NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (continued)

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38. RISK MANAGEMENT ACTIVITIES (continued)

Market risk

Gold Fields is exposed to market risks, including foreign currency, commodity price, equity securities price and interest rate risk associated with underlying assets, liabilities and anticipated transactions. Following periodic evaluation of these exposures, Gold Fields may enter into derivative financial instruments to manage some of these exposures.

The following table summarises the (loss)/gain on financial instruments recognised in profit or loss for the derivative financial instruments entered into by Gold Fields:

	United States Dollar		
Figures in millions unless otherwise stated	**2019**	2018	2017
South Deep gold hedge	**(25.8)**	(3.2)	10.9
Ghana gold hedge	**(37.7)**	22.0	–
Ghana oil hedge	**2.5**	1.5	8.8
Peru copper hedge	**–**	9.2	(5.7)
Australia gold hedge	**(178.8)**	(4.6)	15.3
Australia oil hedge	**2.3**	1.4	5.1
Australia foreign currency hedge	**(7.2)**	(9.1)	–
Maverix warrants – gain on fair value	**4.2**	3.8	–
Gain on fair value on disposal of Maverix	**2.5**	–	–
	(238.0)	21.0	34.4

Foreign currency sensitivity

General and policy

In the ordinary course of business, Gold Fields enters into transactions, such as gold sales, denominated in foreign currencies, primarily US Dollars. In addition, Gold Fields has investments and indebtedness in US Dollars, South African Rand and Australian Dollars.

Gold Fields may from time to time establish currency financial instruments to protect underlying cash flows.

Gold Fields' revenues and costs are very sensitive to the Australian dollar/US Dollar and South African Rand/US Dollar exchange rates because revenues are generated using a gold price denominated in US Dollars, while costs of the Australian and South African operations are incurred principally in Australian dollar and South African Rand, respectively. Depreciation of the Australian Dollar and/or South African Rand against the US Dollar reduces Gold Fields' average costs when they are translated into US Dollars, thereby increasing the operating margin of the Australian and/or South African operations. Conversely, appreciation of the Australian and/or South African Rand results in Australian and/or South African operating costs increasing when translated into US Dollars, resulting in lower operating margins. The impact on profitability of changes in the value of the Australian dollar and South African Rand against the US dollar could be substantial.

Although this exposes Gold Fields to transaction and translation exposure from fluctuations in foreign currency exchange rates, Gold Fields does not generally hedge its foreign currency exposure, although it may do so in specific circumstances, such as financing projects or acquisitions. Also, Gold Fields on occasion undertakes currency hedging to take advantage of favourable short-term fluctuations in exchange rates when management believes exchange rates are at unsustainable levels.

Currency risk only exists on account of financial instruments being denominated in a currency that is not the functional currency and being of a monetary nature. The Group had no significant exposure to currency risk relating to financial instruments at 31 December 2019. Differences resulting from the translation of financial statements into the Group's presentation currency are not taken into account.

38. RISK MANAGEMENT ACTIVITIES (continued)

Foreign currency hedging experience

Australia

In May 2018, the Australian operations entered into Australian Dollar/US Dollar average rate forwards for a total notional US$96.0 million for the period January 2019 to December 2019 at an average strike price of 0.7517.

In June 2018, further hedges were taken out for a total notional US$60.0 million for the same period January 2019 to December 2019 at an average strike of 0.7330.

In September 2018, further hedges were taken out for a total notional US$100 million for the same period January 2019 to December 2019 at an average strike of 0.7182.

In October 2018, further hedges were taken out for the period January 2019 to December 2019 for a notional US$60 million at an average strike of 0.7075.

In December 2018, further hedges were taken out for the period January 2019 to December 2019 for a notional US$50 million at an average strike of 0.715.

