



BANK FOR INTERNATIONAL SETTLEMENTS

Interim financial statements (unaudited)

as at 30 September 2018



Contents

Management report	1
Balance sheet	2
Profit and loss account	3
Statement of comprehensive income	4
Statement of cash flows	5
Movements in the Bank's equity	7
Notes to the financial statements	8
1. Accounting policies	8
2. Use of estimates	8
3. The fair value hierarchy	9
4. Cash and sight accounts	11
5. Land, buildings and equipment	11
6. Interest income and interest expense	12
7. Dividends	12
8. Share capital	12
9. Related parties	13
10. Contingent liabilities	14
Capital adequacy	15
1. Capital adequacy frameworks	15
2. Economic capital	15
3. Financial leverage	18
4. Capital ratios	19
Risk management	22
1. Risk faced by the Bank	22
2. Credit risk	22
3. Market risk	32
4. Operational risk	34
5. Liquidity risk	35



Management report

Net interest and valuation income for the first half of 2018/19 was SDR 343.3 million, which compared with SDR 352.0 million in the same period in the previous financial year.

Net foreign exchange gains were SDR 18.2 million in the six months to September 2018. This compared with net foreign exchange losses of SDR 7.5 million in the same period in 2017.

Operating expense was SDR 145.1 million in the six months ended 30 September 2018 compared with SDR 147.1 million in the first half of the previous financial year.

Gains of SDR 2.0 million were realised on sales of securities accounted for at *fair value through other comprehensive income (FVOCI)*. This compares with realised gains of SDR 19.3 million in the same period in 2017.

There were no sales of *gold investment assets* during the period. By comparison, in the first half of the 2017/18 financial year the Bank sold one tonne of gold, which realised a gain of SDR 24.9 million.

The Bank recorded a **net profit** of SDR 220.5 million for the six months ended 30 September 2018, which compares with SDR 243.6 million for the equivalent period last year.

In addition to the items reflected in the Bank's profit and loss account, the unrealised gains and losses on the Bank's *FVOCI securities* and *gold investment assets* are recorded in the securities and gold revaluation accounts, which are included in the Bank's shareholders' equity.

The *securities revaluation account* decreased by SDR 43.9 million, reflecting unrealised losses on FVOCI securities. This compares to a decrease of SDR 41.5 million in the first half of the previous year.

The *gold revaluation account* decreased by SDR 194.1 million as a result of a 6% decrease in the gold price. This compares to a decrease of SDR 51.8 million in the same period in 2017.

The Bank's **total comprehensive income** amounted to a loss of SDR 21.4 million. By comparison, the equivalent period last year saw a gain of SDR 153.1 million.

The payment of the dividend for the 2017/18 financial year of SDR 131.2 million was made during the period to September 2018, and after taking this into account, the *Bank's shareholders' equity* decreased over the period by SDR 152.6 million to SDR 19,203.0 million.



Balance sheet

<i>SDR millions</i>	Note	30 September 2018	31 March 2018
Assets			
Cash and sight accounts	4	45,316.3	73,150.0
Gold and gold loans		18,679.6	23,429.6
Treasury bills		40,583.0	31,760.9
Securities purchased under resale agreements		52,315.5	44,112.9
Loans and advances		26,134.2	22,428.6
Government and other securities		52,971.6	52,881.0
Derivative financial instruments		3,755.6	1,725.1
Accounts receivable and other assets		4,280.7	6,809.0
Land, buildings and equipment	5	187.7	192.3
Total assets		244,224.2	256,489.4
Liabilities			
Gold deposits		9,341.0	9,859.5
Currency deposits		204,146.3	211,665.6
Securities sold under repurchase agreements		135.4	2,095.0
Derivative financial instruments		1,352.5	3,138.5
Accounts payable		9,008.0	9,381.2
Other liabilities		1,038.0	994.0
Total liabilities		225,021.2	237,133.8
Shareholders' equity			
Share capital	8	698.9	698.9
Less: shares held in treasury		(1.7)	(1.7)
Statutory reserves		16,326.3	15,950.1
Profit and loss account		220.5	508.1
Other equity accounts		1,959.0	2,200.2
Total equity		19,203.0	19,355.6
Total liabilities and equity		244,224.2	256,489.4



Profit and loss account

For the six months ended 30 September

<i>SDR millions</i>		2018	2017
Interest income	6	2,238.8	1,553.4
Interest expense	6	(1,912.1)	(1,194.2)
Net interest income		326.7	359.2
Net valuation movement		16.6	(7.2)
Net interest and valuation income		343.3	352.0
Net fee and commission income		2.1	2.0
Net foreign exchange movement		18.2	(7.5)
Total operating income		363.6	346.5
Operating expense		(145.1)	(147.1)
Operating profit		218.5	199.4
Net gain on sales of FVOCI securities		2.0	19.3
Net gain on sales of gold investment assets		-	24.9
Net profit		220.5	243.6



Statement of comprehensive income

For the six months ended 30 September

<i>SDR millions</i>	2018	2017
Net profit	220.5	243.6
Other comprehensive income		
Items either reclassified to profit and loss during the period, or that will be reclassified subsequently when specific conditions are met		
Net movement on revaluation of FVOCI securities	(43.9)	(41.5)
Net movement on revaluation of gold investment assets	(194.1)	(51.8)
Items that will not be reclassified subsequently to profit and loss		
Re-measurement of defined benefit obligation	(3.9)	2.8
Total comprehensive income / (loss)	(21.4)	153.1



Statement of cash flows

For the six months ended 30 September

<i>SDR millions</i>	Note	2018	2017
Cash flow from / (used in) operating activities			
Interest and similar income received		655.5	738.5
Interest and similar expenses paid		(822.6)	(572.9)
Net fee and commission income		2.1	2.0
Foreign exchange transaction gain		6.4	4.4
Administrative expense		(134.8)	(137.9)
Non-cash flow items included in operating profit			
Net valuation movement		16.6	(7.2)
Net foreign exchange translation movement		11.8	(11.9)
Change in accruals and amortisation		493.8	193.9
Change in operating assets and liabilities			
Currency deposit liabilities held at fair value through profit and loss		(5,011.6)	(5,787.2)
Currency banking assets		(23,382.3)	1,950.9
Sight and notice deposit account liabilities		(115.5)	2,451.1
Gold deposit liabilities		(518.5)	97.4
Gold and gold loan banking assets		4,555.5	(860.1)
Accounts receivable		125.4	(2.6)
Other liabilities and accounts payable		423.7	53.2
Net derivative financial instruments		(3,816.5)	887.1
Net cash flow from operating activities		(27,511.0)	(1,001.3)
Cash flow from / (used in) investment activities			
Net change in FVOCI securities		1,710.2	(259.8)
Securities sold under repurchase agreements		(1,959.6)	(859.7)
Net change in gold investment assets		0.3	29.8
Capital expenditure		(5.8)	(4.3)
Net cash flow used in investment activities		(254.9)	(1,094.0)



<i>SDR millions</i>	Note	2018	2017
Cash flow from / (used in) financing activities			
Dividends paid	7	(131.2)	(167.4)
Net cash flow used in financing activities		(131.2)	(167.4)
Total net cash flow			
		(27,897.1)	(2,262.7)
Net effect of exchange rates change on cash and cash equivalents		(1,110.3)	1,454.4
Net movement in cash and cash equivalents		(26,786.8)	(3,717.1)
Net change in cash and cash equivalents		(27,897.1)	(2,262.7)
Cash and cash equivalents, beginning of period	4	73,615.8	48,806.2
Cash and cash equivalents, end of period	4	45,718.7	46,543.5



Movements in the Bank's equity

For the six months ended 30 September 2018

SDR millions	Note	Share capital	Shares held in treasury	Statutory reserves	Profit and loss	Other equity accounts		Total equity
						Defined benefit obligations	Gold and securities revaluation	
Balance as at 31 March 2018		698.9	(1.7)	15,950.1	508.1	(210.1)	2,410.3	19,355.6
Change in accounting policy	1	–	–	(0.7)	–	–	0.7	–
Balance as at 1 April 2018		698.9	(1.7)	15,949.4	508.1	(210.1)	2,411.0	19,355.6
Payment of 2017/18 dividend	7	–	–	–	(131.2)	–	–	(131.2)
Allocation of 2017/18 profit		–	–	376.9	(376.9)	–	–	–
Total comprehensive loss		–	–	–	220.5	(3.9)	(238.0)	(21.4)
Balance as at 30 September 2018		698.9	(1.7)	16,326.3	220.5	(214.0)	2,173.0	19,203.0

