	1,851	**6,906**	6,989	(1)	26
Total Zinc department										
Zinc	kt	253.3	237.6	246.9	249.0	241.6	**975.1**	930.0	5	(5)
Lead	kt	76.8	73.9	73.6	72.3	60.2	**280.0**	273.3	2	(22)
Copper	kt	24.6	21.4	18.5	21.9	24.0	**85.8**	95.9	(11)	(2)
Gold	koz	173	150	161	146	177	**634**	643	(1)	2
Silver	koz	5,432	4,846	4,938	5,348	5,259	**20,391**	22,501	(9)	(3)

Production by quarter – Q4 2018 to Q4 2019

continued

Metals and minerals

Production from own sources – Nickel assets[1]

			Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Integrated Nickel Operations (Sudbury, Raglan, Nikkelverk)											
	Nickel metal	**kt**	**16.2**	**13.3**	**15.5**	**16.1**	**14.9**	**59.8**	**59.5**	**1**	**(8)**
	Nickel in concentrates	**kt**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.5**	**0.5**	**–**	**–**
	Copper metal	**kt**	**3.8**	**3.9**	**3.1**	**4.1**	**4.7**	**15.8**	**14.4**	**10**	**24**
	Copper in concentrates	**kt**	**7.4**	**5.8**	**9.3**	**6.8**	**6.5**	**28.4**	**27.0**	**5**	**(12)**
	Cobalt metal	**kt**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.7**	**0.9**	**(22)**	**(50)**
	Gold	**koz**	**7**	**7**	**7**	**7**	**8**	**29**	**29**	**–**	**14**
	Silver	**koz**	**116**	**124**	**155**	**118**	**110**	**507**	**464**	**9**	**(5)**
	Platinum	**koz**	**14**	**17**	**16**	**15**	**3**	**51**	**58**	**(12)**	**(79)**
	Palladium	**koz**	**29**	**26**	**32**	**29**	**25**	**112**	**119**	**(6)**	**(14)**
	Rhodium	**koz**	**1**	**1**	**1**	**1**	**1**	**4**	**4**	**–**	**–**
Integrated Nickel Operations – total production including third party feed											
	Nickel metal	*kt*	*23.2*	*22.6*	*23.0*	*23.1*	*23.4*	*92.1*	*90.8*	*1*	*1*
	Nickel in concentrates	*kt*	*0.2*	*0.1*	*0.2*	*0.1*	*0.2*	*0.6*	*0.6*	*–*	*–*
	Copper metal	*kt*	*5.5*	*5.4*	*4.5*	*5.8*	*6.3*	*22.0*	*20.6*	*7*	*15*
	Copper in concentrates	*kt*	*9.2*	*6.7*	*9.8*	*8.6*	*7.7*	*32.8*	*31.7*	*3*	*(16)*
	Cobalt metal	*kt*	*1.3*	*1.0*	*1.0*	*1.2*	*1.2*	*4.4*	*4.2*	*5*	*(8)*
	Gold	*koz*	*11*	*10*	*12*	*10*	*11*	*43*	*42*	*2*	*–*
	Silver	*koz*	*176*	*187*	*211*	*189*	*162*	*749*	*696*	*8*	*(8)*
	Platinum	*koz*	*21*	*21*	*23*	*21*	*19*	*84*	*82*	*2*	*(10)*
	Palladium	*koz*	*59*	*49*	*65*	*61*	*53*	*228*	*220*	*4*	*(10)*
	Rhodium	*koz*	*1*	*1*	*1*	*2*	*1*	*5*	*5*	*–*	*–*
Murrin Murrin											
	Total Nickel metal	**kt**	**9.8**	**8.7**	**7.4**	**10.8**	**9.7**	**36.6**	**35.5**	**3**	**(1)**
	Total Cobalt metal	**kt**	**0.8**	**0.8**	**0.6**	**0.9**	**1.1**	**3.4**	**2.9**	**17**	**38**
Murrin Murrin – total production including third party feed											
	Total Nickel metal	*kt*	*10.9*	*9.8*	*8.6*	*11.7*	*10.6*	*40.7*	*39.7*	*3*	*(3)*
	Total Cobalt metal	*kt*	*0.8*	*0.8*	*0.9*	*0.9*	*1.1*	*3.7*	*3.2*	*16*	*38*
Koniambo	**Nickel in ferronickel**	**kt**	**6.8**	**5.0**	**5.2**	**7.0**	**6.5**	**23.7**	**28.3**	**(16)**	**(4)**
Total Nickel department											
	Nickel	**kt**	**32.9**	**27.1**	**28.3**	**34.0**	**31.2**	**120.6**	**123.8**	**(3)**	**(5)**
	Copper	**kt**	**11.2**	**9.7**	**12.4**	**10.9**	**11.2**	**44.2**	**41.4**	**7**	**–**
	Cobalt	**kt**	**1.0**	**1.0**	**0.8**	**1.1**	**1.2**	**4.1**	**3.8**	**8**	**20**
	Gold	**koz**	**7**	**7**	**7**	**7**	**8**	**29**	**29**	**–**	**14**
	Silver	**koz**	**116**	**124**	**155**	**118**	**110**	**507**	**464**	**9**	**(5)**
	Platinum	**koz**	**14**	**17**	**16**	**15**	**3**	**51**	**58**	**(12)**	**(79)**
	Palladium	**koz**	**29**	**26**	**32**	**29**	**25**	**112**	**119**	**(6)**	**(14)**
	Rhodium	**koz**	**1**	**1**	**1**	**1**	**1**	**4**	**4**	**–**	**–**