At 31 December 2019, the mark-to-market value on the hedges was negative A$0.4 million (US$0.3 million) (2018: A$12.3 million (US$8.7 million)) with a realised loss of A$22.3 million (US$15.5 million) (2018: A$nil (US$nil)) for the year ended 31 December 2019.

Commodity price hedging policy

Gold and copper

The market prices of gold and to a lesser extent copper have a significant effect on the results of operations of Gold Fields, the ability of Gold Fields to pay dividends and undertake capital expenditures, and the market price of Gold Fields' ordinary shares. Gold and copper prices have historically fluctuated widely and are affected by numerous industry factors over which Gold Fields does not have any control. The aggregate effect of these factors on the gold and copper price, all of which are beyond the control of Gold Fields, is impossible for Gold Fields to predict.

Oil

The market price of oil has a significant effect on the results of the offshore operations of Gold Fields. The offshore operations consume large quantities of diesel in the running of their mining fleets. Oil prices have historically fluctuated widely and are affected by numerous factors over which Gold Fields does not have any control.

Commodity price hedging experience

The Group's policy is to remain unhedged to the gold and copper prices. However, hedges are sometimes undertaken as follows:

- To protect cash flows at times of significant expenditure;
- For specific debt servicing requirements; and
- To safeguard the viability of higher cost operations.

To the extent that it enters into commodity hedging arrangements, Gold Fields seeks to use different counterparty banks consisting of local and international banks to spread risk. None of the counterparties is affiliated with, or related parties of, Gold Fields.

Gold and copper

Australia

In February 2018, the Australian operations entered into Asian swaps (Asian swaps are options where the payoff is determined by the average monthly gold price over the option period) for the period June 2018 to December 2018 for a total of 221,000 ounces of gold. The average strike price on the swaps was A$1,714 per ounce.

In March 2018, the Australian operations entered into zero cost collars for the period April 2018 to December 2018 for a total of 452,800 ounces of gold. The average strike prices are A$1,703 per ounce on the floor and US$1,767 per ounce on the cap.

In December 2018, additional Asian swaps were entered into for the period January 2019 to December 2019 for a notional 283,000 ounces of gold at an average strike price of A$1,751 per ounce.

In December 2018, additional zero cost collars were executed for the period January 2019 to December 2019 for a notional 173,000 ounces of gold with a strike price on the floor at A$1,720 per ounce and the strike price on the cap at A$1,789 per ounce.

In January 2019, zero cost collars were executed for the period January 2019 to December 2019 for a notional 456,000 ounces of gold with a strike price on the floor at A$1,800 per ounce and the strike price on the cap at A$1,869 per ounce.

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for the year ended 31 December 2019

38. RISK MANAGEMENT ACTIVITIES (continued)

In June 2019, a total of 480,000 ounces of the expected production for 2020 for the Australian region was hedged for the period January 2020 to December 2020 using cash-settled zero cost collars (270,000 ounces) and average rate forwards (210,000 ounces). The average strike prices are A$1,933 per ounce on the floor and A$2,014 on the cap. The average strike price on the forwards is A$1,957 per ounce.

At 31 December 2019, the mark-to-market value on the hedges was negative A$111.5 million (US$78.3 million) (2018: A$17.6 million (US$12.3 million)) with a realised loss of A$163.0 million (US$113.4 million) (2018: gain of A$11.2 million (US$8.4 million)) for the year ended 31 December 2019.

Peru

In November 2017, zero cost collars were entered into for the period January 2018 to December 2018. A total volume of 29,400 tonnes was hedged, at an average floor price of US$6,600 per tonne and an average cap price of US$7,431 per tonne.

At 31 December 2019, the mark-to-market valuation of the hedge was a US$nil (2018: positive of US$1.2 million), with a realised gain of US$1.2 million (2018: US$4.8 million).

South Africa

Between October 2018 and January 2019, South Deep entered into cash-settled average rate forwards for a total of 112,613 ounces for the period June 2019 to December 2019 at an average strike rate of R617,000 per kilogram.