For the six months ended 30 September 2017

SDR millions	Notes	Share capital	Shares held in treasury	Statutory reserves	Profit and loss	Other equity accounts		Total equity
						Defined benefit obligations	Securities revaluation	
Balance as at 31 March 2017		698.9	(1.7)	15,289.9	827.6	(347.6)	2,630.1	19,097.2
Payment of 2016/17 dividend	7	–	–	–	(167.4)	–	–	(167.4)
Allocation of 2016/17 profit		–	–	660.2	(660.2)	–	–	–
Total comprehensive income		–	–	–	243.6	2.9	(93.3)	153.2
Balance as at 30 September 2017		698.9	(1.7)	15,950.1	243.6	(344.7)	2,536.8	19,083.0



Notes to the financial statements

These interim financial statements contain selected disclosures, but do not contain all the information provided in the Bank's annual financial statements. They should be read in conjunction with the Bank's 2018 Annual Report. All figures are presented in SDR millions unless otherwise stated. Amounts are subject to rounding and consequently there may be small differences both within and between disclosures.

1. Accounting policies

The accounting policies adopted by the Bank for these interim financial statements are consistent with those described in the Bank's 2018 Annual Report, except in the implementation of a new accounting policy relating to the classification and measurement of financial assets and liabilities as described below. To reflect developments in global financial reporting, effective 1 April 2018 the Bank applied a new classification and measurement approach for its financial instruments. The new approach reflects the business model in which the financial instruments are managed and the characteristics of their cash flows. The new classification includes three principal categories for financial assets: measured at amortised cost, fair value through other comprehensive income (FVOCI) and fair value through profit and loss (FVPL). The former categories of loans and receivables and available for sale financial assets are no longer used. The new approach does not change the classification of financial liabilities.

Under the new accounting policy, the Bank replaced its former incurred loss impairment model with a forward-looking expected credit loss (ECL) model. An ECL impairment provision is recognised at an amount equal to either 12-month ECL or lifetime ECL, depending on the change in credit risk since the date of the original transaction. The new impairment model applies to the following financial instruments that are not measured at FVPL: financial assets that are cash or debt instruments, and committed credit facilities.

This change affected the classification and measurement of financial assets for the year starting 1 April 2018, as follows: all financial assets available for sale were reclassified to FVOCI under the new policy, and all loans and receivables were reclassified as assets at amortised cost. No other financial instruments were reclassified. As a result, there was no change in the underlying accounting other than the implementation of an ECL impairment provision. The value of the ECL impairment provision at 31 March 2018 was SDR 0.7 million. Owing to its immateriality, the Bank elected not to restate comparative figures and the financial statements have been adjusted to show the impact of this change on the opening statutory reserves. At the 2019 AGM it will be proposed to allocate this amount to the free reserve fund. Further information on this change in accounting policy will be included in the Bank's 2019 Annual Report for the financial year ending on 31 March 2019.

As at 30 September 2018, the change in the ECL impairment provision was immaterial, and is included within net valuation movement in the profit and loss account. Because of the immaterial effect of the ECL impairment provision, the new terminology has been used throughout these financial statements.

2. Use of estimates

The preparation of the financial statements requires the Bank's Management to make assumptions and use estimates to arrive at reported amounts. In doing so, Management exercises judgment based on reliable information. Actual results could differ significantly from these estimates.

In preparing these interim financial statements, the significant judgments made by Management were similar to those applied in the annual financial statements and there have been no material revisions to the nature of the amounts reported in the annual financial statements.



3. The fair value hierarchy

The Bank categorises its financial instruments which are measured at fair value according to a hierarchy that reflects the observability of inputs used in measuring that value. A valuation level is assigned according to the least observable input that is significant to the fair value measurement in its entirety. The fair value hierarchy used by the Bank comprises the following levels:

Level 1 – Instruments valued using unadjusted quoted prices in active markets for identical financial instruments.

Level 2 – Instruments valued with valuation techniques using inputs which are observable for the financial instrument either directly (ie as a price) or indirectly (ie derived from prices for similar financial instruments). This includes observable interest rates, spreads and volatilities.

Level 3 – Instruments valued using valuation techniques where the inputs are not observable in financial markets.

As at 30 September 2018 the Bank had no financial instruments categorised as level 3 (31 March 2018: nil).

As at 30 September 2018

<i>SDR millions</i>	Level 1	Level 2	Total
Financial assets held at fair value through profit and loss			
Treasury bills	18,226.5	22,219.4	40,445.9
Securities purchased under resale agreements	–	52,180.1	52,180.1
Fixed-term loans	–	25,731.8	25,731.8
Government and other securities	30,040.6	7,425.4	37,466.0
Derivative financial instruments	3.0	3,752.6	3,755.6
Financial assets designated as FVOCI			
Treasury bills	41.6	95.5	137.1
Securities purchased under resale agreements	–	135.4	135.4
Government and other securities	14,828.5	677.1	15,505.6
Total financial assets accounted for at fair value	63,140.2	112,217.3	175,357.5
Financial liabilities held at fair value through profit and loss			
Currency deposits	–	(188,677.0)	(188,677.0)
Derivative financial instruments	(4.1)	(1,348.4)	(1,352.5)
Total financial liabilities accounted for at fair value	(4.1)	(190,025.4)	(190,029.5)



As at 31 March 2018

<i>SDR millions</i>	Level 1	Level 2	Total
Financial assets held at fair value through profit and loss			
Treasury bills	20,262.3	11,375.6	31,637.9
Securities purchased under resale agreements	–	42,017.7	42,017.7
Fixed-term loans	–	21,962.8	21,962.8
Government and other securities	22,275.3	15,006.5	37,281.8
Derivative financial instruments	0.7	1,724.4	1,725.1
Financial assets designated as FVOCI			
Treasury bills	123.0	–	123.0
Securities purchased under resale agreements	–	2,095.2	2,095.2
Government and other securities	15,088.6	510.6	15,599.2
Total financial assets accounted for at fair value	57,749.9	94,692.8	152,442.7
Financial liabilities held at fair value through profit and loss			
Currency deposits	–	(196,080.7)	(196,080.7)
Derivative financial instruments	(0.8)	(3,137.7)	(3,138.5)
Total financial liabilities accounted for at fair value	(0.8)	(199,218.4)	(199,219.2)

A. Transfers between levels in the fair value hierarchy

Of the assets categorised as level 1 at 30 September 2018, SDR 5,278.8 million related to assets that had been held at 31 March 2018 and valued as level 2 at that date. Of the assets categorised as level 2 at 30 September 2018, SDR 3,325.3 million related to assets that had been held at 31 March 2018 and categorised as level 1 as at that date. The transfer of assets between levels 1 and 2 reflected specific market conditions existing at the reporting dates that affected the observability of the market prices as defined above. No liabilities were transferred between fair value hierarchy levels.

B. Assets and liabilities measured at fair value level 3

During the six-month reporting periods ended 30 September 2018 and 30 September 2017, the Bank did not categorise any assets or liabilities as level 3 in the fair value hierarchy.

C. Financial instruments not measured at fair value

The Bank accounts for certain financial instruments at amortised cost. Using the same valuation techniques for amortised cost financial instruments as is applied to fair valued financial instruments, the Bank estimates that their fair values would be materially the same as the carrying values shown in these financial statements for both 30 September 2018 and 31 March 2018. If these instruments were included in the fair value hierarchy, the valuation of “Gold loans” and “Securities sold under repurchase agreements” would be considered level 2. All other amortised cost financial instruments would be considered level 1.



D. Impact of changes in the Bank's creditworthiness

The fair value of the Bank's liabilities may be affected by any change in its creditworthiness. If the Bank's creditworthiness deteriorated, the value of its liabilities should decrease, and the change in value would be reflected as a valuation movement in the profit and loss account. The Bank regularly assesses its creditworthiness as part of its risk management processes. The Bank's assessment of its creditworthiness did not indicate a change which could have had an impact on the fair value of the Bank's liabilities during the period under review.

