HSBC Bank Canada

Annual Report and Accounts 2019

HSBC

Connecting customers to opportunities

We aim to be where the growth is, enabling businesses to thrive and economies to prosper, and ultimately helping people to fulfill their hopes and realize their ambitions.

We aim to deliver long-term value for our stakeholders through…

…our international network…

HSBC is one of the world's largest banking and financial services organizations, and the leading international bank in Canada.

…our access to high growth markets…

Our network provides exceptional access to high-growth developing markets in Asia, the Middle East and Latin America.

….and our balance sheet strength.

We continue to maintain a strong capital, funding and liquidity position with a diversified business model.

Total assets

$106.6bn

(2018: $103.4bn)

Common equity tier 1 ratio[1]

11.3%

(2018: 11.3%)

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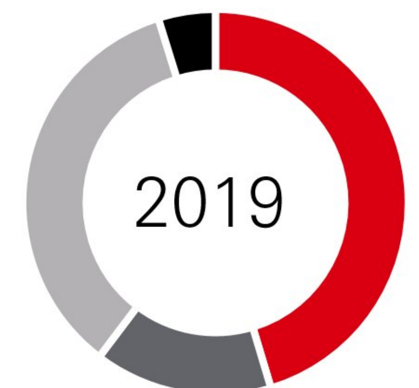
1. Refer to the 'Use of non-IFRS financial measures' section of the Management's Discussion and Analysis ('MD&A') for a discussion of non-IFRS financial measures

Highlights

Our customers value HSBC's extensive network as they travel and do business around the word. Coupled with our universal banking model and capital strength, this delivers significant long-term value to our customers and our shareholder.

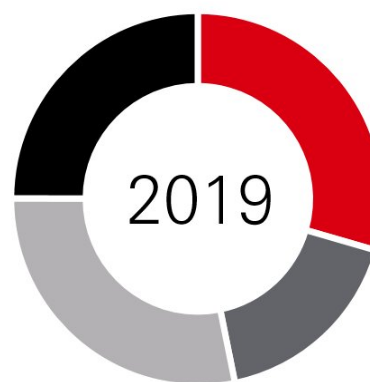
Total revenue and assets by global business at 31 December 2019

Total revenue by global business



- Commercial Banking **$991m**
- Global Banking and Markets **$327m**
- Retail Banking and Wealth Management **$762m**
- Corporate Centre **$105m**

Total assets by global business



- Commercial Banking **$31.4bn**
- Global Banking and Markets **$18.5bn**
- Retail Banking and Wealth Management **$30.1bn**
- Corporate Centre **$26.6bn**

Financial performance for the year ended 31 December 2019

Total operating income

$2,185m ↓3.5%

(2018: $2,264m)

Profit before income tax expense

$816m ↓17.7%

(2018: $991m)

Profit attributable to the common shareholder

$555m ↓18.5%

(2018: $681m)

At 31 December 2019

Total assets

$ 106.6bn ↑3.1%

(2018: $103.4bn)

Common equity tier 1 ratio[1]

11.3% – 0 bps

(At 31 Dec 2018: 11.3%)

Return on average common equity[1]

11.3% ↓320 bps

(At 31 Dec 2018: 14.5%)

1. Refer to the 'Use of non-IFRS financial measures' section of the Management's Discussion and Analysis ('MD&A') for a discussion of non-IFRS financial measures.

HSBC at a glance

HSBC is one of the largest banking and financial services organizations in the world, with operations in 64 countries and territories.

About HSBC

The HSBC Group has an unrivaled global position with an extensive network in 64 countries and territories covering Europe, Asia, North and Latin American, and The Middle East and North Africa.

HSBC in Canada

With more than 130 branches and assets of $106.6bn, HSBC is Canada’s leading international bank. No international bank has our Canadian presence and no domestic bank has our international reach.

We have unique expertise in trade and receivables finance, RMB, emerging markets funds and offer a unique take on infrastructure financing; are a global leader in managing financial crime risk; and offer unique banking solutions for internationally minded individuals and businesses. No one is better placed to serve Canadian companies that are doing business here at home and internationally, or individuals with a global outlook.

Canada is an important contributor to the HSBC Group strategy and a key player in the Group's work to support customers and drive growth, leveraging our footprint across all key trade corridors.

Our values

Our values underpin everything that defines who we are as an organization, and makes us distinctive.

Dependable

We are dependable, standing firm for what is right and delivering on commitments.

Open

We are open to different ideas and cultures, and value diverse perspectives.

Connected

We are connected to our customers, communities, regulators and each other, caring about individuals and their progress.

Awards

Selected awards and recognitions

Below are some examples of the awards received in the year. More details can be found on page 11.

Canada’s #1 Trade Finance Bank and Best Bank for Service Quality
Euromoney (2019)

Best RMB Bank in Canada
The Asset Triple A Treasury, Trade, Supply Chain and Risk Management Awards (2019)

Gold Award Multicultural - Experiential/ Special Events/Stunts
The Optimized Marketing Awards (2019)

Named as one of British Columbia’s Top 100 Employers
Canada’s Top 100 Employers, Mediacorp Canada Inc. (2019)

Winner of Canadian HR team of the Year (Finance or Insurance)
Canadian Human Resource Directs Reward (Sep 2019)

Canada's Best Diversity Employers
Canada’s Top Employers, Mediacorp Canada Inc. competition (2019)

Our global businesses[1]

We serve our customers through three global businesses and a Corporate Centre. On pages 19 to 21 we provide an overview of our performance in 2019 for each of the global businesses, as well as our Corporate Centre.

Commercial Banking ('CMB')

We support business customers with banking products and services to help them operate and grow. Our customers range from small enterprises, through to large companies that operate globally.

Global Banking and Markets ('GB&M')

We provide financial services and products to corporates, governments and institutions. Our comprehensive range of products and solutions can be combined and customized to meet our customers' specific objectives - from primary equity and debt capital to global trade and receivables finance.

Retail Banking and Wealth Management ('RBWM')

We offer a full range of competitive banking products and services for all Canadians to help them manage their finances, buy their homes, and save and invest for the future. Our business also has an international flavour with a large suite of global investment products and other specialized services available.

Year ended 31 December 2019

Total operating income

CMB		GB&M		RBWM	
$991m	↑ 3.9%	$327m	↓ 1.2%	$762m	↑ 3.4%
(2018: $954m)		(2018: $331m)		(2018: $737m)	

Profit before income tax expense

CMB		GB&M		RBWM	
$539m	↓ 8.5%	$159m	↓ 12%	$58m	↓ 18%
(2018: $589m)		(2018: $180m)		(2018: $71m)	

At 31 December 2019

Customer assets[2]

CMB		GB&M		RBWM	
$30.2bn	↑ 11%	$5.7bn	– 0%	$29.5bn	↑ 5%
(At 31 Dec 2018: $27.2bn)		(At 31 Dec 2018: $5.7bn)		(At 31 Dec 2018: $28.1bn)	

1 *We manage and report our operations around three global businesses and the results presented are for these businesses. The consolidated HSBC Bank Canada results presented on the previous page also include the Corporate Centre (see page 21 of the MD&A for more information). The equivalent results for the Corporate Centre were: Total operating income $105m (2018: $242m), profit before income tax expense $60m (2018: $151m) and customer assets nil (2018: nil).*

2 *Customer assets includes loans and advances to customers and customers' liability under acceptances.*

Message from the President and Chief Executive Officer

As we close out our most recent three-year strategic plan, we have much to be proud of. Our strategies to grow revenue and market share, and increase customer acquisition have paid off over the last three years. We reach the end of our strategic planning cycle in a much better place than we began it, having met our financial, efficiency and growth goals. We remain one of the top contributors to Group profits.

2019 was characterized by trade policy uncertainty, slowing GDP growth and continuing low interest rates. Nevertheless, we grew both assets and deposits, operating income increased in two of our three business lines and was down only slightly in the third. Profit before income tax was a healthy $816m, down from 2018 but in line with our expectations - with the normalizing credit environment, RBWM investments and restructuring charges affecting the bottom line as forecast.

In Commercial Banking, the largest contributor to our profits, there was strong loan growth, and growth across most of our products and business segments, as customers continued to recognize the value we bring to their companies as they grow here at home and around the world.

In Global Banking and Markets, we continued to provide tailored financial solutions and deepen connections with HSBC's other businesses and regions. However, there was a small decrease in revenue due to lower capital markets activities and lower rates sales and trading revenue even as lending volumes increased in Global Trade and Receivables Finance.

In Retail Banking and Wealth Management, investments in our branches and digital technologies, along with competitive products, helped us welcome more than 61,000 new customers during the year and achieve record net sales in total relationship balances[1].

HSBC has been at the forefront of sustainable financing as the top underwriter of sustainable bonds globally and is committed to working with our customers in the transition to a low carbon economy. Here in Canada, we have been involved in more than $6.4bn of green and sustainable bond issuances in the last year, including Canada's first P3 green bond[2]. This year we were also pleased to introduce new Green Finance products aligned to the Loan Market Association's Green Loan Principles[3].

And we will continue to evolve to allow our customers, employees and the communities where we operate to thrive. That means investing to meet the changing needs of our customers, and protect them and the financial system from financial crime. It also means continuing our leadership in diversity and inclusion. In Canada, 45% of our staff are members of a visible minority and we have maintained a gender balanced Board of Directors and Executive Committee for the past six years. And it means contributing more than $4m and the time and enthusiasm of our people to charitable programs with a focus on future skills, sustainable supply chains and entrepreneurship in Canada.

With the Canada US Mexico Trade Agreement ('CUSMA') continuing on the path to ratification, the Trans-Pacific Partnership ('TPP') and Canada-Europe Trade Agreement ('CETA') in force, along with many other trade agreements, there are ample opportunities for our customers to grow. We will be here to help them as they explore the world and look to capitalize on these opportunities.

As I reflect on all we have accomplished over recent years, it is clear that banking is a team sport. And I am blessed to lead a great team. Thank you to my over 5,000 colleagues in Canada and many more around the world that work every day to make this bank better for our customers and support them in achieving their goals.

Sandra Stuart

President and Chief Executive Officer
HSBC Bank Canada
13 February 2020

1. *Total relationship balances includes lending, deposits and wealth balances in the Retail Banking and Wealth Management business.*
2. *Royal Inland Hospital in Kamloops - the first Canadian P3 bond accredited under the International Capital Markets Association Green Bond Principles.*
3. *Loan Market Association Green Loan Principles, a first in Canada.*

How we do business

Supporting sustainable growth

We conduct our business aiming to support the sustained success of our customers, people and communities.

Our approach

Our purpose is to be where the growth is, connecting customers to opportunities. We enable businesses to thrive and economies to prosper, helping people fulfill their hopes and dreams and realize their ambitions.

To achieve our purpose, we need to build and maintain strong relationships with all of our stakeholders, including customers, employees, and the communities in which we operate. This will help us to deliver our strategy and operate the business in a way that is sustainable.

We believe in serving the needs of the changing world, and our sustainability approach focuses on three main areas: future skills, sustainable networks and entrepreneurship and sustainable finance.

Globally, we have made commitments in each of these areas, and you can find more information and updates on progress in HSBC Group Environmental, Social and Governance (ESG) Update at www.hsbc.com/our-approach/measuring-our-impact.

The transition to a low-carbon economy and the support of the wider sustainable finance agenda is a priority for HSBC Bank Canada and the HSBC Group. HSBC Holdings plc is a signatory to the Financial Stability Board's Taskforce on Climate-related Financial Disclosures ('TCFD') and discloses under the framework in the Group Annual Report and Accounts. HSBC Bank Canada manages sustainability and climate-related risks through our global enterprise risk management framework and supports and contributes to the Group's climate-related financial disclosures.

HSBC Bank Canada also publishes a Public Accountability Statement, called 'HSBC Bank Canada in the Community' which details our community investment programs, contribution to the economy and initiatives that are making it easier for our customers to reach their financial goals. This can be accessed on our website at: www.about.hsbc.ca/hsbc-in-canada/community.

In this section, we provide information about our customers, employees and our approach to creating a responsible business culture.

Customers

We aim to grow in a way that puts the customer at the centre by improving performance with digital enhancements while maintaining financial crime standards.

At a glance

We create value by providing the products and services our customers need, and aim to do so in a way that fits seamlessly into their lives. This helps us to build long-lasting relationships with our customers. We maintain trust by striving to protect our customers' data and information, and delivering fair outcomes for them. If things go wrong, we need to address complaints in a timely manner. Operating with high standards of conduct is central to our long-term success and underpins our ability to serve our customers.

How we listen

We have made significant investments to improve our products and services, based on feedback from our customers and analysis of emerging market trends. We are committed to continuing to support our customers' evolving needs as we continue to simplify processes and improve the digital experience. Asking our customers' opinion on our service is core to understanding their needs and concerns and will continue to be an important part of how we determine where to best invest our resources in the future.

When things go wrong

To improve our services we must be open to feedback and acknowledge when things go wrong. We listen to complaints to address customers' concerns and understand where we can improve process, procedures and systems. We focus on staff training to improve our complaint handling expertise and ensure our customers are provided with fair outcomes. This improves our complaint handling expertise and helps ensure our customers are provided with fair outcomes. Complaints are reported to governance forums and senior executives are measured against complaint handling performance.

Acting on feedback

In the table below we highlight some examples of how customer feedback has driven improvements across RBWM and CMB in Canada:

Area of focus	Action
Making banking accessible	We expanded our distribution network by opening new branches where our customers live, launched customer video and expanded live chat capabilities to serve our customers remotely. We also invested in our digital technologies which included auto-deposit, e-statements, online account opening capabilities and enhanced Mobile app features. For our trade customers, we launched new HSBCnet User Interface with a brand new modern look and feel. The intuitive interface with an enhanced navigation offers simpler and faster ways to transact and improve clients' online banking experience as they conduct their business.
Making on-boarding easier for our customers	In Commercial Banking, we have streamlined the customer on-boarding process by reducing the number of touch points, simplifying documentation, up-skilling our workforce to better manage customer enquiries / expectations, implemented e-sign capability and reduced the amount of time it takes for customers to access their accounts online. These changes were a direct result of customer feedback collected through both satisfaction surveys and phone interviews. These improvements have resulted in a 30% uplift in customers rating their on-boarding experience as 5-stars in 2019, with 97% of customers now rating the experience as 4 or 5 stars.
Provide competitive products and services	We introduced competitive offers for new-to-Canada immigrants and customers with international needs. This included launching new products such as MasterCard +Rewards and chequing and credit products for students. We also provided highly competitive rates on mortgages and deposit products.

Our approach to conduct

We take a long term view of serving our customers well and this has been central to our success throughout our history.

We are committed to delivering fair outcomes for our customers and doing our part to ensure the orderly and transparent operation of financial markets. We have clear policies, frameworks and governance in place to help us achieve these goals. These cover the way we behave, design products and services, train and incentivise employees, and interact with customers and each other. Our Conduct Framework guides activities to strengthen our business and increases our understanding of how the decisions we make affect customers and other stakeholders. Details on our Conduct Framework are available at www.hsbc.com.

We consider our customers' financial needs and personal circumstances to make suitable product recommendations.

This is supported by:

- global advisory standards and local regulations;
- a robust customer risk profiling methodology to help assess customers' financial objectives, investing knowledge and experiences, attitude towards risk, and ability to bear risk; and
- tools and calculators to help customers plan for their future.

Employees

We are working to create the right environment to help enable everyone to fulfill their potential.

At a glance

Our success is built on our ability to attract, develop and retain a diverse workforce comprised of the best and brightest talent. With a footprint that spans the globe, diversity of thought, perspective and experience is part of our DNA.

Our people are critical to our success and it is important that we listen to them and encourage them to speak up. We work to foster a culture that encourages and promotes the right behaviour, where diversity is celebrated and where people feel empowered to voice their opinions and concerns. We reward performance, and we offer extensive training and career development opportunities as well as flexible benefit packages and working arrangements.

How we listen

Understanding how our people feel about HSBC is vital. It helps us ensure that we are giving them the right support to achieve their potential and to serve our customers well. One way we support employees in speaking up is through HSBC Exchanges-meetings with no agendas, where managers and leaders listen and employees speak. Exchanges provide a forum for people to share their views on any issue and talk about what matters most to them. In addition, our Snapshot survey tests the views of a representative sample of colleagues on topics such as our strategy, culture and customer experience. The results of which are shared with our Board of Directors and Executive Committee.