In June 2019, a total of 200,000 ounces of the expected production for 2020 for South Deep was hedged for the period January 2020 to December 2020 using cash-settled zero cost collars (100,000 ounces) and average rate forwards (100,000 ounces). The average strike price is R660,000 per kilogram on the floor and R727,000 per kilogram on the cap. The average strike price is R681,400 per kilogram on the forwards.

At 31 December 2019, the mark-to-market value on the hedge was negative R176.0 million (US$12.6 million) (2018: R23.3 million (US$1.6 million) with a realised loss of R219.8 million (US$15.2 million) (2018: gain of R117.2 million (US$8.9 million) for the year ended 31 December 2019.

Ghana

In January 2018 and April 2018, a total of 488,900 ounces of the expected production for the Ghanaian region was hedged for the period January 2018 to December 2018 using zero cost collars. The average strike prices are US$1,300 per ounce on the floor and US$1,418 per ounce on the cap.

In June 2019, a total of 275,000 ounces of the expected production for 2020 for the Ghanaian region was hedged for the period January 2020 to December 2020 using cash-settled zero cost collars (175,000 ounces) and average rate forwards (100,000 ounces). The average strike prices are US$1,364 per ounce on the floor and US$1,449 per ounce on the cap. The average strike price on the forwards is US$1,382 per ounce.

Subsequent to 30 June 2019, 100,000 ounces of the expected production for the Ghanaian region was hedged for the period January 2020 to December 2020 using cash-settled zero cost collars. The average strike prices are US$1,400 per ounce on the floor and US$1,557 per ounce on the cap.

At 31 December 2019, the mark-to-market value on the hedge was negative US$36.4 million (2018: positive US$2.4 million) with a realised gain of US$2.3 million (2018: US$19.6 million) for the year ended 31 December 2019.

Oil

Australia

In May 2017 and June 2017, the Australian operations entered into fixed price Singapore 10ppm Gasoil cash-settled swap transactions for a total of 77.5 million litres of diesel for the period June 2017 to December 2019. The average swap price is US$61.2 per barrel. At the time of the transactions, the average Brent swap equivalent over the tenor was US$49.9 per barrel.

In June 2019, fixed price Singapore 10ppm Gasoil cash-settled swap transactions were entered into for a total of 75.0 million litres of diesel for the period January 2020 to December 2022 based on 50% of usage over the specified period. The average swap price is US$74.0 per barrel. At the time of the transactions, the average Brent swap equivalent over the tenor was US$57.4 per barrel.

At 31 December 2019, the mark-to-market value on the hedge was a positive A$1.4 million (US$1.0 million) (2018: A$2.5 million (US$1.7 million)) with a realised gain of A$4.5 million (US$3.1 million) (2018: A$6.1 million (US$4.6 million)).

38. RISK MANAGEMENT ACTIVITIES (continued)

Commodity price hedging experience (continued)

Gold and copper (continued)

Ghana

In May 2017 and June 2017, the Ghanaian operations entered into fixed price ICE Gasoil cash-settled swap transactions for a total of 125.8 million litres of diesel for the period June 2017 to December 2019. The average swap price is US$457.2 per metric tonne (equivalent US$61.4 per barrel). At the time of the transactions, the average Brent swap equivalent over the tenor was US$49.8 per barrel.

In June 2019, fixed price ICE Gasoil cash-settled swap transactions were entered into for a total of 123.2 million litres of diesel for the period January 2020 to December 2022 based on 50 per cent of usage over the specified period. The average swap price is US$575 per metric tonne (equivalent to US$75.8 per barrel). At the time of the transactions, the average Brent swap equivalent over the tenor was US$59.2 per barrel.

At 31 December 2019, the mark-to-market value on the hedge was a positive US$0.1 million (2018: US$3.0 million) with a realised gain of US$5.4 million (2018: US$7.5 million).