4. Cash and sight accounts

The Bank holds cash and sight accounts predominantly with central banks. Cash and cash equivalents as shown in the statement of cash flows comprise cash and sight accounts as well as notice accounts, which are disclosed under "Loans and advances". The balances are analysed in the table below:

As at

<i>SDR millions</i>	30 September 2018	30 September 2017
Balance at central banks	44,842.1	46,045.3
Balance at commercial banks	474.2	32.1
Total cash and sight accounts	45,316.3	46,077.4
Notice accounts	402.4	466.1
Total cash and cash equivalents	45,718.7	46,543.5

5. Land, buildings and equipment

There have been no material purchases or sales of fixed assets during the reporting period. The depreciation charge for the period ended 30 September 2018 was SDR 10.3 million (30 September 2017: SDR 9.2 million).



6. Interest income and interest expense

For the six months ended 30 September

<i>SDR millions</i>	2018	2017
Interest income	2,220.3	1,507.3
Interest income on liabilities	18.5	46.1
Total interest income	2,238.8	1,553.4

<i>SDR millions</i>	2018	2017
Interest expense	(1,705.3)	(901.2)
Interest expense on assets	(206.8)	(293.0)
Total interest expense	(1,912.1)	(1,194.2)

In the profit and loss account, interest income includes “negative” interest on liabilities while interest expense includes “negative” interest on assets. Interest on derivatives is presented as interest income.

7. Dividends

On 28 June 2018, the Bank paid a dividend of SDR 131.2 million for the financial year 2017/18 (2016/17: SDR 167.4 million).

8. Share capital

The Bank’s share capital consists of:

As at

<i>SDR millions</i>	30 September 2018	31 March 2018
Authorised capital: 600,000 shares, each of SDR 5,000 par value, of which SDR 1,250 is paid up	3,000.0	3,000.0
Issued capital: 559,125 shares	2,795.6	2,795.6
Paid-up capital (25%)	698.9	698.9



The number of shares eligible for dividend is:

As at

	30 September 2018	31 March 2018
Issued shares	559,125	559,125
Less: shares held in treasury	(1,000)	(1,000)
Outstanding shares eligible for full dividend	558,125	558,125

9. Related parties

The Bank considers the following to be its related parties:

- the members of the Board of Directors;
- the senior officials of the Bank;
- close family members of the above individuals;
- the Bank's post-employment benefit arrangements; and
- central banks whose Governor is a member of the Board of Directors and institutions that are connected with these central banks.

A listing of the members of the Board of Directors and senior officials is shown in the sections of the 2018 Annual Report entitled "Board of Directors" and "BIS Management". Note 12 of the financial statements in the Annual Report provides details of the Bank's post-employment benefit arrangements.

A. Related party individuals

Related party transactions with members of the Board of Directors and senior officials in the period ended 30 September were similar in nature to those disclosed in the most recent Annual Report. No related party transactions that took place with members of the Board of Directors and senior officials materially affected the financial position or performance of the Bank during the financial period.

B. Related party customers

The BIS provides banking services to its customers, which are predominantly central banks, monetary authorities and international financial institutions. In fulfilling this role, the Bank, in the normal course of business, enters into transactions with customers which are related parties (as defined above). These transactions include making advances, and taking currency and gold deposits. It is the Bank's policy to enter into transactions with related party customers on similar terms and conditions to transactions with other, non-related party customers. The following tables show balances relating to these transactions, which are representative of the general level of business undertaken with related party customers during the year.

**Balances with related party customers**

As at	30 September 2018			31 March 2018		
	Balance sheet total	Balance with related parties		Balance sheet total	Balance with related parties	
<i>SDR millions / percentages</i>	SDR millions	SDR millions	%	SDR millions	SDR millions	%
Assets						
Cash and sight accounts	45,316.3	44,838.6	98.9	73,150.0	73,078.8	99.9
Gold and gold loans	18,679.6	18,665.2	99.9	23,429.6	23,414.1	99.9
Securities purchased under resale agreements	52,315.5	3,631.0	6.9	44,112.9	1,323.5	3.0
Government and other securities	52,971.6	357.8	0.7	52,881.0	343.3	0.6
Derivative assets	3,755.6	21.8	0.6	1,725.1	6.6	0.4
Liabilities						
Currency deposits	(204,146.3)	(89,041.8)	43.6	(211,665.6)	(88,850.5)	42.0
Gold deposits	(9,341.0)	(7,199.0)	77.1	(9,859.5)	(6,780.6)	68.8
Derivative liabilities	(1,352.5)	(10.5)	0.8	(3,138.5)	(1.8)	0.1

Main profit and loss items arising from transactions with related party customers

For the six months ended 30 September	2018			2017		
	Profit and loss total	Balance with related parties		Profit and loss total	Balance with related parties	
<i>SDR millions / percentages</i>	SDR millions	SDR millions	%	SDR millions	SDR millions	%
Interest income	2,238.8	48.9	2.2	1,553.4	26.5	1.7
Interest expense	(1,912.1)	(812.7)	42.5	(1,194.2)	(490.9)	41.1

10. Contingent liabilities

In the opinion of the Bank's Management, there were no material contingent liabilities at 30 September 2018 (30 September 2017 and 31 March 2018: nil).



Capital adequacy

1. Capital adequacy frameworks

As an international financial institution that is overseen by a Board composed of Governors of major central banks and that has no national supervisor, the Bank is committed to maintaining its superior credit quality and financial strength, in particular in situations of financial stress.

The Bank assesses its capital adequacy on a continuous basis throughout the year. It operates an annual capital planning process that focuses on two elements: an economic capital framework and a financial leverage framework. The disclosures in this section relating to credit, market, operational and liquidity risk are based on the Bank's own assessment of capital adequacy derived in accordance with these two BIS frameworks.

Regulatory capital ratios are not used as indicators of BIS capital adequacy because key aspects of the business model for the BIS banking activities are not adequately captured. In the main, these relate to the high level of solvency targeted by the Bank as well as the way regulatory capital ratios reflect portfolio concentrations and interest rate risk in the banking book.

To facilitate comparability, the Bank has implemented a framework that is consistent with the revised *International Convergence of Capital Measurement and Capital Standards* (Basel II framework) issued by the Basel Committee on Banking Supervision (BCBS) in June 2006. Following that framework, the Bank discloses a Tier 1 capital ratio (Pillar 1), risk-weighted assets and more detailed related information. In addition, the Bank calculates for reference a Common Equity Tier 1 capital ratio, leverage ratio and liquidity coverage ratio taking account of banking supervisory recommendations related to Basel III.

The Bank maintains a capital position substantially in excess of the regulatory minimum requirement in order to ensure its superior credit quality.

2. Economic capital

The Bank's economic capital methodology relates its risk-taking capacity to the amount of economic capital needed to absorb potential losses arising from its exposures. The risk-taking capacity is defined as allocatable economic capital that is derived following a prudent assessment of the components of the Bank's equity, which are set out in the following table:



As at

<i>SDR millions</i>	30 September 2018	31 March 2018
Share capital	698.9	698.9
Statutory reserves per balance sheet	16,326.3	15,950.1
Less: shares held in treasury	(1.7)	(1.7)
Share capital and reserves	17,023.5	16,647.3
Securities revaluation account	(126.7)	(83.6)
Gold revaluation account	2,299.7	2,493.9
Re-measurement of defined benefit obligations	(214.0)	(210.1)
Other equity accounts	1,959.0	2,200.2
Profit and loss account	220.5	508.1
Total equity	19,203.0	19,355.6

Allocatable economic capital is determined following a prudent evaluation of the Bank's equity components for their loss absorption capacity and sustainability. The components of capital with long-term risk-bearing capacity are the Bank's Tier 1 capital and the sustainable portion of the securities and gold revaluation accounts ("sustainable supplementary capital"). Only this "allocatable capital" is available for allocation to the various categories of risk. The portion of revaluation accounts that is considered more transitory in nature is assigned to the "capital filter" together with the profit accrued during the financial period.