When things go wrong

Having a culture where our people feel able to speak up is critical to our success. We have established multiple whistleblowing channels, including telephone hotlines, online platform and email to deal with a broad range of concerns at different severity levels. Though individuals are actively encouraged to raise concerns about wrongdoing or unethical conduct through their usual reporting channels, we understand that in some circumstances employees would prefer a more discrete way to raise their concerns. HSBC Confidential enables all employees to raise concerns on any issue, outside the usual escalation channels, in confidence and without fear of retaliation.

The bank does not condone or tolerate any acts of retaliation against anyone who reasonably believes that the concern that they have raised is true. Concerns raised are investigated thoroughly and independently.

Common themes for matters raised in 2019 included issues with employees' behaviour or conduct, allegations of fraud, and weaknesses with information security. Remedial activity has been undertaken where appropriate. This has included disciplinary action, adjustments to variable pay and adjustments to performance and behaviour ratings.

The Group Audit Committee has overall responsibility for reviewing the Group's whistleblowing policy and procedures, and receives regular updates on relevant concerns raised under these procedures, together with management actions taken in response. The Canada Board of Directors also receives a quarterly report with analysis of conduct issues and resulting actions.

Diversity and inclusion

Our commitment

We are committed to enabling a thriving environment where people are valued, respected and supported to fulfill their potential. By leveraging the extraordinary range of ideas, backgrounds, styles and perspectives of our employees to effectively meet the needs of our different stakeholder groups, we can drive better business outcomes for all. In Canada, HSBC employs 5,688 people. We work hard to build and maintain our inclusive, positive and performance-oriented culture. In 2019, we were recognized as one of Canada's Best Diversity Employers, and our President and CEO, Sandra Stuart, was recognized under the Company Leader category in the 2019 Catalyst Canada Honours Champions.

Gender balance at senior levels

The Board of Directors and Executive Committee of HSBC Bank Canada are gender balanced and have been since 2013. We continue to focus on improving gender balance in senior leadership across the bank.

Employee networks

We have eight employee resource groups which provide an important space where colleagues can speak up about internal and commercial issues and opportunities, create connections and learn from others. The groups focus on gender, age, ethnicity and culture, LGBT+ and ability.

To learn more about our approach to diversity and inclusion, benefits packages and career opportunities, visit www.hsbc.ca/careers.

Responsible business culture

Our purpose is to connect people with opportunities. With this purpose comes the responsibility to protect our customers, our communities and the integrity of the financial system.

At a glance

We act on our responsibility to run our business in a way that upholds high standards of corporate governance.

We are committed to working with our regulators to manage the safety of the financial system, adhering to the spirit and the letter of the rules and regulations governing our industry. We aim to act with courageous integrity and learn from past events to prevent their recurrence. We meet our responsibility to society through paying taxes and being transparent in our approach to this. We continually work to improve our compliance management capabilities.

Non-financial risks

We use a range of tools to monitor and manage our non-financial risks including our risk appetite, risk map, top and emerging risks and stress testing processes. During 2019, we continued to strengthen our approach to managing operational risk as set out in the operational risk management framework ('ORMF'). The approach sets out governance, appetite and provides an end-to-end view of non-financial risks, enhancing focus on the risks that matter the most and associated controls.

Further details on our non-financial risks may be found in the Risk section on page 27.

Cybersecurity

Cybersecurity continues to be a focus area and is routinely reported to the Audit Risk and Conduct Review Committee ('ARC') to ensure appropriate visibility, governance and executive support for our ongoing cybersecurity activities. We continue to strengthen and invest significantly in both business and technical controls in order to prevent, detect and respond to an increasingly hostile cyber threat environment. These include enhancing controls to protect against advanced malware, data leakage, infiltration of payments systems and denial of service attacks.

Financial crime compliance

The HSBC Group, including HSBC Bank Canada, has a responsibility to help protect the integrity of the global financial system. In order to fulfill that responsibility, we have made, and continue to make, significant investments in our ability to detect, deter and prevent financial crime. We take appropriate action where financial crime risk falls outside our risk appetite and maintain an HSBC Affiliate review program so each Affiliate can adequately protect the Group.

We are also working with governments and other banks to advance our collective interests in this area. We continue to invest in technology and training. In 2019, 99% of our workforce in Canada was trained via a mandatory e-learning course 'Fighting Financial Crime'. These steps are enabling us to reduce the risk of financial crime much more effectively.

Anti-bribery and corruption

We are committed to high standards of ethical behaviour and operate a zero-tolerance approach to bribery and corruption, which we consider unethical and contrary to good corporate governance. We require compliance with all anti-bribery and corruption laws in all markets and jurisdictions in which we operate. As part of financial crime risk management, we have a global anti-bribery and corruption policy. The policy gives practical effect to global initiatives such as the Organization of Economic Co-operation and Development ('OECD') Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and Principle 10 of the United Nations Global Compact.

Tax

We are committed to follow the letter and spirit of tax laws wherever we operate, including in Canada. We aim to have an open and transparent relationship with the tax authorities, ensuring that any areas of uncertainty or dispute are agreed and resolved in a timely and effective manner. As a consequence, we believe that we pay our fair share of taxes in Canada. We manage our tax risk through a formal tax risk management framework and apply global initiatives to improve transparency such as the U.S. Foreign Account Tax Compliance Act (FATCA) and the OECD Standard for Automatic Exchange of Financial Account Information (also known as the Common Reporting Standard).

Management's discussion and analysis

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Basis of preparation

HSBC Bank Canada and its subsidiary undertakings (together 'the bank', 'we', 'our') is an indirectly wholly-owned subsidiary of HSBC Holdings plc ('HSBC Holdings'). Throughout the Management's Discussion and Analysis ('MD&A'), the HSBC Holdings Group is defined as the 'HSBC Group' or the 'Group'.

The MD&A is provided to enable readers to assess our financial condition and results of operations for the quarter and year ended 31 December 2019, compared to the same periods in the preceding year. The MD&A should be read in conjunction with our 2019 consolidated financial statements and related notes for the year ended 31 December 2019 ('consolidated financial statements'). This MD&A is dated 13 February 2020, the date that our consolidated financial statements and MD&A were approved by our Board of Directors ('the Board'). The references to 'notes' throughout this MD&A refer to notes on the consolidated financial statements for the year ended 31 December 2019.

The bank has prepared its consolidated financial statements in accordance with International Financial Reporting Standards ('IFRS') and in consideration of the accounting guidelines as issued by the Office of the Superintendent of Financial Institutions Canada ('OSFI'), as required under Section 308(4) of the Bank Act. Certain sections within the MD&A, that are marked with an asterisk (*), form an integral part of the accompanying consolidated financial statements. The abbreviations '$m' and '$bn' represent millions and billions of Canadian dollars, respectively. All tabular amounts are in millions of dollars except where otherwise stated.

Our continuous disclosure materials, including interim and annual filings, are available through a link on the bank's website at www.hsbc.ca. These documents, together with the bank's *Annual Information Form*, are also available on the Canadian Securities Administrators' website at www.sedar.com. Complete financial, operational and investor information for HSBC Holdings and the HSBC Group, including HSBC Bank Canada, can be obtained from its website, www.hsbc.com, including copies of *HSBC Holdings Annual Report and Accounts 2019*. Information contained in or otherwise accessible through the websites mentioned does not form part of this report.

Caution regarding forward-looking statements

This document contains forward-looking information, including statements regarding the business and anticipated actions of the bank. These statements can be identified by the fact that they do not pertain strictly to historical or current facts. Forward-looking statements often include words such as 'anticipates', 'estimates', 'expects', 'projects', 'intends', 'plans', 'believes' and words and terms of similar substance in connection with discussions of future operating or financial performance. Examples of forward-looking statements in this document include, but are not limited, to statements made in 'Message from the President and Chief Executive Officer' on page 4, 'Our strategic priorities' on page 10, 'Economic review and outlook' on page 22, 'Regulatory developments' on page 23, and 'Employee compensation and benefits' on page 76. By their very nature, these statements require us to make a number of assumptions and are subject to a number of inherent risks and uncertainties that may cause actual results to differ materially from those contemplated by the forward-looking statements. We caution you to not place undue reliance on these statements as a number of risk factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. The risk management section of the MD&A describes the most significant risks to which the bank is exposed and, if not managed appropriately, could have a material impact on our future financial results. These risk factors include: credit risk, capital and liquidity risk, market risk, resilience risk, regulatory compliance risk, financial crime risk, model risk and pension risk. Refer to the 'Risk management' section of this report for a description of these risks. Additional factors that may cause our actual results to differ materially from the expectations expressed in such forward-looking statements include: general economic and market conditions, fiscal and monetary policies, changes in laws, regulations and approach to supervision, level of competition and disruptive technology, changes to our credit rating, climate change risk, IBOR transition, changes in accounting standards, changes in tax rates, tax law and policy, our ability to attract, develop and retain key personnel, risk of fraud by employees or others, unauthorized transactions by employees and human error. Refer to the 'Factors that may affect future results' section of this report for a description of these risk factors. We caution you that the risk factors disclosed above are not exhaustive, and there could be other uncertainties and potential risk factors not considered here which may adversely affect our results and financial condition. Any forward-looking statements in this document speak only as of the date of this document. We do not undertake any obligation to, and expressly disclaim any obligation to, update or alter our forward-looking statements, whether as a result of new information, subsequent events or otherwise, except as required under applicable securities legislation.

Who we are

HSBC Bank Canada is the leading international bank in the country. We help companies and individuals across Canada to do business and manage their finances here and internationally through three global businesses: Commercial Banking, Global Banking and Markets, and Retail Banking and Wealth Management. No international bank has our Canadian presence and no domestic bank has our international reach.

Canada is an important contributor to the HSBC Group growth strategy and a key player in the Group's work to support customers and drive growth, leveraging its footprint across all key trade corridors, including in North America, alongside the United States and Mexico, and with China.

HSBC Holdings plc, the parent company of the HSBC Group, is headquartered in London. HSBC serves customers worldwide from offices in 64 countries and territories in our geographical regions: Europe, Asia, North America, Latin America, and Middle East and North Africa. With assets of US$2,715bn at 31 December 2019, HSBC is one of the world's largest banking and financial services organizations.

Throughout our history we have been where the growth is, connecting customers to opportunities, enabling businesses to thrive and economies to prosper, helping people fulfill their hopes and dreams and realize their ambitions.

Shares in HSBC Holdings are listed on the London, Hong Kong, New York, Paris and Bermuda stock exchanges. The HSBC Holdings shares are traded in New York in the form of American Depositary Receipts.

Our strategy

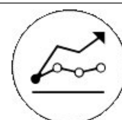
Our long-term strategy positions us to capture value from our international network, capitalizing on our unique combination of strategic advantages.

Strategic advantages

World's leading international bank	HSBC Bank Canada is an integral part of one of the most international banking and financial services organizations in the world. The value of our international network comes from our connections to the people and companies that drive economic activity across the globe. We provide products and services to meet diverse financial needs - from purchasing a new home to financing large infrastructure projects such as expansion of a regional port terminal. Our relationships reflect the geographic reach of our network and the range of customers we support.
Unparalleled access to high-growth markets and key trade corridors	Our network of customers provides us with significant insight into trade and capital flows across supply chains. When we bank customers on both sides of a transaction, we can help them overcome obstacles and operate more efficiently. We are uniquely positioned to be the bridge for customers, both large and small, between Canada and the rest of the world.
Business management	HSBC Bank Canada is focused on growth, with a strong capital, funding and liquidity position and diversified business model.

Our strategic priorities

HSBC Bank Canada refreshed our Country Strategic Plan in 2019, having achieved key milestones and targets of our previous three year plan.

 Gain market share and deliver growth from our international network	**International Network** The HSBC Group covers the world's largest and fastest growing trade corridors and economic zones. More than 50 per cent of the Group's client revenue derives from businesses and individuals with an international presence. Our global network and extensive expertise in international markets helps us build deeper and more enduring relationships with businesses and individuals with international needs, and provides a competitive advantage in serving Canadian retail and wealth management customers. We continue to realize value from the network across North America as our business works closely with our affiliates in the U.S. and Mexico. We work together in fulfilling our customers' cross border banking needs, including cross border product and sales initiatives and improvements in systems and processes to provide efficient cross border service. In 2019, HSBC was once again named North America's Best Bank for Transaction Services at Euromoney magazine's annual Awards for Excellence. Identifying new opportunities where the Group is present in Greater China and its ability to undertake transactions in the RMB currency can add value for our customers. We continue to work closely with our colleagues in Greater China to assist our clients in conducting business in this key trade corridor. In May 2019, HSBC was named 'Best RMB Bank in Canada' by The Asset as part of their Triple A Treasury, Trade, Supply Chain and Risk Management Awards.
 **Create capacity for investments through efficiency**	Our strong revenue growth has helped to support sustained investments as we continue to grow our digital capabilities and realize efficiency gains through automating or re-engineering processes. We continue to simplify our processes and focus on strong cost discipline and control to create capacity for increased investment. Our aim is to sustain cost discipline and control by continuing to benchmark our costs with the market, absorbing inflation through productivity gains and maintaining our focus on improving business productivity.
 Tap into emerging opportunities in fast growing segments and offer best in class products and services	We are focused on expanding our business in fast growing segments in Canada, including market-leading offerings to support the growth of our small and medium sized business customers, and in our Jade proposition to enable High Net Worth individuals to thrive. Our aim is to offer our customers best in class products and services, through continued investment in key product areas, digitizing and growing trade finance and strengthening our leadership position in liquidity and cash management.

Continue to put customers first and at the heart of everything we do	**Commercialize our investments in digital capabilities, people and products to deliver improved customer service** We continued to invest in people and technology to improve how we serve our customers across our core businesses. For example, we used technology to simplify applications and automate lending decisions for small business customers and continue to digitize trade services. Digital enhancements are also delivering improved customer service for our Commercial Banking customers. We continue to safeguard our customers and deliver industry-leading financial crime standards. Examples include enhancements in Identification and Verification and Know Your Customer policies and procedures across our business. Digital enhancements have strengthened our capabilities to manage financial crime risk and increase cyber security.
Develop and empower our people	We continue to focus on building a world class people organization and ensure our workforce is equipped with the necessary skills for banking in the future. We continue to invest in training and development focused on leadership, technical capabilities and digital and future skills to ensure our talent is empowered to shape and develop their own career paths.

Selected awards and recognition

Award	Awarded by
HSBC Bank Canada awards	
One of British Columbia's Top 100 Employers	Canada's Top 100 Employers, Mediacorp Canada Inc. (2019)
Canadian HR team of the Year (Finance or Insurance)	Canadian Human Resource Directs Reward (Sep 2019)
Canada's Best Diversity Employers	Canada's Top Employers, Mediacorp Canada Inc. competition (2019)
Canada's #1 Trade Finance Bank and Best Bank for Service Quality	Euromoney (2019)
Canada's Best RMB Bank	The Asset Triple A Treasury, Trade, Supply Chain and Risk Management Awards (2019)
Gold Award Multicultural - Experiential/Special Events/ Stunts	The Optimized Marketing Awards (2019)
Gold Award in Business Impact and Customer Experience for the Welcome Mat and Let's Meet 1:26 Campaigns	Canadian Marketing Association (2019)
Bronze Award in Engagement for Balance Tragedy campaign	Canadian Marketing Association (2019)
HSBC Group awards	
Stonewall Top Global Employer (for LGBTQ+)	Stonewall (2019)
World's Best Bank for Sustainable Finance, World's Best Bank for Public Sector Clients, Word's Best Bank for Small to Medium Enterprises	Euromoney Awards for Excellence (2019)
Top Trade Finance Bank globally and #1 Trade Bank in 16 countries/regions	Euromoney (2018 - 2019)
Best Global Transaction Bank and Best Transaction Bank in North America	The Banker (2019)
Covered Bond House of the Year	Global Capital Covered Bond Awards (2019)
#1 RMB bank for the 8th year in a row	Asiamoney Global RMB Poll (2019)

Implementation of the ServCo group

The HSBC Group has made recent changes to its corporate structure to mitigate or remove critical inter-dependencies. In particular, to remove operational dependencies (where one subsidiary bank provides critical services to another), the Group is in the process of transferring critical shared services, such as Information Technology related services, from subsidiary banks to a separately incorporated group of service companies ('ServCo group'), which is a subsidiary of HSBC Holdings plc.

Effective 1 January 2019, 608 employees and general and administrative expenses related to these shared services in Canada have been transferred from HSBC Bank Canada to the ServCo group. There were no changes to employment terms and conditions or pension benefits as a result of these transfers. From 1 January 2019, the bank has recognized an expense for the services provided by the ServCo group.