The gains and losses on the above hedges were recognised in profit or loss and are included in the gain on financial instruments line item. The Group has not designated the instruments for hedge accounting.

IFRS 7 sensitivity analysis

IFRS 7 requires sensitivity analysis that shows the effects of reasonably possible changes of relevant risk variables on profit or loss or shareholders' equity. The Group is exposed to commodity price, currency, interest rate and equity price risks. The effects are determined by relating the reasonably possible change in the risk variable to the balance of financial instruments at reporting date.

The amounts generated from the sensitivity analysis below are forward-looking estimates of market risks assuming certain adverse or favourable market conditions occur. Actual results in the future may differ materially from those projected results and therefore should not be considered a projection of likely future events and gains/losses.

Commodity price hedging sensitivity

The tables below summarise the effect of a change in the loss on financial instruments on the Group's profit or loss in case of changes in the key inputs used to value the gold derivative contracts included in trade and other payables. The first analysis is based on the assumption that the gold forward prices have increased/decreased with all other variables held constant. The second analysis is based on the assumption that the interest rates increased/decreased with all other variables held constant.

	United States Dollar					
Sensitivity to gold forward prices *Figures in millions unless otherwise stated*	**(Decrease)/increase in gold forward prices**					
	(US$150)	**(US$100)**	**(US$50)**	**US$50**	**US$100**	**US$150**
2019						
(Increase)/decrease in loss on financial instruments	120.8	85.7	45.4	(48.7)	(99.4)	(151.1)

	United States Dollar					
Sensitivity to interest rates *Figures in millions unless otherwise stated*	**(Decrease)/increase in interest rates**					
	(1.5%)	**(1.0%)**	**(0.5%)**	**0.5%**	**1.0%**	**1.5%**
2019						
(Increase)/decrease in loss on financial instruments	5.9	4.0	2.0	(2.1)	(4.2)	(6.3)

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38. RISK MANAGEMENT ACTIVITIES (continued)

Equity securities price risk

The Group is exposed to equity securities price risk because of investments held by the Group which are designated at fair value through OCI. To manage its price risk arising from investments in equity securities, the Group diversifies its portfolio. Diversification of the portfolio is done in accordance with limits set by the Group.

The Group's equity investments are publicly traded and are listed on one of the following exchanges:
- JSE Limited
- Toronto Stock Exchange
- Australian Stock Exchange
- London Stock Exchange

The table below summarises the impact of increases/decreases of the exchanges on the Group's shareholders' equity in case of shares. The analysis is based on the assumption that the share prices quoted on the exchange have increased/decreased with all other variables held constant and the Group's investments moved according to the historical correlation with the index.

United States Dollar

Sensitivity to equity security price *Figures in millions unless otherwise stated*	**(Decrease)/increase in equity price**			
	(10.0%)	**(5.0%)**	**5.0%**	**10.0%**
2019				
(Decrease)/increase in OCI[1]	**(4.8)**	**(2.4)**	**2.4**	**4.8**
2018				
(Decrease)/increase in OCI[1]	(9.3)	(4.7)	4.7	9.3

[1] *Spot rate: R14.00 = US$1.00 (2018: R14.63 = US$1.00).*

Preference shares price risk

The Group is exposed to preference shares price risk because of the Asanko preference shares which are designated at fair value through OCI. The fair value of the redeemable preference shares is based on the expected cash flows of the Asanko Gold Mine based on the life-of-mine model. Refer to note 17 for further details.

The tables below summarise the impact of increases/decreases on the Group's shareholders' equity in case of changes in the key inputs used to value the preference shares. The first analysis is based on the assumption that the market-related discount rate has increased/decreased with all other variables held constant. The second analysis is based on the assumption that the timing of the cash flows used in the life-of-mine model increased/decreased with all other variables held constant.