<i>SDR millions</i>	30 September 2018	31 March 2018
Share capital and reserves	17,023.5	16,647.3
Re-measurement of defined benefit obligations	(214.0)	(210.1)
Negative securities revaluation account	(126.7)	(83.6)
Tier 1 capital	16,682.8	16,353.6
Sustainable supplementary capital	1,617.2	1,646.4
Allocatable capital	18,300.0	18,000.0
Capital filter	903.0	1,355.6
Total equity	19,203.0	19,355.6

As part of the annual capital planning process, Management allocates economic capital to risk categories within the amount of allocatable capital. As a first step, capital is assigned to an "economic capital cushion" that provides an additional margin of safety and is sufficient to sustain a potential material loss without the need to reduce the capital allocation to individual risk categories or to liquidate any holdings of assets. The level of the economic capital cushion is determined based on stress tests that explore extreme but still plausible default events. Allocations are then made to each category of financial risk (ie credit, market and "other risks") as well as operational risk. "Other risks" are risks that have been identified but that are not taken into account in the economic capital utilisation calculations, and include model risk and residual basis risk. Reflecting the high level of solvency targeted by the Bank, the economic capital framework measures economic capital to a 99.995% confidence level assuming a one-year horizon, except for FX settlement risk (included in the utilisation for credit risk) and "other risks". The amount of economic capital set aside for FX settlement risk and other risks is based on an assessment by Management. The Bank's economic capital framework is subject to regular review and calibration.



The following table summarises the Bank's economic capital allocation and utilisation for credit risk, market risk, operational risk and other risks:

<i>SDR millions</i>	30 September 2018		31 March 2018	
	Allocation	Utilisation	Allocation	Utilisation
Insolvency and transfer risk	10,200.0	8,394.6	9,600.0	6,314.3
FX settlement risk	300.0	300.0	300.0	300.0
Credit risk	10,500.0	8,694.6	9,900.0	6,614.3
Market risk	3,700.0	3,295.0	4,000.0	3,286.5
Operational risk	1,300.0	1,300.0	1,300.0	1,300.0
Other risks	300.0	300.0	300.0	300.0
Economic capital cushion	2,500.0	2,500.0	2,500.0	2,500.0
Total economic capital	18,300.0	16,089.6	18,000.0	14,000.8



3. Financial leverage

The Bank complements its capital adequacy assessment with a prudently managed financial leverage framework. The Bank monitors its financial leverage using a ratio that compares the BIS adjusted common equity with its total exposure. However, to reflect the scope and nature of its banking activities, the definition of the BIS adjusted common equity limits the recognition of revaluation accounts to the proportion of the gold and securities revaluation accounts that is considered sustainable ("sustainable supplementary capital"). Further, the exposure measure is supplemented by the inclusion of committed and uncommitted facilities, and pension fund assets.

The following table shows the calculation of the Bank's financial leverage ratio:

<i>SDR millions</i>	30 September 2018	31 March 2018
Share capital and reserves	17,023.5	16,647.3
Sustainable supplementary capital	1,617.2	1,646.4
Share capital, reserves and sustainable supplementary capital	18,640.7	18,293.7
Re-measurement losses on defined benefit obligations	(214.0)	(210.1)
Negative securities revaluation account	(126.7)	(83.6)
Intangible assets	(26.8)	(27.4)
Prudential adjustments	(367.5)	(321.1)
Total BIS adjusted common equity (A)	18,273.2	17,972.6
Total balance sheet assets	244,224.2	256,489.4
Derivatives	782.7	(123.4)
Securities purchased under resale agreements	177.7	4.2
Committed and uncommitted facilities	3,827.7	3,901.1
Pension fund assets	1,184.9	1,143.5
Exposure adjustments	5,973.0	4,925.4
Total BIS exposure (B)	250,197.2	261,414.8
BIS leverage ratio (A) / (B)	7.3%	6.9%

The Bank also calculates a leverage ratio that is consistent with Basel III recommendations. The Bank's Basel III leverage ratio differs from the BIS leverage ratio in using Common Equity Tier 1 as its capital measure instead of BIS adjusted common equity as defined above. The calculation of Common Equity Tier 1 capital is included in section 4B. At 30 September 2018 the Bank's Basel III leverage ratio stood at 7.6% (31 March 2018: 7.2%).



4. Capital ratios

The economic capital framework and the financial leverage framework described above are the main tools used for assessing the Bank's capital adequacy. Risk-weighted assets, minimum capital requirements and capital ratios are disclosed to facilitate comparability. Guidance issued by the BCBS includes several approaches for calculating risk-weighted assets and the corresponding minimum capital requirements. In principle, the minimum capital requirements are determined by taking 8% of the risk-weighted assets.

For credit risk, the Bank has adopted the advanced internal ratings-based approach for the majority of its exposures. Under this approach, the risk weighting for a transaction is determined by the relevant Basel II risk weight function using the Bank's own estimates for key inputs. Expected loss is calculated for credit risk exposures subject to the advanced internal ratings-based approach. The expected loss is calculated at the balance sheet date taking into account any impairment provision which is reflected in the Bank's financial statements. In accordance with the requirements of the Basel frameworks, the expected loss is compared with the impairment provision and any shortfall is deducted from the Bank's Tier 1 capital. For securitisation exposures and relevant other assets, the Bank has adopted the standardised approach. Under this approach, risk weightings are mapped to exposure types.

Risk-weighted assets for market risk are derived following an internal models approach. For operational risk, the advanced measurement approach is used. Both these approaches rely on value-at-risk (VaR) methodologies.

More details on the assumptions underlying the calculations are provided in the sections on credit risk, market risk and operational risk.

A. Tier 1 capital ratio

The following table summarises the relevant exposure types and approaches as well as the risk-weighted assets and related minimum capital requirements for credit risk, market risk and operational risk under the Basel II framework:

Approach used		30 September 2018			31 March 2018		
		Amount of exposure	Risk-weighted assets (A)	Minimum capital requirement (B)	Amount of exposure	Risk-weighted assets (A)	Minimum capital requirement (B)
<i>SDR millions</i>							
Credit risk							
Exposure to sovereigns, banks and corporates	Advanced internal ratings-based approach, where (B) is derived as (A) x 8%	168,909.6	14,485.5	1,158.8	184,291.0	12,577.9	1,006.2
Securitisation exposures and other assets	Standardised approach, where (B) is derived as (A) x 8%	475.6	386.2	30.9	304.8	240.2	19.2
Market risk							
Exposure to foreign exchange risk and gold price risk	Internal models approach, where (A) is derived as (B) / 8%	–	6,651.5	532.1	–	7,604.2	608.3
Operational risk							
	Advanced measurement approach, where (A) is derived as (B) / 8%	–	10,031.1	802.5	–	9,981.4	798.5
Total			31,554.3	2,524.3		30,403.7	2,432.2



The capital ratio measures capital adequacy by comparing the Bank's Tier 1 capital with its risk-weighted assets. The Tier 1 capital ratio, consistent with the Basel II framework, is provided in the following table:

<i>SDR millions</i>	30 September 2018	31 March 2018
Share capital and reserves	17,023.5	16,647.3
Re-measurement losses on defined benefit obligations	(214.0)	(210.1)
Negative securities revaluation account	(126.7)	(83.6)
Tier 1 capital	16,682.8	16,353.6
Expected loss	(28.2)	(23.8)
Tier 1 capital net of expected loss (A)	16,654.6	16,329.8
Total risk-weighted assets (B)	31,554.3	30,403.7
Tier 1 capital ratio (A) / (B)	52.8%	53.7%

B. Common Equity Tier 1 capital ratio

To facilitate comparability, information on risk-weighted assets and related minimum capital requirements calculated under the Basel III framework is provided in the following table. Credit risk-weighted assets differ, mainly due to the asset value correlation multiplier for large financial institutions. Relating to market risk, Basel III risk-weighted assets are calculated as the sum of the Basel II market risk-weighted assets (presented in the previous section) and market risk-weighted assets derived from a stressed VaR.