The net impact of the transfer of people, systems and other supporting assets did not have a significant impact on the performance or operations of the bank. The transfer has resulted in a decrease in net operating income of $17m for the quarter and $67m for the year, and a related reduction in total operating expenses of $17m for the quarter and $61m for the year. Historically, the income and expenses associated with these shared services were shown in the Corporate Centre and, to a smaller extent, in Commercial Banking.

Further details are provided in note 32.

Use of non-IFRS financial measures

In measuring our performance, the financial measures that we use include those which have been derived from our reported results. However, these are not presented within the consolidated financial statements and are not defined under IFRS. These are considered non-IFRS financial measures and are unlikely to be comparable to similar measures presented by other companies. The following non-IFRS financial measures are used throughout this document.

Return on average common shareholder's equity is calculated as profit attributable to the common shareholder for the period divided by average[1] common equity.

Return on average risk-weighted assets is calculated as profit before income tax expense divided by the average[1] risk-weighted assets.

Operating leverage/jaws is calculated as the difference between the rates of change for revenue and operating expenses.

Net interest margin is net interest income expressed as a percentage of average[1] interest earning assets.

Change in expected credit losses to average gross loans and advances and acceptances is calculated as the change in expected credit losses[2] as a percentage of average[1] gross loans and advances to customers and customers' liabilities under acceptances.

Change in expected credit losses on stage 3 loans and advances and acceptances to average gross loans and advances and acceptances is calculated as the change in expected credit losses[2] on stage 3 assets as a percentage of average[1] gross loans and advances to customers and customers' liabilities under acceptances.

Total stage 3 allowance for expected credit losses to gross stage 3 loans and advances and acceptances is calculated as the total allowance for expected credit losses[2] relating to stage 3 loans and advances to customers and acceptances as a percentage of stage 3 loans and advances to customers and customers' liabilities under acceptances.

Net write-offs as a percentage of average customer advances and acceptances is calculated as net write-offs as a percentage of average[1] net customer advances and customers' liabilities under acceptances.

The following supplementary financial measure calculated from IFRS figures as noted is used throughout this document.

Cost efficiency ratio is calculated as total operating expenses as a percentage of total operating income.

1. *The net interest margin is calculated using daily average balances. All other financial measures use average balances that are calculated using quarter-end balances.*
2. *Change in expected credit losses relates primarily to loans, acceptances and commitments.*

Financial highlights

Financial performance and position

($millions, except where otherwise stated)	Footnotes	Year ended 31 Dec 2019	31 Dec 2018	31 Dec 2017
Financial performance for the year ended 31 December				
Total operating income		**2,185**	2,264	2,070
Profit before income tax expense		**816**	991	895
Profit attributable to the common shareholder		**555**	681	630
Change in expected credit losses and other credit impairment charges - (charge)/release	1	**(78)**	27	n/a
Loan impairment recoveries/(charges) and other credit risk provisions	1	**n/a**	n/a	108
Operating expenses		**(1,291)**	(1,300)	(1,289)
Basic and diluted earnings per common share ($)		**1.11**	1.36	1.26

($millions, except where otherwise stated)	Footnotes	At 31 Dec 2019	31 Dec 2018	31 Dec 2017
Financial position at 31 December				
Total assets		**106,571**	103,406	96,379
Loans and advances to customers		**61,922**	57,123	50,337
Customer accounts		**62,889**	59,812	57,054
Ratio of customer advances to customer accounts (%)	2	**98.5**	95.5	88.2
Common shareholder’s equity		**5,009**	4,733	4,860

Financial and capital measures

	Footnotes	Year ended 31 Dec 2019	31 Dec 2018
Financial measures %	2		
Return on average common shareholder’s equity		**11.3**	14.5
Return on average risk-weighted assets	3	**2.0**	2.3
Cost efficiency ratio		**59.1**	57.4
Operating leverage/jaws		**(2.8)**	8.5
Net interest margin		**1.38**	1.53
Change in expected credit losses to average gross loans and advances and acceptances	1	**0.12**	n/a
Change in expected credit losses on stage 3 loans and advances and acceptances to average gross loans and advances and acceptances	1	**0.10**	n/a
Total stage 3 allowance for expected credit losses to gross stage 3 loans and advances and acceptances		**34.9**	35.8
Net write-offs as a percentage of average loans and advances and acceptances		**0.07**	0.15

		At 31 Dec 2019	31 Dec 2018
Capital measures	3		
Common equity tier 1 capital ratio (%)		**11.3**	11.3
Tier 1 ratio (%)		**13.9**	13.4
Total capital ratio (%)		**16.4**	16.0
Leverage ratio (%)		**4.9**	4.6
Risk-weighted assets ($m)		**42,080**	40,142
Liquidity coverage ratio (%)		**140**	132

1. *n/a is shown where the bank is in a net release position resulting in a negative ratio.*
2. *Refer to the ‘Use of non-IFRS financial measures’ section of this document for a discussion of non-IFRS financial measures.*
3. *The bank assesses capital adequacy against standards established in guidelines issued by OSFI in accordance with the Basel III capital adequacy framework.*

Financial performance

Summary consolidated income statement

	Quarter ended		Year ended	
	31 Dec 2019	31 Dec 2018	**31 Dec 2019**	31 Dec 2018
	$m	$m	**$m**	$m
Net interest income	**313**	335	**1,268**	1,292
Net fee income	**179**	164	**677**	673
Net income from financial instruments held for trading	**48**	26	**165**	136
Other items of income	**21**	40	**75**	163
Total operating income	**561**	565	**2,185**	2,264
Change in expected credit losses and other credit impairment charges - (charge)/release	**(33)**	(19)	**(78)**	27
Net operating income	**528**	546	**2,107**	2,291
Total operating expenses	**(315)**	(324)	**(1,291)**	(1,300)
Profit before income tax expense	**213**	222	**816**	991
Income tax expense	**(56)**	(65)	**(221)**	(273)
Profit for the period	**157**	157	**595**	718

For the quarter and year ended 31 December 2019 compared with the same periods in the prior year.

Q4 2019 vs. Q4 2018

HSBC Bank Canada reported operating income for the quarter of $561m a decrease of $4m or 0.7%. The creation of the ServCo group[1] to manage shared services led to a decrease of $17m in other operating income, along with a related reduction in operating expenses. Lower net interest income from balance sheet management activities and lower gains on disposal of financial investments, also contributed to the decrease in operating income.

This decrease was partly offset by strong growth in operating income in our global businesses. The global business results were driven by higher trading revenues and higher net interest income and net fee income as a result of growth in lending balances and total relationship balances[2].

The change in expected credit losses for the quarter of $33m was related to impairment charges from non-performing loans in the wholesale and retail trade sector and the impact of changes in macroeconomic variables on performing loans. The charge of $19m in the prior year's quarter was a result of a number of small charges in the non-performing wholesale portfolio.

Total operating expenses decreased by $9m or 2.8% for the quarter. The decrease was a result of a reduction in expenses from the creation of the ServCo group[1]. This was offset by our continued strategic investments to grow our businesses, simplify our processes and provide the digital services our customers are asking for.

Profit before income tax expense was down $9m or 4.1% for the quarter. The decrease was driven by lower net interest income from balance sheet management activities, the variance in expected credit losses and continued investments to grow our businesses, partly offset by continued growth in operating income from all our global businesses.

2019 vs. 2018

HSBC Bank Canada reported operating income for the year of $2.2bn a decrease of $79m or 3.5%. The creation of the ServCo group[1] to manage shared services led to a decrease in other operating income of $67m, along with a related reduction in operating expenses. Lower net interest income from balance sheet management activities and lower gains on disposal of financial investments, also contributed to the decrease in operating income.

This decrease was partly offset by increased operating income in both Commercial Banking and Retail Banking and Wealth Management of $37m or 3.9% and $25m or 3.4%, respectively. These global business results were driven by growth in lending balances and total relationship balances[2].

The change in expected credit losses for the year was a charge of $78m, compared to the expect credit loss release experienced in 2018. The charge in 2019 was mainly driven by impairment charges from non-performing loans related to accounts in the wholesale and retail trade, mining and agriculture sectors. The ongoing normalization of credit losses mainly from the change in the economic forecast compared to the prior year also contributed to the charges, which were partly offset by the release of provisions in the first quarter from certain customers in the energy service sector. The release in 2018 was mostly due to the economic factors at the time, which indicated credit quality improvements in the non-performing portfolio, most notably in the energy service sector.

Total operating expenses decreased by $9m or 0.7% for the year. The decrease was a result of a reduction in expenses from the creation of the ServCo group[1]. This was offset by our continued strategic investments to grow our businesses, simplify our processes and provide the digital services our customers are asking for.

Profit before income tax expense was down $175m or 18% for the year. The decrease was driven by the variance in expected credit losses, lower net interest income from balance sheet management activities, and continued investments to grow our businesses, partly offset by continued growth in operating income from Commercial Banking and Retail Banking and Wealth Management.

1. *The ServCo group was created on 1 January 2019, as described in the 'Implementation of the ServCo group' section of the MD&A and note 32 of the consolidated financial statements for the quarter and the year ended 31 December 2019.*
2. *Total relationship balances includes lending, deposits and wealth balances in the Retail Banking and Wealth Management business.*

Performance by income and expense item

For the quarter and year ended 31 December 2019 compared with the same periods in the prior year.

Net interest income

Net interest income decreased by $22m or 6.6% for the quarter. The decrease in the quarter was a result of higher costs to fund the growth in lending balances, and lower contribution from balance sheet management activities.

Net interest income decreased by $24m or 1.9% for the year due to the same factors as described for the quarter.

Summary of interest income by types of assets

		Quarter ended						Year ended					
		31 Dec 2019			31 Dec 2018			**31 Dec 2019**			31 Dec 2018		
	Footnotes	**Average balance**	**Interest income**	**Yield**	Average balance	Interest income	Yield	**Average balance**	**Interest income**	**Yield**	Average balance	Interest income	Yield
		$m	**$m**	**%**	$m	$m	%	**$m**	**$m**	**%**	$m	$m	%
Short-term funds and loans and advances to banks		**992**	**2**	**0.63**	785	1	0.62	**914**	**6**	**0.64**	804	4	0.53
Loans and advances to customers		**59,098**	**528**	**3.55**	55,095	514	3.70	**56,971**	**2,097**	**3.68**	52,599	1,858	3.53
Reverse repurchase agreements - non-trading		**7,345**	**43**	**2.31**	7,076	31	1.78	**7,821**	**174**	**2.22**	6,782	113	1.67
Financial investments		**25,165**	**114**	**1.79**	24,981	126	2.01	**25,362**	**492**	**1.94**	23,877	442	1.85
Other interest-earning assets		**748**	**3**	**1.51**	434	2	2.28	**765**	**16**	**2.03**	340	4	1.28
Total interest-earning assets (A)		**93,348**	**690**	**2.93**	88,371	674	3.03	**91,833**	**2,785**	**3.03**	84,402	2,421	2.87
Trading assets and financial assets designated at fair value	1	**5,840**	**25**	**1.69**	4,422	25	2.19	**6,144**	**110**	**1.79**	4,885	101	2.06
Non-interest-earning assets		**11,338**	**—**	**—**	11,941	—	—	**12,089**	**—**	**—**	11,544	—	—
Total		**110,526**	**715**	**2.57**	104,734	699	2.65	**110,066**	**2,895**	**2.63**	100,831	2,522	2.50

Summary of interest expense by type of liability and equity

		Quarter ended						Year ended					
		31 Dec 2019			31 Dec 2018			**31 Dec 2019**			31 Dec 2018		
	Footnotes	**Average balance**	**Interest expense**	**Cost**	Average balance	Interest expense	Cost	**Average balance**	**Interest expense**	**Cost**	Average balance	Interest expense	Cost
		$m	**$m**	**%**	$m	$m	%	**$m**	**$m**	**%**	$m	$m	%
Deposits by banks	2	**1,005**	**—**	**0.23**	926	1	0.39	**964**	**2**	**0.24**	928	2	0.25
Customer accounts	3	**56,525**	**212**	**1.49**	52,700	187	1.41	**54,865**	**851**	**1.55**	51,471	623	1.21
Repurchase agreements - non-trading		**8,379**	**43**	**2.04**	8,807	40	1.79	**9,302**	**192**	**2.06**	7,688	128	1.66
Debt securities in issue and subordinated debt		**15,988**	**107**	**2.64**	14,696	96	2.60	**15,291**	**412**	**2.69**	13,133	330	2.52
Other interest-bearing liabilities		**2,029**	**15**	**2.93**	2,118	15	2.75	**2,163**	**60**	**2.76**	1,852	46	2.45
Total interest bearing liabilities (B)		**83,926**	**377**	**1.78**	79,247	339	1.69	**82,585**	**1,517**	**1.84**	75,072	1,129	1.50
Trading liabilities	1	**2,997**	**12**	**1.67**	2,008	12	2.34	**3,484**	**60**	**1.73**	2,658	58	2.18
Non-interest bearing current accounts		**5,680**	**—**	**—**	6,264	—	—	**5,770**	**—**	**—**	6,141	—	—
Total equity and other non-interest bearing liabilities		**17,923**	**—**	**—**	17,215	—	—	**18,227**	**—**	**—**	16,960	—	—
Total		**110,526**	**389**	**1.40**	104,734	351	1.33	**110,066**	**1,577**	**1.43**	100,831	1,187	1.18
Net interest income (A-B)			**313**			335			**1,268**			1,292	

1. *Interest income and expense on trading assets and liabilities is reported in `Net income from financial instruments held for trading' in the consolidated income statement.*
2. *Includes interest-bearing bank deposits only.*
3. *Includes interest-bearing customer accounts only.*

Net fee income

	Quarter ended		Year ended	
	31 Dec 2019	31 Dec 2018	**31 Dec 2019**	31 Dec 2018
	$m	$m	**$m**	$m
Account services	**17**	16	**64**	64
Broking income	**2**	3	**8**	10
Cards	**18**	16	**66**	61
Credit facilities	**82**	80	**309**	294
Funds under management	**50**	46	**193**	190
Imports/exports	**2**	4	**11**	12
Insurance agency commission	**1**	2	**5**	6
Other	**9**	6	**46**	44
Remittances	**9**	9	**35**	34
Underwriting	**14**	7	**42**	47
Fee income	**204**	189	**779**	762
Less: fee expense	**(25)**	(25)	**(102)**	(89)
Net fee income	**179**	164	**677**	673

Net fee income increased by $15m or 9.1% for the quarter. The increase was mainly driven by higher underwriting fees in Global Banking and Markets and an increase in funds under management in Retail Banking and Wealth Management. In addition, credit facility fees increased from higher volumes of bankers' acceptances.

Net fee income increased by $4m or 0.6% for the year. Credit facility fees increased as a result of higher volumes of bankers' acceptances. Growth in net card revenues and funds under management also contributed to the increase. This was partly offset by higher fee expense from costs associated with clearing fees and the brokerage business, along with lower revenues from underwriting fees.

Net income from financial instruments held for trading

	Quarter ended		Year ended	
	31 Dec 2019	31 Dec 2018	**31 Dec 2019**	31 Dec 2018
	$m	$m	**$m**	$m
Trading activities	**32**	18	**103**	92
Credit valuation, debit valuation and funding fair value adjustments	**3**	(5)	**10**	–
Net interest from trading activities	**13**	13	**50**	43
Hedge ineffectiveness	**–**	–	**2**	1
Net income from financial instruments held for trading	**48**	26	**165**	136

Net income from financial instruments held for trading for the quarter increased by $22m or 85%. This was mainly driven by increased trading activities. Favourable funding fair value adjustments, as well as favourable credit valuations from tightening credit spreads also contributed to the increase.

Net income from financial instruments held for trading for the year increased by $29m or 21% driven by increased trading activities, higher net interest from trading activities due to product mix, balance sheet management activities, and favourable credit valuations from tightening credit spreads.

Other items of income

	Quarter ended		Year ended	
	31 Dec 2019	31 Dec 2018	**31 Dec 2019**	31 Dec 2018
	$m	$m	**$m**	$m
Changes in fair value of other financial instruments mandatorily measured at fair value through profit or loss	**–**	(2)	**–**	(2)
Gains less losses from financial investments	**10**	11	**38**	56
Dividend income	**–**	–	**–**	1
Other operating income	**11**	31	**37**	108
Other items of income	**21**	40	**75**	163

Other items of income decreased by $19m or 48% for the quarter. The decrease was driven by lower other operating income as a result of the implementation of the ServCo group, as described in 'Implementation of the ServCo group' section of the MD&A and note 32. This led to a reduction in other operating income with a related decrease in operating expenses. Lower gains on the disposal of financial investments from the re-balancing of the bank's liquid asset portfolio also contributed to the decrease for the quarter.