Production by quarter – Q4 2018 to Q4 2019
continued

Metals and minerals

Production from own sources – Ferroalloys assets[1]

		Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Ferrochrome[7]	kt	435	402	397	231	408	1,438	1,580	(9)	(6)
Vanadium pentoxide	mlb	5.5	5.1	5.1	5.6	4.4	20.2	20.2	–	(20)

Total production – Custom metallurgical assets[1]

		Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Copper (Altonorte, Pasar, Horne, CCR)										
Copper metal	kt	103.2	113.3	109.8	100.8	109.0	432.9	438.8	(1)	6
Copper anode	kt	103.7	123.4	137.3	117.7	132.3	510.7	479.3	7	28
Zinc (Portovesme, San Juan de Nieva, Nordenham, Northfleet)										
Zinc metal	kt	205.5	203.3	200.5	197.3	204.6	805.7	799.6	1	–
Lead metal	kt	51.5	45.7	50.3	43.9	50.6	190.5	186.3	2	(2)

Production by quarter – Q4 2018 to Q4 2019

continued

Energy products

Production from own sources – Coal assets[1]

		Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Australian coking coal	mt	2.1	2.6	1.7	1.8	3.1	9.2	7.5	23	48
Australian semi-soft coal	mt	1.4	1.0	2.3	1.8	1.3	6.4	3.9	64	(7)
Australian thermal coal (export)	mt	14.4	14.9	16.1	16.8	16.4	64.2	59.4	8	14
Australian thermal coal (domestic)	mt	2.4	1.8	2.2	2.2	2.4	8.6	9.4	(9)	–
South African thermal coal (export)	mt	4.1	3.8	2.9	3.4	2.9	13.0	17.3	(25)	(29)
South African thermal coal (domestic)	mt	3.0	3.3	4.1	3.7	2.8	13.9	10.0	39	(7)
Prodeco	mt	3.0	3.6	3.7	4.0	4.3	15.6	11.7	33	43
Cerrejón[8]	mt	2.3	2.2	2.0	2.1	2.3	8.6	10.2	(16)	–
Total Coal department	**mt**	**32.7**	**33.2**	**35.0**	**35.8**	**35.5**	**139.5**	**129.4**	**8**	**9**

Oil assets

		Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	**2019**	2018	Change 2019 vs 2018 %	Change Q4 19 vs Q4 18 %
Glencore entitlement interest basis										
Equatorial Guinea	kbbl	451	436	423	439	597	1,895	1,827	4	32
Chad	kbbl	819	709	672	884	1,106	3,371	2,799	20	35
Cameroon	kbbl	–	–	–	75	177	252	–	n.m.	n.m.
Total Oil department	**kbbl**	**1,270**	**1,145**	**1,095**	**1,398**	**1,880**	**5,518**	**4,626**	**19**	**48**
Gross basis										
Equatorial Guinea	kbbl	2,168	2,051	2,113	2,166	2,906	9,236	8,818	5	34
Chad	kbbl	1,119	969	919	1,209	1,511	4,608	3,827	20	35
Cameroon	kbbl	–	–	–	216	514	730	–	n.m.	n.m.
Total Oil department	**kbbl**	**3,287**	**3,020**	**3,032**	**3,591**	**4,931**	**14,574**	**12,645**	**15**	**50**

1 Controlled industrial assets and joint ventures only. Production is on a 100% basis except for joint ventures, where the Group's attributable share of production is included.
2 The Group's pro-rata share of Collahuasi production (44%).
3 The Group's pro-rata share of Antamina production (33.75%).
4 Cobalt contained in concentrates and hydroxides.
5 Copper metal includes copper contained in copper concentrates and blister.
6 South American production excludes Volcan Compania Minera.
7 The Group's attributable 79.5% share of the Glencore-Merafe Chrome Venture.
8 The Group's pro-rata share of Cerrejón production (33.3%).

Full year 2020 production guidance

		Actual FY 2017	Actual FY 2018	**Actual FY 2019**	**Guidance FY 2020**	
Copper - excl. African Copper	*kt*	*1,071*	*1,043*	***1,001***	***975 ± 25***	
Copper - African Copper	*kt*	*239*	*411*	***370***	***325 ± 25***	1
Copper	kt	1,310	1,454	**1,371**	**1,300 ± 50**	
Cobalt	kt	27.4	42.2	**46**	**29 ± 4**	
Zinc	kt	1,090	1,068	**1,078**	**1,265 ± 30**	2
Nickel	kt	109	124	**121**	**125 ± 5**	
Ferrochrome	kt	1,531	1,580	**1,438**	**1,340 ± 25**	3
Coal	mt	121	129	**140**	**135 ± 4**	
Oil	mbbl	5.1	4.6	**5.5**	**6.5 ± 0.2**	

1 Reflecting Mopani's lengthy smelter maintenance shutdown in H2 2019, 2019 African copper production includes 10,600 tonnes of copper contained in concentrate that will either be sold or processed into cathode once the smelter restarts. This is excluded from 2020 guidance, above.

2 Excludes Volcan.

3 In the context of deteriorating operations and market conditions across the South African ferrochrome industry, Glencore and its partner have commenced a consultation process with the employees at the Rustenburg smelter. The above guidance assumes that the current smelter portfolio is in operation throughout 2020, albeit with some reduced tonnages given the commercial challenges affecting the industry. This is an ongoing process and all alternatives will be considered.

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