<i>SDR millions</i>	Approach used	30 September 2018			31 March 2018		
		Amount of exposure	Risk-weighted assets (A)	Minimum capital requirement (B)	Amount of exposure	Risk-weighted assets (A)	Minimum capital requirement (B)
Credit risk							
Exposure to sovereigns, banks and corporates	Advanced internal ratings-based approach, where (B) is derived as (A) x 8%	168,909.6	16,621.5	1,329.7	184,291.0	14,428.8	1,154.3
Securitisation exposures and other assets	Standardised approach, where (B) is derived as (A) x 8%	475.6	386.2	30.9	304.8	240.2	19.2
Market risk							
Exposure to foreign exchange risk and gold price risk	Internal models approach, where (A) is derived as (B) / 8%	–	20,645.6	1,651.6	–	22,496.5	1,799.7
Operational risk							
	Advanced measurement approach, where (A) is derived as (B) / 8%	–	10,031.1	802.5	–	9,981.4	798.5
Total			47,684.5	3,814.7		47,146.9	3,771.7



The Common Equity Tier 1 capital ratio calculated under the Basel III framework is set out in the following table:

<i>SDR millions</i>	30 September 2018	31 March 2018
Share capital and reserves	17,023.5	16,647.3
Revaluation accounts	2,173.0	2,410.3
Share capital, reserves and revaluation accounts	19,196.5	19,057.6
Re-measurement losses on defined benefit obligations	(214.0)	(210.1)
Expected loss	(28.2)	(23.8)
Intangible assets	(26.8)	(27.4)
Prudential adjustments	(269.0)	(261.3)
Total Common Equity Tier 1 capital (A)	18,927.5	18,796.3
Total risk-weighted assets (B)	47,684.5	47,146.9
Common Equity Tier 1 capital ratio (A) / (B)	39.7%	39.9%



Risk management

1. Risks faced by the Bank

The Bank supports its customers, predominantly central banks, monetary authorities and international financial institutions, in the management of their reserves and related financial activities.

Banking activities form an essential element of meeting the Bank's objectives and ensure its financial strength and independence. The BIS engages in banking activities that are customer-related as well as activities that are related to the investment of its shareholders' equity, each of which may give rise to financial risk comprising credit risk, market risk and liquidity risk. The Bank is also exposed to operational risk.

Within the risk frameworks defined by the Board of Directors, the Management of the Bank has established risk management policies designed to ensure that risks are identified, appropriately measured and controlled as well as monitored and reported.

2. Credit risk

Credit risk arises because a counterparty may fail to meet its obligations in accordance with the agreed contractual terms and conditions. A financial asset is considered past due when a counterparty fails to make a payment on the contractual due date.

The Bank manages credit risk within a framework and policies set by the Board of Directors and Management. These are complemented by more detailed guidelines and procedures at the level of the independent risk management function.

A. Credit risk assessment

Credit risk is continuously controlled at both a counterparty and an aggregated level. The independent risk management function performs individual counterparty credit assessments following a well defined internal rating process. As part of this process, counterparty financial statements and market information are analysed. The rating methodologies depend on the nature of the counterparty. Based on the internal rating and specific counterparty features, the Bank sets a series of credit limits covering individual counterparties and countries. Internal ratings are assigned to all counterparties. In principle, the ratings and related limits are reviewed at least annually. The main assessment criterion in these reviews is the ability of the counterparties to meet interest and principal repayment obligations in a timely manner.

Credit risk limits at the counterparty level are approved by the Bank's Management and fit within a framework set by the Board of Directors.

On an aggregated level, credit risk, including default and country transfer risk, is measured, monitored and controlled based on the Bank's economic capital calculation for credit risk. To calculate economic capital for credit risk, the Bank uses a portfolio VaR model. Management limits the Bank's overall exposure to credit risk by allocating an amount of economic capital to credit risk.

B. Default risk

The following tables show the exposure of the Bank to default risk, without taking into account any collateral held or other credit enhancements available to the Bank. Credit risk is mitigated through the use of collateral and legally enforceable netting or setoff agreements. The corresponding assets and liabilities are not offset on the balance sheet.

The exposures set out in the following tables are based on the carrying value of the assets on the balance sheet as categorised by sector, geographical region and credit quality. The carrying value is the fair value of the financial instruments except in the case of very short-term financial instruments (sight and notice accounts) and gold. Commitments are reported at their notional amounts. Gold and gold loans exclude gold bar assets held in custody, and accounts receivable do not include unsettled liabilities issued, because these items do not represent credit exposures of the Bank.

The vast majority of the Bank's assets are invested in sight accounts at central banks, or in securities issued by governments and financial institutions rated A- or above by at least one of the major external credit assessment institutions. Limitations on the number of high-quality counterparties in these sectors mean that the Bank is exposed to single-name concentration risk.

**Default risk by asset class and issuer type**

The following tables show the exposure of the Bank to default risk by asset class and issuer type, without taking into account any collateral held or other credit enhancements available to the Bank. "Public sector" includes international and other public sector institutions.

As at 30 September 2018

<i>SDR millions</i>	Sovereign and central banks	Public sector	Banks	Corporate	Securitisation	Total
On-balance sheet exposures						
Cash and sight accounts with banks	44,842.1	–	474.2	–	–	45,316.3
Gold and gold loans	–	–	14.5	–	–	14.5
Treasury bills	40,583.0	–	–	–	–	40,583.0
Securities purchased under resale agreements	3,631.0	–	31,417.6	17,266.9	–	52,315.5
Loans and advances	3,482.8	557.9	22,093.5	–	–	26,134.2
Government and other securities	28,666.9	8,967.7	6,855.5	8,369.8	111.7	52,971.6
Derivatives	68.5	–	3,686.4	0.7	–	3,755.6
Accounts receivable	34.5	2.5	0.6	8.8	–	46.4
Total on-balance sheet exposure	121,308.8	9,528.1	64,542.3	25,646.2	111.7	221,137.1
Commitments						
Undrawn unsecured facilities	215.0	–	–	–	–	215.0
Total commitments	215.0	–	–	–	–	215.0
Total exposure	121,523.8	9,528.1	64,542.3	25,646.2	111.7	221,352.1



As at 31 March 2018

<i>SDR millions</i>	Sovereign and central banks	Public sector	Banks	Corporate	Securitisation	Total
On-balance sheet exposures						
Cash and sight accounts with banks	73,103.5	–	46.5	–	–	73,150.0
Gold and gold loans	–	–	15.5	–	–	15.5
Treasury bills	30,811.0	949.9	–	–	–	31,760.9
Securities purchased under resale agreements	1,323.5	–	30,568.4	12,221.0	–	44,112.9
Loans and advances	529.0	624.0	21,275.6	–	–	22,428.6
Government and other securities	28,830.5	8,547.4	7,143.5	8,278.9	80.7	52,881.0
Derivatives	303.8	19.1	1,401.9	0.3	–	1,725.1
Accounts receivable	1.4	4.5	209.5	7.3	–	222.7
Total on-balance sheet exposure	134,902.7	10,144.9	60,660.9	20,507.5	80.7	226,296.7
Commitments						
Undrawn unsecured facilities	206.4	–	–	–	–	206.4
Total commitments	206.4	–	–	–	–	206.4
Total exposure	135,109.1	10,144.9	60,660.9	20,507.5	80.7	226,503.1

**Default risk by geographical region**

The following tables represent the exposure of the Bank to default risk by asset class and geographical region, without taking into account any collateral held or other credit enhancements available to the Bank. Exposures are allocated to regions based on the country of incorporation of each legal entity.