Other items of income decreased by $88m or 54% for the year driven by the same factors as described for the quarter.

Change in expected credit losses

	Quarter ended		Year ended	
	31 Dec 2019	31 Dec 2018	**31 Dec 2019**	31 Dec 2018
	$m	$m	**$m**	$m
Change in expected credit loss - performing loans (stage 1 and 2) - charge/(release)	**5**	12	**8**	8
Change in expected credit loss - non-performing loans (stage 3) - charge/(release)	**28**	7	**70**	(35)
Change in expected credit loss - charge/(release)	**33**	19	**78**	(27)

The change in expected credit losses for the quarter was a charge of $33m compared with charge of $19m for the same period in the prior year.

The charge in the current quarter is primarily related to impairment charges from non-performing loans in the wholesale and retail trade sector and the impact of changes in macroeconomic variables on performing loans.

The charge in the fourth quarter of 2018 was primarily due to a number of small charges in the non-performing Commercial Banking portfolio, as well as an increase in expected credit losses for performing loans, driven by changes in forward looking economic factors, across all of the global businesses.

The change in expected credit losses for the year resulted in a charge of $78m. The charge in 2019 was mainly driven by impairment charges from non-performing loans related to accounts in the wholesale and retail trade, mining and agriculture sectors. The ongoing normalization of credit losses mainly from the change in the economic forecast compared to the prior year also contributed to the charges. This was partly offset by a release of provisions in the first quarter as a result of improvements in the outlook of certain customers in the energy service sector.

The change in expected credit losses for the prior year resulted in a release of $27m. The release was driven by the economic factors at the time, which indicated credit quality improvements in the non-performing portfolio, most notably in the energy service sector.

Total operating expenses

	Quarter ended		Year ended	
	31 Dec 2019	31 Dec 2018	**31 Dec 2019**	31 Dec 2018
	$m	$m	**$m**	$m
Employee compensation and benefits	**144**	157	**658**	696
General and administrative expenses	**144**	154	**533**	555
Depreciation of property, plant and equipment	**19**	8	**72**	32
Amortization of intangible assets	**8**	5	**28**	17
Total operating expenses	**315**	324	**1,291**	1,300

Total operating expenses decreased by $9m or 2.8% for the quarter.

We continue to make strategic investments in our people, efficiency initiatives and technology to grow our businesses and make it more convenient for our customers to bank with us. These investments were offset by the implementation of the ServCo Group which caused a decrease in employee compensation and benefits and an increase in general and administrative expenses, as described in 'Implementation of the ServCo group' section of the MD&A and note 32. In addition, general and administrative expenses decreased with an offsetting increase in depreciation following the removal of certain lease payments of the right-of-use assets as a result of the implementation of IFRS 16, as described in note 2(m).

Total operating expenses decreased by $9m or 0.7% for the year driven by the same factors as described for the quarter.

Income tax expense

The effective tax rate for the quarter was 25.9%, compared with 29.4% for the same period in the prior year. The effective tax rate for the year was 27.0%, compared with 27.6% for 2018. The difference for both the quarter and the year was due to additional tax liabilities recorded in the prior year.

Movement in financial position

Summary consolidated balance sheet

	31 Dec 2019	31 Dec 2018
	$m	$m
Assets		
Cash and balances at central bank	**54**	78
Trading assets	**4,322**	3,875
Derivatives	**3,267**	4,469
Loans and advances	**63,091**	58,344
Reverse repurchase agreements – non-trading	**6,269**	5,860
Financial investments	**23,645**	24,054
Customers' liability under acceptances	**3,500**	3,932
Other assets	**2,423**	2,794
Total assets	**106,571**	103,406
Liabilities and equity		
Liabilities		
Deposits by banks	**1,036**	1,148
Customer accounts	**62,889**	59,812
Repurchase agreements – non-trading	**7,098**	8,224
Trading liabilities	**2,296**	2,164
Derivatives	**3,431**	4,565
Debt securities in issue	**14,594**	13,863
Acceptances	**3,505**	3,937
Other liabilities	**5,613**	4,110
Total liabilities	**100,462**	97,823
Total equity	**6,109**	5,583
Total liabilities and equity	**106,571**	103,406

Assets

Total assets at 31 December 2019 were $106.6bn, an increase of $3.2bn, or 3.1%, from 31 December 2018. This was primarily driven by strong growth in loans and advances of $4.7bn, as a result of growth in lending balances in our Commercial Banking business and growth in residential mortgages within our Retail Banking and Wealth Management business. These increases were partly offset by a decrease in derivatives of $1.2bn from foreign exchange and interest rate market movements.

Liabilities

Total liabilities at 31 December 2019 were $100.5bn, an increase of $2.7bn, or 2.7%, from 31 December 2018. Customer accounts increased by $3.1bn as result of deposit growth in Retail Banking and Wealth Management and Commercial Banking. Increases in settlement balances from timing of customers facilitation trades contributed to the increase in other liabilities of $1.5bn.

These increases were partly offset by a decrease in non-trading repurchase agreements of $1.1bn related to lower repurchase volumes and balance sheet management activities. In addition, mark-to-market changes from foreign exchange and interest rate market movements resulted in a decrease in derivatives of $1.1bn.

Equity

Total equity at 31 December 2019 was $6.1bn, an increase of $0.5bn, or 9.4%, from 31 December 2018. The increase represents profits after tax of $0.6bn generated in the period, gains of $0.1bn recorded on account of financial assets at fair value through other comprehensive income and cash flow hedges, and $0.3bn from the issuance of preferred shares. The increase was offset by dividends of $0.5bn declared in the period.

Global businesses

We manage and report our operations around the following global businesses: Commercial Banking, Global Banking and Markets, and Retail Banking and Wealth Management.

Commercial Banking

Commercial Banking ('CMB') offers a full range of commercial financial services and tailored solutions to customers ranging from small enterprises to corporates. The HSBC Group serves approximately 1.5 million CMB customers globally in 53 countries and territories. Canada is an important market for HSBC's CMB business and the fourth largest contributor to CMB profits. We are the leading international trade and business bank by connecting customers to global markets and by enhancing collaboration within the Group.

Our customers are segmented based on their needs and degree of complexity: Business Banking for small enterprises with standard banking needs; and Corporate Banking for companies with complex banking needs and a global footprint. Our front line is represented in four regions, British Columbia, Prairies, Ontario and Atlantic, and Quebec with dedicated relationship managers supporting either Business Banking or Corporate Banking customers.

Products and services

- *Credit and Lending:* we offer a broad range of domestic and cross-border financing solutions, including overdrafts, corporate cards, term loans, syndicated, leveraged, acquisition and project finance.
- *Global Trade and Receivables Finance ('GTRF'):* we support customers' access to the world's trade flows and provide unrivaled experience in addressing today's most complex trade challenges. Our comprehensive suite of products and services, letters of credit, collections, guarantees, receivables finance, supply chain solutions, commodity and structured finance and risk distribution, can be combined into global solutions that make it easier for businesses to manage risk, process transactions and fund activities throughout the trade cycle.
- *Global Liquidity and Cash Management ('GLCM'):* we are part of a global network strategically located where most of the world's payments and capital flows originate. We provide local, regional and global transaction banking services including payments, collections, account services, e-commerce and liquidity management via digital platforms such as HSBCnet and HSBC Connect. We have a market leading suite of Renminbi services to support Canadian customers' growing needs.
- *Collaboration:* our CMB franchise represents a key customer base for products and services provided by Global Banking & Markets and Retail Banking and Wealth Management, including foreign exchange, interest rate, capital markets and advisory services, personal accounts services, wealth management and wealth transition services.

Strategic direction

We support our customers with tailored relationship management and financial solutions to allow them to operate efficiently and to grow. Our network of businesses covers the world's largest and fastest growing trade corridors and economic zones. More than 50 per cent of our client revenue derives from businesses and individuals with an international presence. This includes providing customers with working capital solutions, term loans, payment services, international trade facilitation, project finance and enabling access to local and global pockets of capital markets. Building long-term relationships with reputable customers is core to our growth strategy and organizational values. We continue to invest in our technology and products to support the growth of our customers in a rapidly changing world. For example, in 2019 HSBC Canada introduced a liquidity management portal to allow customers to more accurately manage their daily liquidity positions. The bank also invested heavily in digital technology to enhance the customer experience. These investments underscore our efforts to put the customer first. The success was evidenced when GTRF was named Market Leader and Best Service in Trade Finance in Canada in the Euromoney Trade Finance Survey and when GLCM was voted the number one Global and Domestic Cash Manager for Corporates in the Euromoney Cash Management Survey.

In Canada, our strategic plan is focused on growing market share, increasing productivity by deepening product penetration, streamlining processes, leveraging our differentiated product suite in GTRF and GLCM, and building on our position as the leading international bank with enhanced access to key trade corridors. In 2019, these strategic initiatives led to: 10% growth in lending balances; 3.9% revenue growth overall, and double digit revenue growth in multiple regions and corridors. In 2019, the business continued to enhance its product offering with the commercialization of a number of deposit instruments offering customers better choice and helping to grow deposits. Our investment in online technology and process enhancements has enabled us to improve the customer experience to the benefit of new and existing clients. This is reflected in the improvement in our customer survey where the percentage of international customers rating our onboarding experience as 'Excellent' has shown double digit improvement since December 2018.

Review of financial performance

Summary income statement

	Year ended	
	31 Dec 2019	31 Dec 2018
	$m	$m
Net interest income	**608**	586
Non-interest income	**383**	368
Total operating income	**991**	954
Change in expected credit losses - (charge)/ release	**(47)**	38
Net operating income	**944**	992
Total operating expenses	**(405)**	(403)
Profit before income tax expense	**539**	589

Overview[1]

Total operating income in CMB increased by $37m or 3.9% for the year. Growth was achieved across most products and business segments, in line with the execution of our strategic plan.

Profit before income tax was $50m or 8.5% lower, as higher operating income was offset by higher loan impairment charges compared to the prior year. Operating expenses increased by $2m or 0.5% as a result of focused investments in our front line and technology to drive business growth, partly offset by prudent cost management.

Financial performance by income and expense item[1]

Net interest income increased by $22m or 3.8%. The increase is due to higher loan and deposit balance offset by higher rates paid to GLCM customers.

Non-interest income increased by $15m or 4.1%. This was primarily due to higher average bankers' acceptance balances during the period.

Change in expected credit losses resulted in a charge of $47m driven mainly by impairments recognized against specific accounts in the non-performing portfolio as well as increases in charges relating to the impact of changes in macroeconomic variables on performing loans. This compared to the prior year's release which, driven by economic factors at the time, indicated credit quality improvement in the non-performing portfolio, most notably in the

energy service sector.

Total operating expenses increased by $2m or 0.5% as a result of focused investments in our front line and technology to drive business growth, partly offset by prudent cost management.

1. *For the year ended 31 Dec 2019 compared with the same period in the prior year.*

Global Banking and Markets

Global Banking and Markets ('GB&M') provides tailored financial services and products to major government, corporate and institutional customers worldwide. Our comprehensive range of products and solutions across capital financing, advisory and transaction banking services, can be combined and customized to meet clients' specific objectives.

Products and services

GB&M takes a long-term relationship management approach to build a full understanding of customers' financial requirements and strategic goals. Customer coverage is centralized in Banking, under relationship managers who work to understand customer needs and provide holistic solutions by bringing together our broad array of products and extensive global network.

Our customer coverage and product teams are supported by a unique customer relationship management platform and a comprehensive customer planning process. Our teams use these platforms to better serve global customers and help connect them to international growth opportunities.

GB&M provides wholesale capital markets and transaction banking services through the following businesses.

- *Credit and Rates:* sells, trades and distributes fixed income securities to customers including corporates, financial institutions, sovereigns, agencies and public sector issuers. They assist customers in managing risk via interest rate derivatives and facilitate customer facing financing activities.
- *Foreign Exchange:* provides spot and derivative products to meet the investment demands of institutional investors, the hedging needs of businesses of all sizes as well as the needs of customers.
- *Capital Financing:* provides clients with a single integrated financing business, focused across a client's capital structure. Our expertise ranges from primary equity and debt capital markets, specialized structured financing solutions such as asset finance, leveraged and acquisition finance, infrastructure project and export finance, transformative merger and acquisition advisory and execution, and relationship-based credit and lending.
- *Global Liquidity and Cash Management:* helps customers move, control, access and invest their cash. Products include non-retail deposit taking and international, regional and domestic payments and cash management services.
- *Global Trade and Receivables Finance* provides trade services to support customers throughout their trade cycle.

Strategic direction

GB&M continues to pursue its well-established strategy to provide tailored, wholesale banking solutions, leveraging the HSBC Group's extensive distribution network.

We focus on four strategic initiatives:

- leveraging our distinctive geographical network which connects developed and faster-growing regions;
- connecting customers to global growth opportunities;
- being well positioned in products that will benefit from global trends; and
- enhancing collaboration with other global businesses to serve the needs of our international customers.

Operating with high standards of conduct is central to our long-term success and ability to serve customers, and we have clear policies, frameworks and governance in place to support our delivery of that commitment. Our management of financial crime and other risks, and simplifying processes also remain top priorities for GB&M.

Review of financial performance

Summary income statement

	Year ended	
	31 Dec 2019	31 Dec 2018
	$m	$m
Net interest income	**107**	107
Non-interest income	**220**	224
Total operating income	**327**	331
Change in expected credit losses - charge	**(13)**	(1)
Net operating income	**314**	330
Total operating expenses	**(155)**	(150)
Profit before income tax expense	**159**	180

Overview[1]

GB&M total operating income decreased by $4m or 1.2%, driven by lower activity in debt and equity capital markets activities and lower rates sales and trading revenues.

We continue to leverage the Group's global network to provide products and solutions to meet our global clients' needs. We have also increased the scale of our Multinational business by improving product penetration with existing customers.

Profit before income tax decreased by $21m or 12% as a result of higher expected credit loss charges, an increase in streamlining costs and marginally lower revenues.

Financial performance by income and expense item[1]

Net interest income was consistent with the prior year due to increased lending volumes including Global Trade and Receivables Finance, partly offset by the increased funding costs of Markets trading activities.

Non-interest income decreased by $4m or 1.8% primarily due to lower activity in debt and equity capital markets activities. This was partly offset by favorable movements in credit and funding valuation reserves due to the tightening of credit spreads.

Change in expected credit losses resulted in an increase of $12m compared to the prior year. The charge was mainly due to specific exposures in the energy industry and from the impact of changes in macroeconomic variables on performing loans.

Total operating expenses increased by $5m or 3.3% mainly due to streamlining initiatives.

1. *For the year ended 31 Dec 2019 compared with the same period in the prior year.*

Retail Banking and Wealth Management

Retail Banking and Wealth Management ('RBWM') offers a full range of competitive banking products and services for all Canadians to help them manage their finances, buy their homes, and save and invest for the future. Our business also has an international flavor with a large suite of global investment products and other specialized services available.

HSBC Premier and Advance propositions are aimed at mass affluent and emerging affluent customers who value a relationship based approach to banking. In addition, Jade offers an exclusive service for high-net-worth customers.

These services are offered by a skilled and dedicated team through our national network of branches and ATMs, and via telephone, online and mobile banking.

Products and services

We accept deposits and provide transactional banking services to enable customers to manage their day-to-day finances and save. We offer credit facilities to assist customers with their borrowing requirements, and we provide wealth advisory and investment services to help them to manage their finances.

Strategic direction

In delivering a full range of banking and wealth products and services through our branches and direct channels to individuals we focus on:

- building a consistent, high standard wealth management service for retail customers drawing on our wealth advisory and asset management businesses, putting the customer at the heart of what we do;
- leveraging global expertise to efficiently provide a high standard of banking solutions and service to our customers;
- leveraging our international capabilities to differentiate our offering; and
- investing in processes, distribution capabilities and product offerings across wealth and retail to improve the customer experience.

As a result of these initiatives, RBWM achieved record net sales[2] in total relationship balances[3] during the year while continuing to deepen customer relationships. Our management of financial crime and other risks also remain a top priority for RBWM.