United States Dollar

Sensitivity to preference shares price risk *Figures in millions unless otherwise stated*	**(Decrease)/increase in discount rate**			
	(1.0%)	**(2.0%)**	**2.0%**	**1.0%**
2019				
Increase/(decrease) in OCI	**3.7**	**7.6**	**(6.7)**	**(3.4)**
2018				
Increase/(decrease) in OCI	3.4	6.8	(6.8)	(3.4)

United States Dollar

Sensitivity to preference shares price risk *Figures in millions unless otherwise stated*	**(Decrease)/increase in timing of cash flows**	
	1 year earlier	**1 year later**
2019		
Increase/(decrease) in OCI	**4.9**	**(7.5)**
2018		
Increase/(decrease) in OCI	11.1	(10.1)

38. RISK MANAGEMENT ACTIVITIES (continued)

Interest rate sensitivity Restated[1]

General

As Gold Fields has no significant interest-bearing assets, the Group's income and operating cash flows are substantially independent of changes in market interest rates. Gold Fields' interest rate risk arises from borrowings.

As of 31 December 2019, Gold Fields' borrowings amounted to US$1,845.8 million (2018: US$1,906.8 million). Gold Fields generally does not undertake any specific action to cover its exposure to interest rate risk, although it may do so in specific circumstances.

Interest rate sensitivity analysis

The portion of Gold Fields interest-bearing borrowings at year-end that is exposed to interest rate fluctuations is US$252.0 million (2018: US$1,057.4 million). These borrowings are normally rolled for periods between one and three months and are therefore exposed to the rate changes in this period. The remainder of the borrowings bear interest at a fixed rate.

US$83.5 million (2018: US$600.5 million) of the total borrowings at reporting date is exposed to changes in the LIBOR rate, US$nil (2018: US$47.9) is exposed to the JIBAR rate, US$nil (2018: US$92.5 million) is exposed to the South African prime ("prime") interest rate and US$168.5 million (2018: US$316.5 million) is exposed to the BBSY rate. The relevant interest rates for each facility are described in note 24.

The table below summarises the effect of a change in finance expense on the Group's profit or loss had LIBOR, JIBAR, prime and BBSY differed as indicated. The analysis is based on the assumption that the applicable interest rate increased/decreased with all other variables held constant and is calculated on the weighted average borrowings for the year. All financial instruments with fixed interest rates that are carried at amortised cost are not subject to the interest rate sensitivity analysis.

	United States Dollar					
Sensitivity to interest rates	**Change in interest expense for a nominal change in interest rates**					
Figures in millions unless otherwise stated	**(1.5%)**	**(1.0%)**	**(0.5%)**	**0.5%**	**1.0%**	**1.5%**
2019						
Sensitivity to LIBOR interest rates	**(5.1)**	**(3.4)**	**(1.7)**	**1.7**	**3.4**	**5.1**
Sensitivity to BBSY interest rates[2]	**(0.7)**	**(0.4)**	**(0.2)**	**0.2**	**0.4**	**0.7**
Sensitivity to JIBAR and prime interest rates[3]	**(0.8)**	**(0.5)**	**(0.3)**	**0.3**	**0.5**	**0.8**
Change in finance expense	**(6.6)**	**(4.3)**	**(2.2)**	**2.2**	**4.3**	**6.6**
2018 Restated[1]						
Sensitivity to LIBOR interest rates	(9.8)	(6.5)	(3.3)	3.3	6.5	9.8
Sensitivity to BBSY interest rates[2]	(4.9)	(3.3)	(1.6)	1.6	3.3	4.9
Sensitivity to JIBAR and prime interest rates[3]	(1.2)	(0.8)	(0.4)	0.4	0.8	1.2
Change in finance expense	(15.9)	(10.6)	(5.3)	5.3	10.6	15.9

[1] *Refer to note 42.*
[2] *Average rate: A$0.70 = US$1.00 (2018: A$0.75 = US$1.00).*
[3] *Average rate: R14.46 = US$1.00 (2018: R13.2 = US$1.00).*