As at 30 September 2018

<i>SDR millions</i>	Africa and Europe	Asia-Pacific	Americas	International institutions	Total
On-balance sheet exposures					
Cash and sight accounts with banks	35,330.9	9,971.7	13.7	–	45,316.3
Gold and gold loans	14.5	–	–	–	14.5
Treasury bills	3,570.1	32,041.7	4,971.2	–	40,583.0
Securities purchased under resale agreements	48,684.5	–	3,631.0	–	52,315.5
Loans and advances	17,079.9	4,496.0	4,173.6	384.7	26,134.2
Government and other securities	24,134.0	10,917.5	13,302.2	4,617.9	52,971.6
Derivatives	2,645.7	562.4	541.6	5.9	3,755.6
Accounts receivable	44.8	1.3	0.3	–	46.4
Total on-balance sheet exposure	131,504.4	57,990.6	26,633.6	5,008.5	221,137.1
Commitments					
Undrawn unsecured facilities	–	215.0	–	–	215.0
Total commitments	–	215.0	–	–	215.0
Total exposure	131,504.4	58,205.6	26,633.6	5,008.5	221,352.1



As at 31 March 2018

<i>SDR millions</i>	Africa and Europe	Asia-Pacific	Americas	International institutions	Total
On-balance sheet exposures					
Cash and sight accounts with banks	61,675.2	11,445.1	29.7	–	73,150.0
Gold and gold loans	15.5	–	–	–	15.5
Treasury bills	4,718.9	21,369.3	4,722.8	949.9	31,760.9
Securities purchased under resale agreements	42,101.5	–	2,011.4	–	44,112.9
Loans and advances	14,515.1	5,050.0	2,410.4	453.1	22,428.6
Government and other securities	26,568.8	9,580.0	11,596.1	5,136.1	52,881.0
Derivatives	1,118.5	127.7	459.8	19.1	1,725.1
Accounts receivable	204.0	1.2	13.0	4.5	222.7
Total on-balance sheet exposure	150,917.5	47,573.3	21,243.2	6,562.7	226,296.7
Commitments					
Undrawn unsecured facilities	–	206.4	–	–	206.4
Total commitments	–	206.4	–	–	206.4
Total exposure	150,917.5	47,779.7	21,243.2	6,562.7	226,503.1

**Default risk by counterparty / issuer rating**

The following tables show the exposure of the Bank to default risk by class of financial asset and counterparty / issuer rating, without taking into account any collateral held or other credit enhancements available to the Bank. The ratings shown reflect the Bank's internal ratings expressed as equivalent external ratings.

As at 30 September 2018

<i>SDR millions</i>	AAA	AA	A	BBB	BB and below	Unrated	Total
On-balance sheet exposures							
Cash and sight accounts with banks	28,537.2	6,471.8	10,181.6	125.7	–	–	45,316.3
Gold and gold loans	–	–	14.5	–	–	–	14.5
Treasury bills	–	5,959.2	31,307.5	3,316.3	–	–	40,583.0
Securities purchased under resale agreements	–	20,897.9	27,915.3	3,502.3	–	–	52,315.5
Loans and advances	1,499.4	525.9	21,318.1	422.1	2,368.7	–	26,134.2
Government and other securities	7,826.3	26,175.7	17,711.8	1,257.8	–	–	52,971.6
Derivatives	–	30.0	3,655.2	63.9	0.2	6.3	3,755.6
Accounts receivable	0.2	31.1	0.6	0.4	0.2	13.9	46.4
Total on-balance sheet exposure	37,863.1	60,091.6	112,104.6	8,688.5	2,369.1	20.2	221,137.1
Commitments							
Undrawn unsecured facilities	–	–	215.0	–	–	–	215.0
Total commitments	–	–	215.0	–	–	–	215.0
Total exposure	37,863.1	60,091.6	112,319.6	8,688.5	2,369.1	20.2	221,352.1



As at 31 March 2018

<i>SDR millions</i>	AAA	AA	A	BBB	BB and below	Unrated	Total
On-balance sheet exposures							
Cash and sight accounts with banks	42,615.3	14,130.5	15,375.6	1,028.5	0.1	–	73,150.0
Gold and gold loans	–	–	15.5	–	–	–	15.5
Treasury bills	433.3	8,604.4	20,608.3	2,114.9	–	–	31,760.9
Securities purchased under resale agreements	–	13,544.5	23,487.9	7,080.5	–	–	44,112.9
Loans and advances	436.9	546.6	20,233.5	660.7	550.9	–	22,428.6
Government and other securities	9,703.0	24,951.2	17,245.5	981.3	–	–	52,881.0
Derivatives	–	20.7	1,395.1	42.0	251.7	15.5	1,725.1
Accounts receivable	0.2	0.5	196.7	0.3	0.5	24.5	222.7
Total on-balance sheet exposure	53,188.7	61,798.4	98,558.1	11,908.2	803.2	40.0	226,296.7
Commitments							
Undrawn unsecured facilities	–	–	–	206.4	–	–	206.4
Total commitments	–	–	–	206.4	–	–	206.4
Total exposure	53,188.7	61,798.4	98,558.1	12,114.6	803.2	40.0	226,503.1

C. Credit risk mitigation

Netting

Netting agreements give the Bank a legally enforceable right to net transactions with counterparties under potential future conditions, notably an event of default. Such master netting or similar agreements apply to counterparties with which the Bank conducts most of its derivative transactions, as well as to counterparties used for repurchase and reverse repurchase agreement transactions. Where required, netting is applied when determining the amount of collateral to be requested or provided, but the Bank does not typically settle assets and liabilities on a net basis during the normal course of business. As such, the amounts shown on the Bank's balance sheet are the gross amounts.

Collateral

The Bank mitigates credit risk by requiring counterparties to provide collateral. The Bank receives collateral in respect of most derivative contracts and reverse repurchase agreements and for advances made under collateralised facility agreements. During the term of these transactions, further collateral may be called or collateral may be released based on the movements in value of both the underlying instrument and the collateral that has been received. The Bank is required to provide collateral in respect of repurchase agreements.

For derivative contracts and reverse repurchase agreements, the Bank accepts as collateral high-quality sovereign, state agency and supranational securities and, in a limited number of cases, cash. For advances made under collateralised facility agreements, collateral accepted includes currency deposits with the Bank, units in the BIS Investment Pools and gold.

Under the terms of its collateral arrangements, the Bank is permitted to sell ("re-hypothecate") collateral received on derivative contracts and reverse repurchase agreements, but upon expiry of the transaction must return equivalent financial instruments to the counterparty. At 30 September 2018, the Bank had not lent any of the collateral it held (31 March 2018: nil).



The fair value of collateral held which the Bank had the right to sell was:

<i>SDR millions</i>	30 September 2018	31 March 2018
Collateral held in respect of:		
Derivative financial instruments	1,472.0	14.5
Securities purchased under resale agreements	42,055.0	34,436.7
Total	43,527.0	34,451.2

Financial assets and liabilities subject to netting or collateralisation

The tables below show the categories of assets and liabilities which are either subject to collateralisation, or for which netting agreements would apply under potential future conditions such as the event of default of a counterparty.

The amount of collateral required is usually based on valuations performed on the previous business day, whereas the Bank's balance sheet reflects the valuations of the reporting date. Due to this timing difference, the valuation of collateral can be higher than the valuation of the underlying contract in the Bank's balance sheet. The amount of the collateral obtained is also impacted by thresholds, minimum transfer amounts and valuation adjustments ("haircuts") specified in the contracts. In these tables, the mitigating effect of collateral has been limited to the balance sheet value of the underlying net asset.

As at 30 September 2018	Effect of risk mitigation				Analysed as:		
<i>SDR millions</i>	Gross carrying amount as per balance sheet	Adjustments for settlement date effects	Enforceable netting agreements	Collateral (received) / provided (limited to balance sheet value)	Exposure after risk mitigation	Amounts not subject to risk mitigation agreements	Amounts subject to risk mitigation agreements
Financial assets							
Securities purchased under resale agreements	52,315.5	(6,873.2)	–	(45,264.0)	178.3	–	178.3
Advances	2,368.7	–	–	(2,368.7)	–	–	–
Derivative financial instruments	3,755.6	–	(1,088.7)	(1,452.7)	1,214.2	17.2	1,197.0
Financial liabilities							
Securities sold under repurchase agreements	(135.4)	–	–	134.8	.	.	.
Derivative financial instruments	(1,352.5)	–	1,088.7	–	.	.	.



As at 31 March 2018

	Effect of risk mitigation				Analysed as:		
	Gross carrying amount as per balance sheet	Adjustment for settlement date effects	Enforceable netting agreements	Collateral (received) / provided (limited to balance sheet value)	Exposure after risk mitigation	Amounts not subject to risk mitigation agreements	Amounts subject to risk mitigation agreements
<i>SDR millions</i>							
Financial assets							
Securities purchased under resale agreements	44,112.9	(8,647.7)	–	(35,465.1)	0.1	–	0.1
Advances	550.9	–	–	(550.9)	–	–	–
Derivative financial assets	1,725.1	–	(1,329.2)	(14.5)	381.4	36.5	344.9
Financial liabilities							
Securities sold under repurchase agreements	(2,095.0)	–	–	2,095.0	–	–	–
Derivative financial liabilities	(3,138.5)	–	1,329.2	–	–	–	–

D. Minimum capital requirements for credit risk

Exposure to sovereigns, banks and corporates

For the calculation of risk-weighted assets for exposures to sovereigns, banks and corporates, the Bank has adopted an approach that is consistent with the advanced internal ratings-based approach.