Review of financial performance

Summary income statement

	Year ended	
	31 Dec 2019	31 Dec 2018
	$m	$m
Net interest income	**516**	489
Non-interest income	**246**	248
Total operating income	**762**	737
Change in expected credit losses - charge	**(18)**	(10)
Net operating income	**744**	727
Total operating expenses	**(686)**	(656)
Profit before income tax expense	**58**	71

Overview[1]

Total operating income in RBWM increased by $25m or 3.4% due to higher net interest income and strong growth in total relationship balances[3], marginally offset by lower non-interest income. The continued run-off of our consumer finance portfolio resulted in $3m decrease in revenues for the year.

Investments in our branches and digital technologies, along with competitive products, helped us grow our customer base and total relationship balances[3]. As a result of our initiatives, we welcomed more than 61,000 new customers to RBWM during the year.

Profit before income tax expense decreased by $13m or 18% due to higher operating expenses from the investments noted above and higher charges related to expected credit losses. These decreases were partly offset by higher revenues due to strong growth in total relationship balances[3], as described above.

Financial performance by income and expense item[1]

Net interest income increased by $27m or 5.5% primarily due to strong growth in both deposit and lending balances.

Non-interest income decreased by $2m or 0.8% primarily due to lower fee income from the online broker business and account services, partly offset by higher fee income from assets under management.

Change in expected credit losses resulted in a charge of $18m, an increase of $8m compared to the prior year, primarily due to changes in macroeconomic variables.

Total operating expenses increased by $30m or 4.6%. This was primarily due to strategic investments to grow our business and higher cost base associated with offering an enhanced service model to our growing client base.

1. *For the year ended 31 Dec 2019 compared with the same period in the prior year.*
2. *Record since inception of RBWM as a single global business in 2011.*
3. *Total relationship balances is comprised of lending, deposits and wealth balances.*

Corporate Centre

Corporate Centre contains Balance Sheet Management and other transactions which do not directly relate to our global businesses.

Review of financial performance

Summary income statement

	Year ended	
	31 Dec 2019	31 Dec 2018
	$m	$m
Net interest income	**37**	110
Non-interest income	**68**	132
Net operating income	**105**	242
Total operating expenses	**(45)**	(91)
Profit before income tax expense	**60**	151

Overview[1]

Net operating income decreased by $137m or 57%. The decrease was primarily due to lower non-interest income as a result of the implementation of the ServCo group, as described in 'Implementation of the ServCo group' section of the MD&A and note 32. Also contributing to the decrease were lower net interest income from balance sheet management activities, the negative impact from lower yields and an increase in interest expense as a result of the implementation of IFRS 16, as described in note 2(m). Lower gains on the disposal of financial investments compared to the prior year also contributed to the decrease.

Operating expenses decreased by $46m, or 51% primarily due to the implementation of the ServCo group, partly offset by investments in our support functions.

The impact of these movements decreased profit before income tax by $91m or 60% for the year.

1. *For the year ended 31 Dec 2019 compared with the same period in the prior year.*

Summary quarterly performance

Summary consolidated income statement

	Quarter ended							
	2019				2018			
	Dec 31	**Sep 30**	**Jun 30**	**Mar 31**	Dec 31	Sep 30	Jun 30	Mar 31
	$m	**$m**	**$m**	**$m**	$m	$m	$m	$m
Net interest income	**313**	**313**	**319**	**323**	335	332	319	306
Net fee income	**179**	**168**	**174**	**156**	164	175	179	155
Net income from financial instruments held for trading	**48**	**36**	**33**	**48**	26	35	39	36
Other items of income	**21**	**17**	**19**	**18**	40	46	33	44
Total operating income	**561**	**534**	**545**	**545**	565	588	570	541
Change in expected credit losses - (charge)/release	**(33)**	**(17)**	**(40)**	**12**	(19)	7	11	28
Net operating income	**528**	**517**	**505**	**557**	546	595	581	569
Total operating expenses	**(315)**	**(311)**	**(337)**	**(328)**	(324)	(324)	(334)	(318)
Profit before income tax expense	**213**	**206**	**168**	**229**	222	271	247	251
Income tax expense	**(56)**	**(56)**	**(47)**	**(62)**	(65)	(73)	(67)	(68)
Profit for the period	**157**	**150**	**121**	**167**	157	198	180	183
Profit attributable to:								
– common shareholder	**144**	**141**	**112**	**158**	148	189	171	173
– preferred shareholder	**13**	**9**	**9**	**9**	9	9	9	10
Basic and diluted earnings per common share ($)	**0.29**	**0.28**	**0.22**	**0.32**	0.29	0.38	0.34	0.35

Comments on trends over the past eight quarters

From the first quarter of 2019, net interest income has declined as a result of higher costs of liabilities to fund the growth in average interest earning assets, and lower contribution from balance sheet management activities. Net interest income trended upwards from the first quarter of 2018 to the last quarter of 2018 as a result of increased interest rates together with growth in loans and advances and customer accounts.

Net fee income is comprised of revenue from a number of sources that can fluctuate from quarter to quarter and are impacted by business activity, number of days in the quarter and seasonality. The largest driver of fluctuation from quarter to quarter in this line item is from underwriting fees which are event driven. Otherwise the underlying trend of growth in fees from credit facilities related to higher volumes of bankers acceptances, funds under management and credit cards.

Net income from financial instruments held for trading is, by its nature, subject to fluctuations from quarter to quarter. In the current and third quarter, net income from financial instruments held for trading increased mainly due to higher fixed income trading activities. In the second quarter, the decrease was mainly due to lower Rates trading activities. The first quarter in 2019 increased as a result of tightening credit spreads. 2018 also saw increased volumes of foreign exchange transactions, higher net interest from trading activities from higher yields and product mix, and favourable hedge ineffectiveness, which were partly offset by a loss relating to balance sheet management activities.

Other items of income include gains and losses from the sale of financial investments, which can fluctuate quarterly due to underlying balance sheet management activities. In 2019, as a result of the implementation of ServCo group, as described in 'Implementation of the ServCo group' section of the MD&A and note 32, there was a reduction in income from Group entities and a related decrease in operating expenses. In 2018, other items of income also included income from Group entities, which can also fluctuate due to the timing of services provided to Group.

The charges for expected credit losses in 2019 were driven by ongoing normalization of credit losses mainly from the change in the economic forecast reflecting a slowdown in GDP growth compared to the prior year. As well, 2019 saw impairment charges spike in the second and fourth quarters from non-performing loans in the wholesale and retail trade, mining and agriculture sectors. The reversal in the first quarter of 2019 was driven by the release of provisions as a result of improvements in the outlook of certain customers in the energy service sector. Effective 1 January 2018, the bank adopted IFRS 9. Strong credit performance together with active risk management led to a net release on the change in expected credit losses. The first three quarters of 2018 saw recoveries as a result of improvements in several sectors, most notably the energy services sector. There was a charge of $19m in the fourth quarter of 2018 as a result of a number of small charges in the non-performing Commercial Banking portfolio, as well as an increase in expected credit losses for performing loans driven by forward looking economic factors at the time across all of the global businesses.

From 2018 onwards, our focus has been on growing our business in support of our strategic plan, which resulted in increased operating expenses. In 2019, these investments were partly offset by a decrease in employee compensation and benefits and general and administrative expenses as a result of the implementation of ServCo group, as described in the 'Implementation of the ServCo group' section of the MD&A and note 32. In 2018, investments were partly offset by lower costs associated with a reduction in office space and leveraging the scale of centralizing specific business activities throughout the Group. The timing of expenses incurred in 2018 led to variances between the quarters.

Economic review and outlook

The predictions and forecasts in this section are based on information and assumptions from sources we consider reliable. If this information or these assumptions are not accurate, actual economic outcomes may differ materially from the outlook presented in this section.

The Canadian economy is set to experience its slowest expansion in three years, with growth forecast at 1.7% in 2019, following growth of 3.2% in 2017 and 2.0% in 2018. We forecast gross domestic product ('GDP') growth stabilizing at 1.5% in both 2020 and 2021.

Through much of 2019, the Canadian economy had remained quite resilient to a global economic slowdown. There were four key indicators of this: the strong job market which included the largest monthly increase in employment on record (106,500) in April; an improvement in factory sector output; rising exports and stability in the housing market.

However, heading into 2020, the resilience narrative has started to fade. In the fourth quarter, the pace of job creation slowed, manufacturing sales growth has stalled, and exports fell for a second straight quarter. That said, the housing market has

demonstrated some renewed vigour with housing starts and home sales improving after earlier slowdowns.

There are both domestic and foreign factors that may limit the pace of economic growth in 2020 and 2021. On the domestic side, we expect the hangover from heavily indebted households and past interest rate increases to continue to squeeze disposable income and limit consumption growth. While consumption's contribution to GDP is smaller than it has been over the past decade, it is still as positive, given ongoing job growth, positive wage growth, and with the unemployment rate expected to remain at historical lows.

Externally, there are a number of factors that are likely to continue to weigh on business and consumer confidence, even though there have been some positive developments in recent months. On the positive side, for example, NAFTA's replacement has been approved in the US Congress. The necessary legislation has been re-introduced in Canada and we expect it to be passed in coming months. Additionally, there are signs that global trade and factory sector activity are starting to stabilize following a slowdown in activity in 2019.

Notwithstanding these developments, global geopolitical uncertainty lingers, global trade tensions are seen as a persistent downside risk to the economic outlook in 2020, and the signs of global economic stabilization give few indications of renewed positive momentum. The more recent outbreak of the coronavirus also presents a source of economic uncertainty in early 2020. These risks are seen restraining business capital expenditures, and potentially further curbing consumer activity.

Immigration, population and GDP growth

Much of Canada's GDP growth from mid-2017 onwards has been the result of population growth, principally inward international migration. The increase in net international migration has two components: the first was the Federal government's policy to increase immigration from around 250,000 per year to 330,000 in 2019, 341,000 in 2020 and 350,000 in 2021.

The second component was an increase in non-permanent residents, namely foreign students, foreign temporary workers and refugees. In 2019, there was a net inflow of more than 176,000 non-permanent residents. This compares to a net outflow as recently as 2015.

With much recent GDP growth tied to population growth, GDP per capita has been flat since mid-2017. This aligns with weak productivity growth and mediocre business capital expenditure trends. Given that productivity gains are a key driver of living standards, it is imperative to benefit as much as possible from the human capital brought by those who immigrate.

The debt overhang

Despite the strong job market and rising wage growth, there are clear signs of increased financial strains in the household sector, reflecting historically high levels of debt and past interest rate increases. As a result, the household debt service ratio is at a record high of 15% of disposable income.

Amid these greater financial burdens, consumer insolvencies have steadily increased through 2019. Insolvencies are up most notably in the commodity and/or trade-sensitive regions, in part reflecting global challenges. That said, the greatest financial obligation of most households remains their mortgage, and mortgage arrears still remain quite low overall. This is primarily due to the ongoing strength of the job market. Thus, while high household sector debt levels are likely to remain a headwind to economic growth, the job market is expected to limit any risks to financial stability from elevated debt levels.

Policy response

The loss of momentum in the economy in late 2019 as the resilience of the economy faded, downside risks to domestic demand, and the vulnerability of household finances to potential labour market weakness, the Bank of Canada is expected to cut its policy rate by 25 basis points to 1.5% in the second quarter of 2020. While lower rates might provide more support to the rebounding housing market, they are also an important factor in limiting the downside economic risks that might weigh on the job market.

On the fiscal policy front, the Federal government is slated to run deficits of more than $20bn over the fiscal years of 2019/20 to 2020/21, with no time line to return to balanced budgets. In part these deficits will be the result of the Liberal government personal tax cuts that were introduced in late 2019 and an adjustment for future pension benefits.

These two developments will leave the federal debt to GDP ratio above 30% through fiscal year 2022/23 leaving room for additional fiscal stimulus should downside risk to the economic outlook materialize.

Regulatory developments

Like all Canadian financial institutions, we face an increasing pace of regulatory change. The following is a summary of some key regulatory changes with the potential to impact our results or operations:

Deposit Insurance Modernization

Changes to Canada Deposit Insurance Corporation ('CDIC') Act passed in 2018 will extend CDIC coverage to foreign currency deposits beginning 30 April 2020. Effective 30 April 2021, banks will also have to comply with new rules for classification and record keeping for trust accounts to aid in fast resolution of claims in the event of bank failure.

Anti-Money Laundering

Significant amendments to Canada's Proceeds of Crime regulations were introduced in June 2019 that expanded types of transactional information that must be tracked and reported by HSBC to its regulator Financial Transactions and Reports Analysis ('FINTRAC'). These new requirements will apply in two stages over 2020 and 2021.

Consumer Protection

Amendments made to the Bank Act in December 2018 create a new Financial Consumer Protection framework which included new obligations for banks related to disclosure, corporate governance, business conduct and protection of retail consumers. Greater powers have also been given to the Financial Consumer Agency of Canada ('FCAC'). These changes are expected to come into force in 2020 and 2021.

HSBC has also committed to the Canadian Bankers Association 'Code of Conduct for the Delivery of Banking Services to Seniors'. The Code requires banks to establish seniors' specific policies and procedures, staff training, effective communication and reporting. Banks will have to come into compliance with the various elements of the Code over staggered deadlines in 2020 and 2021.

In October 2019, significant amendments were made to securities laws that govern advisers, dealers and investment fund managers in HSBC's wealth management businesses. These Client Focused Reforms ('CFR's) will introduce numerous new obligations on advisors and dealers in the area of product suitability, conflicts of interest and disclosure. Certain reforms must be implemented by 31 December 2020 and the remaining new requirements by 31 December 2021.

Payments Modernization

Planned modernization of Canada's national payments infrastructure will replace existing platforms with new core systems that will operate under an enhanced risk, regulatory and rules framework. Once implemented, the enhanced regime is expected to help clear transactions faster and more frequently for customers.

Open Banking

The Department of Finance launched consultations in January 2019 on the merits of introducing Open Banking into the Canadian marketplace. Open Banking has the potential to drive changes to traditional bank business models.

Prudential Regulatory Reform

Liquidity Risk

The Office of the Superintendent of Financial Institutions ('OSFI') published revisions to its Liquidity Adequacy Requirements ('LAR') Guideline to ensure its liquidity metrics remain sound and prudent. Key changes include targeted revisions to the treatment of certain retail deposits in the Liquidity Coverage Ratio and Net Cumulative Cash Flow. Financial institutions need to comply with the new requirements with effect from 1 January 2020. For further details, refer to the 'liquidity and funding risk' section of the MD&A.

Interest Rate Risk Management

Revisions to OSFI Guideline B-12 Interest Rate Risk Management have been made to incorporate Basel Committee standards for expected methods to be used by banks to measure, manage and monitor Interest Rate Risk on the Banking Book. HSBC will need to implement the new standards by 1 January 2021.

Basel III Reforms

In December 2017, the Basel Committee ('Basel') published revisions to the Basel III framework with the key objectives to reduce variability of Risk Weighted Assets and provide a regulatory foundation for a resilient Banking System. The final package includes widespread changes to the risk weights under the standardized approach to credit risk; a change in the scope of application of the internal ratings based ('IRB') approach to credit risk; revisions to the IRB methodology, operational risk and credit valuation adjustment ('CVA') capital framework; aggregate output capital floor; and changes to the exposure measure for the leverage ratio. Basel has announced that the package will be implemented on 1 January 2022.

Canada

OSFI expressed its support for implementing the Basel III reforms published by Basel in December 2017. However, in July 2018, OSFI proposed to make certain modifications to the reforms for implementation in Canada, with the objective to accommodate the unique characteristics of the Canadian market. We have provided a response to the consultation paper through Canadian Bankers' Association in October 2018. We have been participating in OSFI's domestic consultations on the revised Basel III reforms rules in 2019 and 2020. OSFI expects to have further consultation on Capital Adequacy Requirements on Credit Risk and Operational Risk and Leverage Requirements Guideline in late Spring 2020.

In July 2019, OSFI announced it is revising its capital requirements for Operational Risk to require the use of Basel III standardized approach for calculation of operational risk capital, the use of internal loss data will be part of the calculation. The new approach will be effective from first quarter of 2022. OSFI also published a discussion paper on 'Advancing Proportionality: Tailoring Capital and Liquidity Requirements for Small and Medium-Sized Deposit-Taking Institutions', which mostly has application to the smaller banks. We will be assessing the impact based on the final requirements.

Revisions to the Minimum capital requirements for market risk

In January 2019, Basel published its final standard on the Minimum capital requirements for market risk, upon the completion of the fundamental review of the trading book ('FRTB') project. The standard specified stricter criteria for the assignment of instruments to the trading book; overhauled the internal models approach to better address risks; reinforced the supervisory approval process; and introduced a new, more risk-sensitive standardized approach. This revised standard is expected to come into effect on 1 January 2022.