As a general rule, under this approach risk-weighted assets are determined by multiplying the credit risk exposures with risk weights derived from the relevant Basel II risk weight function using the Bank's own estimates for key inputs. These estimates for key inputs are also relevant to the Bank's economic capital calculation for credit risk.

The credit risk exposure for a transaction or position is referred to as the exposure at default (EAD). The Bank determines the EAD as the notional amount of on- and off-balance sheet credit exposures, except for securities and derivative contracts. The EAD for derivatives is calculated using an approach consistent with the internal models method proposed under the Basel II framework. In line with this methodology, the Bank calculates effective expected positive exposures that are then multiplied by a factor alpha as set out in the framework.

Key inputs to the risk weight function are a counterparty's estimated one-year probability of default (PD) as well as the estimated loss-given-default (LGD) and maturity for each transaction.

Due to the high credit quality of the Bank's investments and the conservative credit risk management process at the BIS, the Bank is not in a position to estimate PDs and LGDs based on its own default experience. The Bank calibrates each counterparty PD estimate through a mapping of internal rating grades to external credit assessments taking external default data into account. Similarly, LGD estimates are derived from external data. Where appropriate, these estimates are adjusted to reflect the risk-reducing effects of collateral obtained giving consideration to market price volatility, re-margining and revaluation frequency. The recognition of the risk-reducing effects of collateral obtained for derivative contracts, reverse repurchase agreements and collateralised advances is accounted for in calculating the EAD.

The following table details the calculation of risk-weighted assets. The exposures are measured taking netting and collateral benefits into account. The total amount of exposures reported in the table as at 30 September 2018 includes SDR 242.3 million for interest rate contracts (31 March 2018: SDR 139.9 million) and SDR 797.8 million for FX and gold contracts (31 March 2018: SDR 234.4 million). In line with the Basel II framework, the minimum capital requirement is determined as 8% of risk-weighted assets.



As at 30 September 2018

Internal rating grades expressed as equivalent external rating grades	Amount of exposure	Exposure-weighted PD	Exposure-weighted average LGD	Exposure-weighted average risk weight	Risk-weighted assets
<i>SDR millions / percentages</i>	<i>SDR millions</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>SDR millions</i>
AAA	37,375.3	0.01	8.8	1.4	519.5
AA	43,939.7	0.02	36.4	8.7	3,802.0
A	82,186.4	0.04	47.8	9.9	8,112.3
BBB	5,401.8	0.22	55.7	37.8	2,042.0
BB and below	6.4	5.41	59.0	151.0	9.7
Total	168,909.6				14,485.5

As at 31 March 2018

Internal rating grades expressed as equivalent external rating grades	Amount of exposure	Exposure-weighted PD	Exposure-weighted average LGD	Exposure-weighted average risk weight	Risk-weighted assets
<i>SDR millions / percentages</i>	<i>SDR millions</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>SDR millions</i>
AAA	52,697.2	0.01	7.1	1.1	566.9
AA	52,128.9	0.02	31.4	6.8	3,557.0
A	74,369.9	0.04	44.1	9.4	6,962.0
BBB	5,092.5	0.22	46.7	29.2	1,488.1
BB and below	2.5	4.71	56.2	160.2	3.9
Total	184,291.0				12,577.9

At 30 September 2018, the minimum capital requirement for credit risk related to exposures to sovereigns, banks and corporates was SDR 1,158.8 million (31 March 2018: SDR 1,006.2 million).

The following table summarises the impact of collateral arrangements on the amount of credit exposure after taking netting into account:

<i>SDR millions</i>	Amount of exposure after taking netting into account	Benefits from collateral arrangements	Amount of exposure after taking into account netting and collateral arrangements
As at 30 September 2018	222,060.8	53,151.2	168,909.6
As at 31 March 2018	228,979.4	44,688.4	184,291.0

Securitisation exposures

The Bank invests in highly rated securitisation exposures based on traditional, ie non-synthetic, securitisation structures. Given the scope of the Bank's activities, risk-weighted assets under the Basel II framework are determined according to the standardised approach for securitisation. Under this approach, external credit assessments of the securities are used to determine the relevant risk weights. External credit assessment institutions used for this purpose are Moody's Investors Service, Standard & Poor's and Fitch Ratings. Risk-weighted assets are then derived as the product of the market values of the exposures and the associated risk weights. In line with the Basel II framework, the minimum capital requirement is determined as 8% of risk-weighted assets.



The following table shows the Bank's investments in securitisation analysed by type of securitised assets:

As at 30 September 2018

<i>SDR millions</i>	External rating	Amount of exposures	Risk weight	Risk-weighted assets
Securities backed by other receivables (government-sponsored)	AAA	111.7	20%	22.3
Total		111.7		22.3

As at 31 March 2018

<i>SDR millions</i>	External rating	Amount of exposures	Risk weight	Risk-weighted assets
Securities backed by other receivables (government-sponsored)	AAA	80.7	20%	16.1
Total		80.7		16.1

At 30 September 2018, the minimum capital requirement for securitisation exposures was SDR 1.8 million (31 March 2018: SDR 1.3 million).

3. Market risk

The Bank is exposed to market risk through adverse movements in market prices. The main components of the Bank's market risk are gold price risk, interest rate risk and foreign exchange risk. The Bank measures market risk and calculates economic capital based on a VaR methodology using a Monte Carlo simulation technique. Risk factor volatilities and correlations are estimated, subject to an exponential weighting scheme, over a six-year observation period. Furthermore, the Bank computes sensitivities to certain market risk factors.

In line with the Bank's objective of maintaining its superior credit quality, economic capital is measured at the 99.995% confidence level assuming a one-year holding period. The Bank calculates the economic capital utilisation for market risk on the basis of a stressed market data set. The Bank's Management manages market risk economic capital usage within a framework set by the Board of Directors. VaR limits are supplemented by operating limits.

To ensure that models provide a reliable measure of potential losses over the one-year time horizon, the Bank has established a comprehensive regular backtesting framework, comparing daily performance with corresponding VaR estimates. The results are analysed and reported to Management.

The Bank also supplements its market risk measurement based on VaR modelling and related economic capital calculations with a series of stress tests. These include severe historical scenarios, adverse hypothetical macroeconomic scenarios and sensitivity tests of gold price, interest rate and foreign exchange rate movements.

A. Gold price risk

Gold price risk is the exposure of the Bank's financial condition to adverse movements in the price of gold.

The Bank is exposed to gold price risk principally through its holdings of gold investment assets. These gold investment assets are held in custody or placed on deposit with commercial banks. At 30 September 2018, the Bank's net gold investment assets were 102 tonnes with a value of SDR 2,801.1 million (31 March 2018: 102 tonnes, SDR 2,995.5 million), approximately 15% of its equity (31 March 2018: 15%). The Bank sometimes also has small exposures to gold price risk arising from its banking activities with central and commercial banks. Gold price risk is measured within the Bank's VaR methodology, including its economic capital framework and stress tests.

**B. Interest rate risk**

Interest rate risk is the exposure of the Bank's financial condition to adverse movements in interest rates including credit spreads. The Bank is exposed to interest rate risk through the interest-bearing assets relating to the management of its equity held in its investment portfolios and investments relating to its banking portfolios. The investment portfolios are managed using a fixed-duration benchmark of bonds.

The Bank measures and monitors interest rate risk using a VaR methodology and sensitivity analyses taking into account movements in relevant money market rates, government bond yields, swap rates and credit spreads.

The following tables show the impact on the Bank's equity of a 1% upward shift in the relevant yield curve per time band:

As at 30 September 2018

<i>SDR millions</i>	Up to 6 months	6 to 12 months	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	Over 5 years	Total
Euro	3.4	(11.1)	(17.2)	(35.6)	(42.7)	(23.3)	(22.0)	(148.5)
Japanese yen	12.2	0.9	–	–	–	–	–	13.1
Pound sterling	(2.4)	(1.6)	(5.2)	(12.2)	(18.1)	(3.5)	–	(43.0)
Renminbi	(2.9)	(4.7)	(6.0)	(2.9)	–	–	–	(16.5)
Swiss franc	15.7	–	(0.3)	(0.8)	(0.3)	(0.5)	(2.8)	11.0
US dollar	(3.8)	(12.3)	(44.5)	(35.7)	(72.0)	(53.2)	(1.1)	(222.6)
Other currencies	1.6	(0.1)	–	(0.4)	–	(0.6)	–	0.5
Total	23.8	(28.9)	(73.2)	(87.6)	(133.1)	(81.1)	(25.9)	(406.0)

As at 31 March 2018

<i>SDR millions</i>	Up to 6 months	6 to 12 months	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	Over 5 years	Total
Euro	7.7	(12.7)	(24.7)	(29.1)	(48.6)	(12.2)	(17.4)	(137.0)
Japanese yen	11.4	0.9	0.1	(0.1)	0.1	(0.1)	–	12.3
Pound sterling	0.3	(2.0)	(3.7)	(15.4)	(13.8)	(6.2)	(0.4)	(41.2)
Renminbi	(2.7)	(6.0)	(6.9)	(1.2)	–	–	–	(16.8)
Swiss franc	12.6	(0.1)	(0.2)	(0.7)	(0.6)	(0.6)	(3.1)	7.3
US dollar	16.4	(14.5)	(33.8)	(42.7)	(66.1)	(60.0)	(10.7)	(211.4)
Other currencies	(0.5)	1.9	(0.2)	(0.4)	0.3	–	–	1.1
Total	45.2	(32.5)	(69.4)	(89.6)	(128.7)	(79.1)	(31.6)	(385.7)

C. Foreign exchange risk

The Bank's functional currency, the SDR, is a composite currency comprising fixed amounts of USD, EUR, JPY, GBP and Renminbi. Currency risk is the exposure of the Bank's financial condition to adverse movements in exchange rates. The Bank is exposed to foreign exchange risk primarily through the assets relating to the management of its equity. The Bank is also exposed to foreign exchange risk through managing its customer deposits and through acting as an intermediary in foreign exchange transactions. The Bank reduces its foreign exchange exposures by matching the relevant assets to the constituent currencies of the SDR on a regular basis, and by limiting currency exposures arising from customer deposits and foreign exchange transaction intermediation.



D. Minimum capital requirements for market risk

For the calculation of minimum capital requirements for market risk under the Basel II framework, the Bank has adopted a banking book approach consistent with the scope and nature of its business activities. Consequently, market risk-weighted assets are determined for gold price risk and foreign exchange risk, but not for interest rate risk. The related minimum capital requirement is derived using the VaR-based internal models method. Under this method, VaR calculations are performed using the Bank's VaR methodology, assuming a 99% confidence level and a 10-day holding period.

The actual minimum capital requirement is derived as the higher of the VaR on the calculation date and the average of the daily VaR measures on each of the preceding 60 business days (including the calculation date) subject to a multiplication factor of three plus a potential add-on depending on backtesting results. For the period under consideration, the number of backtesting outliers observed remained within the range where no add-on is required. The following table summarises the market risk development relevant to the calculation of minimum capital requirements and the related risk-weighted assets over the reporting period.

	30 September 2018			31 March 2018		
	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)
<i>SDR millions</i>						
Market risk, where (A) is derived as (B) / 8%	177.4	6,651.5	532.1	202.8	7,604.2	608.3

4. Operational risk

Operational risk is defined by the Bank as the risk of financial loss, or damage to the Bank's reputation, or both, resulting from human factors, failed or inadequate processes/systems or external events.

For the measurement of operational risk economic capital and operational risk-weighted assets, the Bank has adopted a VaR approach using a Monte Carlo simulation technique that is consistent with the advanced measurement approach proposed under the Basel II framework. In line with the assumptions of the Basel II framework, the quantification of operational risk does not take reputational risk into account. Internal and external loss data, scenario estimates and control self-assessments to reflect changes in the business and control environment of the Bank are key inputs in the calculations. In quantifying its operational risk, the Bank does not take potential protection it may obtain from insurance into account.

Minimum capital requirements for operational risk

In line with the key parameters of the Basel II framework, the calculation of the minimum capital requirement for operational risk is determined assuming a 99.9% confidence level and a one-year time horizon. The following table shows the minimum capital requirements for operational risk, and the related risk-weighted assets:

	30 September 2018			31 March 2018		
	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)
<i>SDR millions</i>						
Operational risk, where (A) is derived as (B) / 8%	802.5	10,031.1	802.5	798.5	9,981.4	798.5



5. Liquidity risk

Liquidity risk arises when the Bank may not be able to meet expected or unexpected current or future cash flows and collateral needs without affecting its daily operations or its financial condition.

Outstanding balances in the currency and gold deposits from central banks, international organisations and other public institutions are the key drivers of the size of the Bank's balance sheet. The Bank is exposed to funding liquidity risk mainly because of the short-term nature of its deposits and because it undertakes to repurchase at fair value certain of its currency deposit instruments at one or two business days' notice. In line with the Bank's objective to maintain a high level of liquidity, it has developed a liquidity management framework, including a ratio, based on conservative assumptions for estimating the liquidity available and the liquidity required.

Liquidity ratio

The Bank has adopted a liquidity risk framework taking into account regulatory guidance issued by the Basel Committee on Banking Supervision related to the Liquidity Coverage Ratio (LCR). The framework is based on a liquidity ratio that compares the Bank's available liquidity with a liquidity requirement over a one-month time horizon assuming a stress scenario. In line with the Basel III liquidity framework, the underlying stress scenario combines an idiosyncratic and a market crisis. However, the liquidity ratio differs in construction from the LCR to reflect the nature and scope of the BIS banking activities – in particular, the short-term nature of the Bank's assets and liabilities. Within the Bank's liquidity framework, the Board of Directors has set a limit for the Bank's liquidity ratio which requires the liquidity available to be at least 100% of the potential liquidity requirement.

The liquidity available is determined as the cash inflow from financial instruments over a one-month horizon, along with potential additional liquidity which could be generated from the disposal of highly liquid securities, or by entering into sale and repurchase agreements for a part of the Bank's remaining unencumbered high-quality liquid securities. In calculating the amount of potential additional liquidity, an assessment is performed to identify securities which are of high credit quality and highly liquid. This is followed by a projection of the amounts that could reasonably be generated through selling these securities or entering into repurchase transactions.

The Bank determines the liquidity required as the sum of the cash outflow from financial instruments over a one-month horizon, the estimated early withdrawal of currency deposits, and the estimated drawings of undrawn facilities. As regards currency deposits, it is assumed that all deposits that mature within the time horizon are not rolled over and that a proportion of non-maturing currency deposits is withdrawn from the Bank prior to contractual maturity. At 30 September 2018, the estimated outflow of currency deposits in response to the stress scenario amounted to 51.9% (31 March 2018: 56.3%) of the total stock of currency deposits. Moreover, it is assumed that undrawn facilities committed by the Bank would be fully drawn by customers, along with a proportion of undrawn uncommitted facilities.

The following table shows the Bank's estimated liquidity available, the liquidity required and the resulting liquidity ratio:



<i>SDR billions</i>	30 September 2018	31 March 2018
Liquidity available		
Estimated cash inflows	102.2	116.9
Estimated liquidity from sales of highly liquid securities	32.6	32.3
Estimated sale and repurchase agreements	6.6	5.2
Total liquidity available (A)	141.4	154.4
Liquidity required		
Estimated withdrawal of currency deposits	103.2	115.3
Estimated drawings of facilities	2.1	2.1
Estimated other outflows	0.1	2.4
Total liquidity required (B)	105.4	119.8
Liquidity ratio (A) / (B)	134.2%	128.8%

For reference, the Bank also calculates an LCR following the principles set out in the guidance issued by the BCBS. At 30 September 2018, the Bank's LCR stood at 168.7% (31 March 2018: 141.9%).