Critical accounting estimates and judgments*

The preparation of financial information requires the use of estimates and judgments about future conditions.

In view of the inherent uncertainties and the high level of subjectivity involved in the recognition or measurement of items discussed below, it is possible that the outcomes in the next financial year could differ from those on which management's estimates are based, resulting in materially different conclusions from those reached by management for the purposes of the 2019 consolidated financial statements. Management's selection of the bank's accounting policies which contain critical estimates and judgments are discussed below; it reflects the materiality of the items to which the policies are applied and the high degree of judgment and estimation uncertainty involved.

Expected credit loss

The bank's accounting policy for determining expected credit loss ('ECL') is described in note 2. The most significant judgments relate to defining what is considered to be a significant increase in credit risk, determining the lifetime and point of initial recognition of revolving facilities and in making assumptions and estimates to incorporate relevant information about past events, current conditions and forecasts of economic conditions. A high degree of uncertainty is involved in making estimations using assumptions which are highly subjective and very sensitive to the risk factors.

The probability of default ('PD'), loss given default ('LGD'), and exposure at default ('EAD') models which support these determinations are reviewed regularly in light of differences between loss estimates and actual loss experience. Judgment is required in selecting and calibrating the PD, LGD, and EAD models, which support the calculations, including making reasonable and supportable judgments about how models react to current and future economic conditions.

Additionally, judgment is required in selecting model inputs and economic forecasts, including determining whether sufficient and appropriately weighted forecasts are incorporated to calculate unbiased expected loss. The 'measurement uncertainty and sensitivity analysis of ECL estimates' section of this report sets out the assumptions used in determining ECL and provides an indication of different weightings being applied to different economic assumptions.

Valuation of financial instruments

The bank's accounting policy for determining the fair value of financial instruments is described in note 2. The best evidence of fair value is a quoted price in an actively traded principal market. In the event that the market for a financial instrument is not active, a valuation technique is used.

The majority of valuation techniques employ only observable market data. However, certain financial instruments are valued on the basis of valuation techniques that feature one or more significant market inputs that are unobservable, where the measurement of fair value is

more judgmental. An instrument in its entirety is classified as valued using significant unobservable inputs if, in the opinion of management, a significant proportion of the instrument's inception profit or greater than 5% of the instrument's valuation is driven by unobservable inputs. 'Unobservable' in this context means that there is little or no current market data available from which to determine the price at which an arm's length transaction would be likely to occur. It generally does not mean that there is no data available at all upon which to base a determination of fair value (consensus pricing data may, for example, be used).

Income taxes and deferred tax assets

The bank's accounting policy for the recognition of income taxes and deferred tax assets is described in note 2. Tax laws are complex and can be subject to interpretation. Management applies its own judgment to the application and interpretation of tax laws, but the interpretation by the relevant tax authorities may differ. Tax liabilities are recognized based on best estimates of the probable outcome. If the final outcome is in favor of the decisions made by the relevant tax authorities, additional liabilities and expense in excess of the amounts recorded may result.

The recognition of a deferred tax asset relies on an assessment of the probability and sufficiency of future taxable profits, future reversals of existing taxable temporary differences and ongoing tax planning strategies. The most significant judgments relate to expected future profitability and to the applicability of tax planning strategies, including corporate reorganizations.

Defined benefit obligations

The bank's accounting policy for the recognition of defined benefit obligations is described in note 2. As part of employee compensation, the bank provides certain employees with pension and other post-retirement benefits under defined benefit plans which are closed to new entrants. In consultation with its actuaries, the bank makes certain assumptions in measuring its obligations under these defined benefit plans as presented in note 5.

The principal actuarial financial assumptions used in calculation of the bank's obligations under its defined plans are in respect of discount rate and rate of pay increase that form the basis for measuring future costs under the plans. The discount rates to be applied to its obligations are determined on the basis of the current and approximate average yield of high quality Canadian corporate bonds, with maturities consistent with those of the defined benefit obligations. Assumptions regarding future mortality are based on published mortality tables.

Changes in accounting policy during 2019

The bank adopted the requirements of IFRS 16 'Leases' ('IFRS 16') from 1 January 2019. As a result of the adoption of IFRS 16, the bank has recognized a right-of-use asset and a corresponding financial liability on the balance sheet. In accordance with the IFRS 16 transition options, the bank has applied the standard using a modified retrospective approach where the cumulative effect of initially applying the standard, if any, is recognized as an adjustment to the opening balance of retained earnings and comparative balances are not restated. The adoption of IFRS 16 by the bank had no impact to retained earnings as the bank measured right-of-use assets at an amount equal to the lease liability recognized on transition which is a permitted transition options for IFRS 16. The impact on assets and liabilities is set out under note 2(m).

The bank adopted the 'Interest Rate Benchmark Reform' amendments to IAS 39 published by the IASB in September 2019. The amendments modify specific hedge accounting requirements so that entities can apply those hedge accounting requirements assuming that the interest rate benchmark on which the hedged cash flows and cash flows of the hedging instrument are based is not altered as a result of interest rate benchmark reform. These amendments replace the need for specific judgments to determine whether certain hedge accounting relationships that hedge the variability of cash flows or interest rate risk exposures for periods after the interest rate benchmarks are expected to be reformed or replaced continue to qualify for hedge accounting as at 31 December 2019. For example, in the context of cash flow hedging, the amendments require the Interbank offered rates ('IBOR') cash flows to be assumed to be highly probably over the period of the documented hedge relationship, while uncertainty over the interest rate benchmark reform exists. The IASB is expected to provide further guidance on the implication for hedge accounting during the reform process and after the reform uncertainty is resolved. These amendments apply from 1 January 2020 with early adoption permitted. The bank has adopted the amendments that apply to IAS 39 from 1 January 2019 and has made the additional disclosures as required by the amendments. Further information is included in note 12.

In addition, the bank has also adopted a number of interpretations and amendments to standards which have had an insignificant effect on the consolidated financial statements of the bank.

Future accounting developments

The International Accounting and Standards Board ('IASB') has issued standards on insurance contracts in 2017 which is discussed below and which may represent significant changes to accounting requirements in the future.

Major new IFRSs

IFRS 17 'Insurance contracts'

The IASB issued IFRS 17 'Insurance contracts' in May 2017. It sets out the requirements that an entity should apply in accounting for insurance contracts it issues and reinsurance contracts it holds. IFRS 17 is effective from 1 January 2021, although the IASB is considering delaying the mandatory implementation date by one year. The bank is considering the impact of IFRS 17 on the consolidated financial statements of the bank.

Minor amendments to IFRSs

The IASB has published a number of minor amendments to IFRSs which are effective from 1 January 2020. We expect they will have an insignificant effect, when adopted, on our consolidated financial statements.

Off-balance sheet arrangements

As part of our banking operations, we enter into a number of off-balance sheet financial transactions that have a financial impact, but may not be recognized in our financial statements. These types of arrangements are contingent and may not necessarily, but in certain circumstances could, involve us incurring a liability in excess of amounts recorded in our consolidated balance sheet. These arrangements include guarantees and letters of credit.

Guarantees and letters of credit

We routinely issue financial and performance guarantees and documentary and commercial letters of credit on behalf of our customers to meet their banking needs. Guarantees are often provided on behalf of customers' contractual obligations, particularly providing credit facilities for customers' overseas trading transactions and in construction financings. Letters of credit are often used as part of the payment and documentation process in international trade arrangements.

Although guarantees and letters of credit are financial instruments, they are considered contingent obligations and the notional amounts are not included in our financial statements, as there are no actual advances of funds. Any payments actually made under these obligations are recorded as loans and advances to our customers. In accordance with accounting standards for financial instruments, we record the fair value of guarantees made on behalf of customers.

For credit risk management purposes, we consider guarantees and letters of credit to be part of our customers' credit facilities, which are subject to appropriate risk management procedures. Guarantees and letters of credit are considered to be part of our overall credit exposure, as set out in the analysis of our loan portfolio of the MD&A.

Further details on off-balance sheet arrangements can be found in note 27.

Financial instruments

Due to the nature of the bank's business, financial instruments compose a large proportion of our Balance Sheet, from which the bank can earn profits in trading, interest, and fee income. Financial instruments include, but are not limited to, cash, customer accounts, securities, loans, acceptances, hedging and trading derivatives, repurchase agreements, securitization liabilities and subordinated debt. We use financial instruments for both non-trading and trading activities. Non-trading activities include lending, investing, hedging and balance sheet management. Trading activities include the buying and selling of securities and dealing in derivatives and foreign exchange as part of facilitating client trades and providing liquidity and, to a lesser extent, market making activity.

Financial instruments are accounted for according to their classification and involves the use of judgment. A detailed description of the classification and measurements of financial instruments is included in note 2.

The use of financial instruments has the potential of exposing the bank to, or mitigating against, market, credit and/or liquidity risks. A detailed description of how the bank manages these risks can be found on page 27 of the MD&A.

Disclosure controls and procedures, and internal control over financial reporting

Disclosure controls and procedures are designed to provide reasonable assurance that all relevant information required to be disclosed in reports filed or submitted under Canadian securities laws is recorded, processed, summarized and reported within the time periods specified under those laws. These include controls and procedures that are designed to ensure that information is accumulated and communicated to management, including the Chief Executive Officer ('CEO') and the Chief Financial Officer ('CFO'), to allow timely decisions regarding required disclosure.

Internal control over financial reporting is designed to provide reasonable assurance that the financial reporting is reliable and that consolidated financial statements are prepared in accordance with IFRS. Management is responsible for establishing and maintaining adequate internal control over financial reporting. These controls include those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the bank;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of the consolidated financial statements in accordance with IFRS and that receipts and expenditures of the bank are being made only in accordance with authorizations of management; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the bank's assets that could have a material effect on the consolidated financial statements.

Because of the inherent limitations, internal control over financial reporting may not prevent or detect misstatements on a timely basis. Furthermore, projections of any evaluation of the effectiveness of internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

During 2019, management has evaluated, with the participation of, or under the supervision of, the CEO and the CFO, the effectiveness of our disclosure controls and procedures and the design and effectiveness of the internal control over financial reporting as required by the Canadian securities regulatory authorities under National Instrument 52-109. The evaluation of internal control over financial reporting was performed using the framework and criteria established in the Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in May 2013. Based on these evaluations, management has concluded that the design and operation of these disclosure controls and procedures and internal control over financial reporting were effective as at 31 December 2019.

Changes in internal control over financial reporting

There were no changes in our internal control over financial reporting during the year ended 31 December 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Related party transactions

We enter into transactions with other HSBC affiliates, as part of the normal course of business, such as banking and operational services. In particular, as a member of one of the world's largest financial services organizations, we share in the expertise and economies of scale provided by the HSBC Group. We provide and receive services or enter into transactions with a number of HSBC Group companies, including sharing in the cost of development for technology platforms used around the world and benefit from worldwide contracts for advertising, marketing research, training and other operational areas. These related party transactions are on terms similar to those offered to non-related parties and are subject to formal approval procedures that have been approved by the bank's Conduct Review Committee. Further details can be found in note 29.

In 2019, the bank transferred certain shared services to HSBC Global Services (Canada) Limited which is an indirect wholly-owned subsidiary of HSBC Holdings. Further details can be found in the 'Implementation of the ServCo group' section of the MD&A and note 32.

On 27 September 2019, the bank issued Class 1 preferred shares Series K that are non-voting non-cumulative and redeemable to HSBC Overseas Holdings (UK) Limited. Further details can be found in the 'Outstanding shares and dividends' section of the MD&A.

All of our common shares are indirectly held by HSBC Holdings as a wholly-owned subsidiary.

Risk

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Our approach to risk

Our conservative risk appetite

We have maintained a conservative risk profile throughout our history. This is central to our business and strategy.

We recognize that the primary role of risk management is to protect our business, customers, colleagues, shareholder and the communities that we serve while enabling sustainable growth.

We have long recognized the importance of a strong risk culture, which refers to our shared attitudes, values and norms that shape behaviours related to risk awareness, risk taking and risk management. All employees are responsible for the management of risk, with the ultimate accountability residing with the Board.

The following principles guide the Group's overarching appetite for risk and determine how our businesses and risks are managed.

Financial position

- We aim to maintain a strong capital position, defined by regulatory and internal capital ratios.

Operating model

- We seek to generate returns in line with a conservative risk appetite and strong risk management capability.
- We aim to deliver sustainable earnings and consistent returns for our shareholder.

Business practice

- We have zero tolerance for any of our people to knowingly engage in any business, activity or association where foreseeable reputational risk or damage has not been considered and/or mitigated.
- We have no appetite for deliberately or knowingly causing detriment to consumers, or incurring a breach of the letter or spirit of regulatory requirements.
- We have no appetite for inappropriate market conduct by a member of staff or by any business.

Enterprise-wide application

Our risk appetite encapsulates consideration of financial and non-financial risks. We define financial risk as the risk of a financial loss as a result of business activities. We actively take these types of risks to maximize shareholder value and profits. Non-financial risk is defined as the risk to achieving our strategy or objectives as a result of inadequate or failed internal processes, people and systems or from external events.

The Board reviews and approves the risk appetite semi-annually to make sure it remains fit for purpose. The risk appetite is considered, developed and enhanced through:

- an alignment with our strategy, purpose, values and customer needs;
- trends highlighted in other risk reports, such as the 'Risk map' and 'Top and emerging risks';
- communication with risk stewards on the developing risk landscape;
- strength of our capital, liquidity and balance sheet;
- compliance with applicable laws and regulations;
- effectiveness of the applicable control environment to mitigate risk, informed by risk ratings from risk control assessments;
- functionality, capacity and resilience of available systems to manage risk; and
- the level of available staff with the required competencies to manage risks.

We formally articulate our risk appetite through our risk appetite statement ('RAS'), which is approved by the Board on the recommendation of the Audit, Risk and Conduct Review Committee ('ARC'). Setting out our risk appetite helps to make sure that planned business activities provide an appropriate balance of return for the risk we are taking, and that we agree a suitable level of risk in line with our strategy.

The RAS consists of qualitative statements and quantitative metrics, covering financial and non-financial risks. It is fundamental to the development of business line strategies, strategic and business planning, and senior management balanced scorecards.

Performance against the RAS is reported to the Risk Management Meeting ('RMM') on a monthly basis so that any actual performance that falls outside the approved risk appetite is discussed and appropriate mitigating actions are determined. This reporting allows risks to be promptly identified and mitigated, and informs risk-adjusted remuneration to drive a strong risk culture.

Risk management

We recognize that the primary role of risk management is to protect our business, customers, colleagues, shareholders and the communities that we serve, while ensuring we are able to support our strategy and provide sustainable growth. We use a comprehensive risk management framework across the organization and across all risk types, underpinned by HSBC culture and values. This outlines the key principles, policies and practices that we employ in managing material risks, both financial and non-financial.

The framework fosters continual monitoring, promotes risk awareness and encourages sound operational and strategic decision making. It also ensures a consistent approach to identifying, assessing, managing and reporting the risks we accept and incur in our activities.

Our risk management framework

The following diagram and descriptions summarize key aspects of the framework, including governance and structure, our risk management tools and our risk culture, which together help align employee behaviour with our risk appetite.

Key components of our risk management framework

HSBC Values and risk culture		
Risk governance	Non-executive risk governance	The Audit, Risk and Conduct Review Committee of the Board approves the bank's risk appetite, plans and performance targets.
	Executive risk governance	Responsible for the enterprise-wide management of all risks, including key policies and frameworks for the management of risk.
Roles and responsibilities	Three lines of defence model	Our 'three lines of defence model' defines roles and responsibilities for risk management. An independent Risk function helps ensure the necessary balance in risk/return decisions.
Processes and tools	Risk appetite	Processes to identify/assess, monitor, manage and report risks to ensure we remain within our risk appetite.
	Enterprise-wide risk management tools	
	Active risk management: identification/assessment, monitoring, management and reporting	
Internal controls	Policies and procedures	Policies and procedures define the minimum requirements for the controls required to manage our risks.
	Control activities	The operational risk management framework defines minimum standards and processes for managing operational risks and internal controls.
	Systems and infrastructure	Systems and/or processes that support the identification, capture and exchange of information to support risk management activities.

Systems and tools

Risk Governance

The Board has ultimate responsibility for the effective management of risk and approves our risk appetite. It is advised on risk-related matters by the Audit Risk and Conduct Review Committee ('ARC').

The Chief Risk Officer, supporting by the Risk Management Meeting ('RMM') of the bank's senior executives, holes executive accountability for the ongoing monitoring, assessment and management of the risk environment and the effectiveness of the risk management framework.

The Chief Risk Officer is responsible for oversight of reputational risk and is supported by Reputational Risk and Client Selection Committees ('RRCSC') for each line of business. The RRCSCs consider matters arising from customers, transactions and third parties that either present a serious potential reputational risk to the bank.

The management of financial crime risk resides with the Head of Financial Crime Risk who is supported by the Financial Crime Risk Management Committee.

Day-to-day responsibility for risk management is delegated to senior managers with individual accountability for decision making. All our people have a role to play in risk management. These roles are defined using the three lines of defence model, which takes into account our business and functional structures as described in the following commentary, under 'Our responsibilities'.

We use a defined executive risk governance structure to help ensure appropriate oversight and accountability of risk, which facilitates reporting and escalation to the RMM. This structure is summarized in the following table.

Governance structure for the management of risk

Authority	Membership	Responsibilities include:
Risk Management Meeting	Chief Risk Officer Chief Executive Officer Chief Finance Officer Chief Operating Officer Head of Regulatory Compliance Head of Financial Crime Risk Head of Human Resources Head of Communications General Counsel Heads of the three lines of business	• Supporting the Chief Risk Officer in exercising Board-delegated risk management authority • Overseeing the implementation of risk appetite and the enterprise risk management framework • Forward-looking assessment of the risk environment, analyzing possible risk impacts and taking appropriate action • Monitoring all categories of risk and determining appropriate mitigating action • Promoting a supportive culture in relation to risk management and conduct

Our responsibilities

All our people are responsible for identifying and managing risk within the scope of their role as part of the three lines of defence model.

Three lines of defence

To create a robust control environment to manage risks, we use an activity-based three lines of defence model.

The model underpins our approach to risk management by clarifying responsibility, encouraging collaboration, and enabling efficient coordination of risk and control activities. The three lines of defence are summarized below:

- The first line of defence owns the risks and is responsible for identifying, recording, reporting and managing them in line with risk appetite, and ensuring that the right controls and assessments are in place to mitigate them.
- The second line of defence sets the policy and control standards for managing specific risk areas, provides advice and guidance in relation to the risk, and challenges the first line of defence on effective risk management.

- The third line of defence is our Internal Audit function, which provides independent assurance that our risk management, governance and internal control processes are designed effectively.

Risk function

Our Risk function, headed by the Chief Risk Officer, is responsible for the bank's risk management framework. This responsibility includes establishing policy, monitoring risk profiles, and forward-looking risk identification and management. The Risk function is made up of sub-functions covering all risks to our operations. It forms part of the second line of defence and is independent from the businesses, including sales and trading functions, to provide challenge, appropriate oversight and balance in risk/return decisions.

Responsibility for minimizing both financial and non-financial risk lies with our people. They are required to manage the risks of the business and operational activities for which they are responsible. We maintain adequate oversight of our non-financial risks through our various specialist Risk Stewards, along with our aggregate overview through the Chief Risk Officer.

Non-financial risk includes some of the most material risks HSBC faces, such as cyber-attack, the loss of data and poor conduct outcomes. Actively managing non-financial risk is crucial to serving our customers effectively and having a positive impact on society. During 2019 we continued to strengthen the control environment and our approach to the management of non-financial risk, as set out in our Operational Risk Management Framework. The approach outlines non-financial risk governance and risk appetite, and provides a single view of the non-financial risks that matter the most along with the associated controls. It incorporates a risk management system designed to enable the active management of non-financial risk. Our ongoing focus is on simplifying our approach to non-financial risk management, while driving more effective oversight and better end-to-end identification and management of non-financial risks. This is overseen by the Operational Risk function, headed by the Head of Operational Risk.

Stress testing

We operate a wide-ranging stress testing programme that is a key part of our risk management and capital planning. Stress testing provides management with key insights into the impact of severely adverse events on the bank and provides confidence to our regulator on the bank's financial stability.

Our stress testing programme assesses our capital strength through a rigorous examination of our resilience to external shocks. As well as undertaking regulatory-driven stress tests, we conduct our own internal stress tests, in order to understand the nature and level of all material risks, quantify the impact and develop plausible business as usual mitigating actions.

Our internal capital assessment uses a range of stress scenarios that explore risks identified by management. They include potential adverse macroeconomic, geopolitical and operational risk events, as well as other potential events specific to HSBC.

The selection of stress scenarios is based upon the output of our top and emerging risks identified and our risk appetite. Stress testing analysis helps management understand the nature and extent of vulnerabilities to which the bank is exposed. Using this information, management decides whether risks can or should be mitigated through management actions, or, if they were to crystallize, should be absorbed through capital. This in turn informs decisions about preferred capital levels.

Recovery and resolution plans

Recovery and resolution plans form an integral framework in the safeguarding of the banks financial stability. Together with stress testing, it helps us understand the outcomes of adverse business or economic conditions and the identification of mitigating actions.

Key developments in 2019

In 2019, we undertook a number of initiatives to enhance our approach to the management of risk. We continued efforts to simplify and enhance how we manage risk. We simplified the risk taxonomy by consolidating certain existing risks into broader categories. These changes streamlined risk reporting and promoted common language in our risk management approach. These changes included the formation of a Resilience Risk sub-function to reflect the growing regulatory importance of being able to ensure our operations continue to function when an operational disturbance occurs. Resilience Risk was formed to simplify the way we interact with our stakeholders and to deliver clear, consistent and credible responses. The leadership of the resilience risk function is the responsibility of the Head of Resilience Risk. For further details on resilience risk see page 50.

Our material banking risks

The material risk types associated with our banking operations are described in the following tables:

Description of risks - banking operations

Risks	Arising from	Measurement, monitoring and management of risk
Credit risk (see page 31)		
Credit risk is the risk of financial loss if a customer or counterparty fails to meet an obligation under a contract.	Credit risk arises principally from direct lending, trade finance and leasing business, but also from certain other products such as guarantees and derivatives.	Credit risk is: • measured as the amount that could be lost if a customer or counterparty fails to make repayments; • monitored using various internal risk management measures and within limits approved by individuals within a framework of delegated authorities; and • managed through a robust risk control framework which outlines clear and consistent policies, principles and guidance for risk managers.
Liquidity and funding risk (see page 45)		
Liquidity risk is the risk that we do not have sufficient financial resources to meet our obligations as they fall due or that we can only do so at an excessive cost. Funding risk is the risk that funding considered to be sustainable, and therefore used to fund assets, is not sustainable over time.	Liquidity risk arises from mismatches in the timing of cash flows. Funding risk arises when illiquid asset positions cannot be funded at the expected terms and when required.	Liquidity and funding risk is: • measured using a range of metrics including liquidity coverage ratio and net stable funding ratio; • assessed through the internal liquidity adequacy assessment process; • monitored against the bank's liquidity and funding risk framework; and • managed on a stand-alone basis with no reliance on any HSBC Group entity (unless pre-committed) or central bank unless this represents routine established business-as-usual market practice.
Market risk (see page 47)		
Market risk is the risk that movements in market factors, such as foreign exchange rates, interest rates, credit spreads, equity prices and commodity prices, will reduce our income or the value of our portfolios.	Exposure to market risk is separated into two portfolios: trading and non-trading.	Market risk is: • measured using sensitivities, value at risk ('VaR') and stress testing, giving a detailed picture of potential gains and losses for a range of market movements and scenarios, as well as tail risks over specified time horizons; • monitored using VaR, stress testing and other measures including the sensitivity of net interest income and the sensitivity of structural foreign exchange; and • managed using risk limits approved by the RMM.
Resilience risk (see page 49)		
Resilience risk is the risk that we are unable to provide critical services to our customers, affiliates, and/or counterparties as a result of sustained and significant operational disruption.	Resilience risk arises from failures or inadequacies in processes, people, systems or external events. These may be driven by rapid technological innovation, changing behaviours of our consumers, cyber threats and attacks and dependence on third party relationships.	Resilience risk is: • measured through a range of metrics with defined maximum acceptable impact tolerances and against our agreed risk appetite; • monitored through oversight of enterprise processes, risks, controls and strategic change programmes; and • managed by continuous monitoring and thematic reviews.
Regulatory compliance risk (see page 51)		
Regulatory compliance risk is the risk that we fail to observe the letter and spirit of all relevant laws, codes, rules, regulations and standards of good market practice, and incur fines and penalties and suffer damage to our business as a consequence.	Regulatory compliance risk arises from the risks associated with breaching our duty to our customers and other counterparties, inappropriate market conduct and breaching other regulatory requirements.	Regulatory compliance risk is: • measured by reference to identified metrics, incident assessments, regulatory feedback and the judgment and assessment of our regulatory compliance teams; • monitored against the first line of defence risk and control assessments, the results of the monitoring and control assurance activities of the second line of defence functions, and the results of internal and external audits and regulatory inspections; and • managed by establishing and communicating appropriate policies and procedures, training employees in them, and monitoring activity to help ensure their observance. Proactive risk control and/or remediation work is undertaken where required.
Financial crime risk (see page 51)		
Financial crime risk is the risk that we knowingly or unknowingly help parties to commit or to further potentially illegal activity including both internal and external fraud.	Financial crime and fraud risk arises from day-to-day banking operations.	Financial crime risk is: • measured by reference to identified metrics, incident assessments, regulatory feedback and the judgment and assessment of our financial crime risk teams; • monitored against our financial crime risk appetite statements and metrics, the results of the monitoring and control activities of the second line of defence functions, and the results of internal and external audits and regulatory inspections; and • managed by establishing and communicating appropriate policies and procedures, training employees in them, and monitoring activity to help ensure their observance. Proactive risk control and/or remediation work is undertaken where required.
Model risk (see page 52)		
Model risk is the potential for adverse consequences from business decisions informed by models, which can be exacerbated by errors in methodology, design or the way they are used.	Model risk arises in both financial and non-financial context whenever business decision making includes reliance on models.	Model risk is: • measured by reference to model performance tracking and the output of detailed technical reviews, with key metrics including model review statuses and findings; • monitored against model risk appetite statements, insight from the independent review function, feedback from internal and external audits, and regulatory reviews; and • managed by creating and communicating appropriate policies, procedures and guidance, training colleagues in their application, and supervising their adoption to ensure operational effectiveness.

Description of risks - banking operations (continued)

Risks	Arising from	Measurement, monitoring and management of risk
Pension risk		
Pension risk is the risk of increased costs to the bank from offering post-employment benefit plans to its employees.	Pension risk arises from investments delivering an inadequate return, adverse changes in interest rates or inflation, or members living longer than expected. Pension risk also includes operational and reputational risk of sponsoring pension plans.	Pension risk is: • measured in terms of the scheme's ability to generate sufficient funds to meet the cost of their accrued benefits; • monitored through the specific risk appetite that has been developed at both Group and Canadian levels; and • managed locally through the appropriate pension risk governance structure.

Credit Risk

Credit risk is the risk of financial loss if a customer or counterparty fails to meet an obligation under contract. Credit risk arises principally from direct lending, trade finance and the leasing business, but also from other products such as guarantees and credit derivatives.

Credit risk management

There were no material changes to the policies and practices for the management of credit risk in 2019.

We have established credit risk management and related IFRS 9 processes and we actively assess the impact of economic developments on specific customers, customer segments or portfolios. As credit conditions change, we take mitigating action, including the revision of risk appetites or limits and tenors, as appropriate. In addition, we continue to evaluate the terms under which we provide credit facilities within the context of individual customer requirements, the quality of the relationship, regulatory requirements, market practices and our market position.

IFRS 9 'Financial Instruments' process

The IFRS 9 process comprises three main areas: modelling and data, implementation and governance.

Modelling and data

We have established modelling and data processes which are subject to appropriate governance and independent review.

Implementation

A centralized impairment engine performs the expected credit loss ('ECL') calculation using data, which is subject to number of validation checks and enhancements, from a variety of client, finance and risk systems. Where possible, these checks and processes are performed in a globally consistent and centralized manner.

Governance

A series of management review forums has been established in order to review and approve the impairment results. The management review forums have representatives from Risk and Finance.

Credit risk sub-function*

Credit risk is managed in accordance with the bank's credit policy, which is established in consultation with HSBC Group and key elements approved by the Audit, Risk and Conduct Review Committee ('ARC'). Risk limits and credit authorities are delegated to senior credit management staff. Credit exposures in excess of certain levels or other specific risk attributes are referred for concurrence to HSBC Group to ensure they remain within HSBC Group's global risk limits.

The principal objectives of our credit risk management framework are:

- to maintain a strong culture of responsible lending, and robust risk policies and control frameworks;
- to partner and challenge our businesses in defining, implementing and continually re-evaluating our risk appetite under actual and scenario conditions; and
- to ensure there is independent, expert scrutiny of credit risks, their costs and their mitigation.

Concentration of exposure*

Concentrations of credit risk arise when a number of counterparties or exposures have comparable economic characteristics, or such counterparties are engaged in similar activities or operate in the same geographical areas or industry sectors so that their collective ability to meet contractual obligations is uniformly affected by changes in economic, political or other conditions. We use a number of controls and measures to minimize undue concentration of exposure in our portfolios across industries and businesses. These include portfolio and counterparty limits, approval and review controls, and stress testing.

Credit quality of financial instruments*

Our risk rating system facilitates the internal ratings-based approach under the Basel framework adopted by the bank to support the calculation of our minimum credit regulatory capital requirement.

The five credit quality classifications each encompasses a range of granular internal credit rating grades assigned to wholesale and personal lending businesses, and the external ratings attributed by external agencies to debt securities.

For debt securities and certain other financial instruments, external ratings have been aligned to the five quality classifications based upon the mapping of related customer risk rating ('CRR') to external credit rating.

Wholesale lending

The CRR 10-grade scale summarizes a more granular underlying 23-grade scale of obligor probability of default ('PD'). All corporate customers are rated using the 10- or 23-grade scale, depending on the degree of sophistication of the Basel approach adopted for the exposure.

Each CRR band is associated with an external rating grade by reference to long-run default rates for that grade, represented by the average of issuer-weighted historical default rates. This mapping between internal and external ratings is indicative and may vary over time.

Personal lending

Personal lending credit quality is based on a 12-month point-in-time ('PIT') probability-weighted probability of default ('PD').

Credit quality classification

	Debt securities and other bills	Wholesale lending		Personal lending	
	External credit rating	Internal credit rating	12-month Basel probability of default %	Internal credit rating	12-month Basel probability-weighted PD %
Quality classification					
Strong	**A– and above**	**CRR 1 to CRR 2**	**0.000 - 0.169**	**Band 1 and 2**	**0.000 - 0.500**
Good	**BBB+ to BBB-**	**CRR 3**	**0.170 - 0.740**	**Band 3**	**0.501 - 1.500**
Satisfactory	**BB+ to B and unrated**	**CRR 4 to CRR 5**	**0.741 - 4.914**	**Band 4 and 5**	**1.501 - 20.000**
Sub-standard	**B- to C**	**CRR 6 to CRR 8**	**4.915 - 99.999**	**Band 6**	**20.001 - 99.999**
Credit-impaired	**Default**	**CRR 9 to CRR 10**	**100.000**	**Band 7**	**100.000**

Quality classification definitions

- 'Strong' exposures demonstrate a strong capacity to meet financial commitments, with negligible or low probability of default and/or low levels of expected loss.
- 'Good' exposures require closer monitoring and demonstrate a good capacity to meet financial commitments, with low default risk.
- 'Satisfactory' exposures require closer monitoring and demonstrate an average-to-fair capacity to meet financial commitments, with moderate default risk.
- 'Sub-standard' exposures require varying degrees of special attention and default risk is of greater concern.
- 'Credit-impaired' exposures have been assessed as impaired, as described on note 2(i) on the Consolidated Financial Statements.

Renegotiated loans and forbearance*

'Forbearance' describes concessions made on the contractual terms of a loan in response to an obligor's financial difficulties.

A loan is classed as 'renegotiated' when we modify the contractual payment terms, on concessionary terms, because we have significant concerns about the borrowers' ability to meet contractual payments when due.

Non-payment related concessions (e.g. covenant waivers), while potential indicators of impairment, do not trigger identification as renegotiated loans.

Loans that have been identified as renegotiated retain this designation until maturity or derecognition.

For details of our policy on derecognized renegotiated loans, see note 2(i) on the Financial Statements.

Credit quality of renegotiated loans

On execution of a renegotiation, the loan will also be classified as credit-impaired if it is not already so classified. In wholesale lending, all facilities with a customer, including loans which have not been modified, are considered credit-impaired following the identification of a renegotiated loan.

Those loans that are considered credit-impaired retain this classification for a minimum of one year. Renegotiated loans will continue to be disclosed as credit-impaired until there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows (the evidence typically comprises a history of payment performance against the original or revised terms), and there is no other objective evidence of credit-impairments. For personal lending renegotiated loans remain in stage 3 until maturity or write-off.

Renegotiated loans and recognition of expected credit losses

For personal lending, unsecured renegotiated loans are generally separated from other parts of the loan portfolio. Renegotiated expected credit loss assessments reflect the higher rates of losses typically encountered with renegotiated loans.

For wholesale lending, renegotiated loans are typically assessed individually. Credit risk ratings are intrinsic to the impairment assessments. The individual impairment assessment takes into account the higher risk of the future non-payment inherent in renegotiated loans.

Impairment assessment*

For details of our impairment policies on loans and advances and financial investments, see note 2(i) on the Financial Statements.

Write-off of loans and advances*

For details of our policy on the write-off of loans and advances, see note 2(i) on the Financial Statements.

Unsecured personal lending facilities, including credit cards, are generally written off when payments are between 150 and 210 days past due. The standard period runs until the end of the month in which the account becomes 180 days contractually delinquent. Write-off periods may be extended, generally to no more than 360 days past due. In exceptional circumstances, they may be extended further.

For secured facilities, write-off occurs upon repossession of collateral, receipt of proceeds via settlement or determination that recovery of the collateral will not be pursued.

Any secured assets maintained on the balance sheet beyond 60 months of consecutive delinquency driven default require additional monitoring and review to assess the prospect of recovery.

In the event of bankruptcy or analogous proceedings, write-off may occur earlier than the maximum periods stated above. Collection procedures may continue after write-off.

Credit risk profile

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Summary of credit risk

The following disclosure presents the gross carrying/nominal amount of financial instruments to which the impairment requirements in IFRS 9 are applied and the associated allowance for ECL.

The allowance for ECL at 31 December 2019 comprised of $272m in respect of assets held at amortized cost, $24m in respect of loans and other credit related commitments and financial guarantees, $1m in respect of debt instruments measured at fair value through other comprehensive income ('FVOCI'), and $3m in respect of performance guarantee contracts.

Summary of financial instruments to which the impairment requirements in IFRS 9 are applied*

	Footnotes	31 December 2019		31 December 2018	
		Gross carrying/ nominal amount	**Allowance for ECL**	Gross carrying/ nominal amount[5]	Allowance for ECL
		$m	**$m**	$m	$m
Loans and advances to customers at amortized cost		**62,164**	**(242)**	57,321	(198)
– personal		**29,192**	**(60)**	27,832	(53)
– corporate and commercial		**32,972**	**(182)**	29,489	(145)
Loans and advances to banks at amortized cost		**1,169**	**—**	1,221	—
Other financial assets measured at amortized costs		**11,662**	**(30)**	12,266	(34)
– cash and balances at central banks		**54**	**—**	78	—
– items in the course of collection from other banks		**15**	**—**	8	—
– reverse repurchase agreements non - trading		**6,269**	**—**	5,860	—
– customers' liability under acceptances		**3,505**	**(5)**	3,937	(5)
– other assets, prepayments and accrued income	1	**1,819**	**(25)**	2,383	(29)
Total gross carrying amount on-balance sheet		**74,995**	**(272)**	70,808	(232)
Loans and other credit related commitments		**42,700**	**(22)**	43,378	(32)
– personal		**7,444**	**(1)**	7,186	(2)
– corporate and commercial		**35,256**	**(21)**	36,192	(30)
Financial guarantees	2	**2,124**	**(2)**	2,182	(1)
– personal		**7**	**—**	7	—
– corporate and commercial		**2,117**	**(2)**	2,175	(1)
Total nominal amount off-balance sheet	3	**44,824**	**(24)**	45,560	(33)

		Fair value	**Allowance for ECL**	Fair value	Allowance for ECL
		$m	**$m**	$m	$m
Debt instruments measured at fair value through other comprehensive income ('FVOCI')	4	**23,625**	**(1)**	24,033	(1)

1. *Includes only those financial instruments which are subject to the impairment requirements of IFRS 9. 'Other assets' and 'Prepayments and accrued income' as presented within the consolidated balance sheet includes both financial and non-financial assets.*
2. *Excludes performance guarantee contracts.*
3. *Represents the maximum amount at risk should the contracts be fully drawn upon and clients default.*
4. *Debt instruments measured at FVOCI continue to be measured at fair value with the allowance for ECL as a memorandum item. Change in ECL is recognized in 'Change in expected credit losses and other credit impairment charges' in the income statement.*
5. *Certain prior year amounts have been reclassified to conform to the current year presentation.*

The following disclosure provides an overview of the bank's credit risk by stage and customer type, and the associated ECL coverage. The financial assets recorded in each stage have the following characteristics:

Stage 1: These financial assets are unimpaired and without significant increase in credit risk on which a 12-month allowance for ECL is recognized.

Stage 2: A significant increase in credit risk has been experienced on these financial assets since initial recognition on which a lifetime ECL is recognized.

Stage 3: There is objective evidence of impairment and the financial assets are therefore considered to be in default or otherwise credit-impaired on which a lifetime ECL is recognized.

Summary of credit risk (excluding debt instruments measured at FVOCI) by stage distribution and ECL coverage*

	Gross carrying/nominal amount[1]				Allowance for ECL				ECL coverage %			
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
	$m	$m	$m	$m	$m	$m	$m	$m	%	%	%	%
Loans and advances to customers at amortized cost	**57,168**	**4,662**	**334**	**62,164**	**(40)**	**(85)**	**(117)**	**(242)**	**0.1**	**1.8**	**35.0**	**0.4**
– personal	**28,536**	**569**	**87**	**29,192**	**(14)**	**(31)**	**(15)**	**(60)**	**—**	**5.4**	**17.2**	**0.2**
– corporate and commercial	**28,632**	**4,093**	**247**	**32,972**	**(26)**	**(54)**	**(102)**	**(182)**	**0.1**	**1.3**	**41.3**	**0.6**
Loans and advances to banks at amortized cost	**1,169**	**—**	**—**	**1,169**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
Other financial assets measured at amortized cost	**11,305**	**331**	**26**	**11,662**	**(2)**	**(3)**	**(25)**	**(30)**	**—**	**0.9**	**96.2**	**0.3**
Loan and other credit-related commitments	**38,620**	**4,014**	**66**	**42,700**	**(6)**	**(15)**	**(1)**	**(22)**	**—**	**0.4**	**1.5**	**0.1**
– personal	**7,268**	**164**	**12**	**7,444**	**(1)**	**—**	**—**	**(1)**	**—**	**—**	**—**	**—**
– corporate and commercial	**31,352**	**3,850**	**54**	**35,256**	**(5)**	**(15)**	**(1)**	**(21)**	**—**	**0.4**	**1.9**	**0.1**
Financial guarantees[2]	**1,921**	**201**	**2**	**2,124**	**(1)**	**(1)**	**—**	**(2)**	**0.1**	**0.5**	**—**	**0.1**
– personal	**6**	**1**	**—**	**7**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
– corporate and commercial	**1,915**	**200**	**2**	**2,117**	**(1)**	**(1)**	**—**	**(2)**	**0.1**	**0.5**	**—**	**0.1**
At 31 Dec 2019	**110,183**	**9,208**	**428**	**119,819**	**(49)**	**(104)**	**(143)**	**(296)**	**—**	**1.1**	**33.4**	**0.2**
Loans and advances to customers at amortized cost	53,113	3,965	243	57,321	(36)	(75)	(87)	(198)	0.1	1.9	35.8	0.3
– personal[3]	26,964	798	70	27,832	(13)	(24)	(16)	(53)	—	3.0	22.9	0.2
– corporate and commercial[3]	26,149	3,167	173	29,489	(23)	(51)	(71)	(145)	0.1	1.6	41.0	0.5
Loans and advances to banks at amortized cost	1,221	—	—	1,221	—	—	—	—	—	—	—	—
Other financial assets measured at amortized cost	11,622	615	29	12,266	(2)	(3)	(29)	(34)	—	0.5	100.0	0.3
Loan and other credit-related commitments	40,443	2,874	61	43,378	(7)	(23)	(2)	(32)	—	0.8	3.3	0.1
– personal	6,978	197	11	7,186	(1)	(1)	—	(2)	—	0.5	—	—
– corporate and commercial	33,465	2,677	50	36,192	(6)	(22)	(2)	(30)	—	0.8	4.0	0.1
Financial guarantees[2]	2,093	87	2	2,182	—	(1)	—	(1)	—	1.1	—	—
– personal	6	1	—	7	—	—	—	—	—	—	—	—
– corporate and commercial	2,087	86	2	2,175	—	(1)	—	(1)	—	1.2	—	—
31 December 2018	108,492	7,541	335	116,368	(45)	(102)	(118)	(265)	—	1.4	35.2	0.2

1. *Represents the maximum amount at risk should the contracts be fully drawn upon and clients default.*
2. *Excludes performance guarantee contracts.*
3. *Certain prior year amounts have been reclassified to conform to the current year presentation.*

Credit exposure

Maximum exposure to credit risk*

This section provides information on balance sheet items, loan and other credit-related commitments and the associated offsetting arrangements.

Commentary on consolidated balance sheet movements in 2019 is provided on page 19.

'Maximum exposure to credit risk' table

The following table presents our maximum exposure before taking account of any collateral held or other credit enhancements (unless such enhancements meet accounting offsetting requirements). The table excludes financial instruments whose carrying amount best represents the net exposure to credit risk and it excludes equity securities as they are not subject to credit risk. For the financial assets recognized on the balance sheet, the maximum exposure to credit risk equals their carrying amount; for financial guarantees and similar contracts granted, it is the maximum amount that we would have to pay if the guarantees were called upon. For loan commitments and other credit-related commitments, it is generally the full amount of the committed facilities.

The offset in the table relates to amounts where there is a legally enforceable right of offset in the event of counterparty default and where, as a result, there is a net exposure for credit risk purposes. However, as there is no intention to settle these balances on a net basis under normal circumstances, they do not qualify for net presentation for accounting purposes. No offset has been applied to off-balance sheet collateral. In the case of derivatives, the offset column also includes collateral received in cash and other financial assets.

Other credit risk mitigants

While not disclosed as an offset in the following 'Maximum exposure to credit risk' table, other arrangements are in place which reduce our maximum exposure to credit risk. These include a charge over collateral on borrowers' specific assets such as residential properties, collateral held in the form of financial instruments that are not held on balance sheet and short positions in securities.

The collateral available to mitigate credit risk is disclosed in the collateral section on page 45.

Maximum exposure to credit risk*

	2019			2018		
	Maximum exposure	**Offset**	**Net**	Maximum exposure[1]	Offset	Net
	$m	**$m**	**$m**	$m	$m	$m
Loans and advances to customers held at amortized cost	**61,922**	**(788)**	**61,134**	57,123	(735)	56,388
– personal	**29,132**	**–**	**29,132**	27,779	–	27,779
– corporate and commercial	**32,790**	**(788)**	**32,002**	29,344	(735)	28,609
Derivatives	**3,267**	**(470)**	**2,797**	4,469	(504)	3,965
On-balance sheet exposure to credit risk	**65,189**	**(1,258)**	**63,931**	61,592	(1,239)	60,353
Off-balance sheet exposure to credit risk	**48,190**	**–**	**48,190**	48,959	–	48,959
– financial guarantees and similar contracts	**5,469**	**–**	**5,469**	5,581	–	5,581
– loan and other credit-related commitments	**42,721**	**–**	**42,721**	43,378	–	43,378
At 31 Dec	**113,379**	**(1,258)**	**112,121**	110,551	(1,239)	109,312

1. *Certain prior year amounts have been reclassified to conform to the current year presentation.*

Measurement uncertainty and sensitivity analysis of ECL estimates*

The recognition and measurement of expected credit loss ('ECL') involves the use of significant judgment and estimation. We form multiple economic scenarios based on economic forecasts, apply these assumptions to credit risk models to estimate future credit losses, and probability-weight the results to determine an unbiased ECL estimate.

Methodology

We use multiple economic scenarios to reflect assumptions about future economic conditions, starting with three economic scenarios based on consensus forecast distributions and/or management adjustments where, in management's judgment, the consensus forecast distribution does not adequately capture the relevant risks.

The three economic scenarios represent the 'most likely' outcome and two less likely outcomes referred to as the Upside and Downside scenarios. Each outer scenario is consistent with a probability of 10%, while the Central scenario is assigned the remaining 80%, according to the decision of bank's senior management. This weighting scheme is deemed appropriate for the unbiased estimation of ECL in most circumstances.

Economic assumptions in the Central consensus economic scenario are set using the average of forecasts of external economists. Reliance on external forecasts helps ensure that the Central scenario is unbiased and maximizes the use of independent information. The Upside and downside scenarios are selected with reference to externally available forecast distributions and are designed to be cyclical, in that GDP growth, inflation and unemployment usually revert back to the Central scenario after the first three years. We determine the maximum divergence of GDP growth from the Central scenario using the 10th and the 90th percentile of the entire distribution of forecast outcomes. While key economic variables are set with reference to external distributional forecasts, we also align the overall narrative of the scenarios to macroeconomic risks. We project additional variable paths using the external provider's macro model.

The Upside and Downside scenarios are generated once a year, reviewed at each reporting date to ensure that they are an appropriate reflection of management's view and updated if economic conditions change significantly. The Central scenario is generated every quarter. For quarters without updates to outer scenarios, wholesale and personal credit risk use the updated central scenario to approximate the impact of the most recent outer scenarios.

Description of consensus economic scenarios

The consensus Central scenario

The following table describes key macroeconomic variables and the probabilities assigned in the consensus Central scenario.

Central scenario

	2019	2018
GDP growth rate (%)	**1.8**	1.8
Inflation (%)	**2.0**	2.0
Unemployment (%)	**6.0**	6.1
Short-term interest rate (%)	**1.6**	2.5
10 year Treasury bond yields (%)	**2.2**	3.3
House price growth (%)	**2.6**	2.7
Equity price growth (%)	**3.8**	3.5
Probability	**80.0**	80.0

1. *Central scenario for 2019 is based on average 2020-2024 (2018: average 2019-2023).*

The consensus Upside scenario

The following table describes key macroeconomic variables and the probabilities assigned in the consensus Upside scenario.

Upside scenario

	2019	2018
GDP growth rate (%)	**1.9**	2.1
Inflation (%)	**2.2**	2.2
Unemployment (%)	**5.7**	5.9
Short-term interest rate (%)	**1.6**	2.5
10 year Treasury bond yields (%)	**2.2**	3.3
House price growth (%)	**5.7**	3.9
Equity price growth (%)	**6.7**	9.2
Probability	**10.0**	10.0

1. *Upside scenario for 2019 is based on average 2020-2024 (2018: average 2019-2023).*

The consensus Downside scenario

The following table describes key macroeconomic variables and the probabilities assigned in the consensus Downside scenario.

Downside scenario

	2019	2018
GDP growth rate (%)	**1.5**	1.5
Inflation (%)	**1.8**	1.7
Unemployment (%)	**6.4**	6.5
Short-term Interest rate (%)	**0.8**	0.9
10 year Treasury bond yields (%)	**1.4**	1.4
House price growth (%)	**(0.8)**	0.3
Equity price growth (%)	**0.6**	0.3
Probability	**10.0**	10.0

1. *Downside scenario for 2019 is based on average 2020-2024 (2018: average 2019-2023).*

How economic scenarios are reflected in the wholesale lending calculation of ECL

The bank has developed a methodology for the application of forward economic guidance into the calculation of ECL by incorporating forward economic guidance into the estimation of the term structure of Probability of Default ('PD') and Loss Given Default ('LGD'). For PDs, we consider the correlation of forward economic guidance to default rates. For LGD calculations we consider the correlation of forward economic guidance to collateral values and realization rates. PDs and LGDs are estimated for the entire term structure of each instrument.

For impaired loans, LGD estimates take into account independent recovery valuations provided by external consultants where available, or internal forecasts corresponding to anticipated economic conditions and individual company conditions. In estimating the ECL on impaired loans that are individually considered not to be significant, the bank incorporates forward economic guidance proportionate to the probability-weighted outcome and the central scenario outcome for non-stage 3 populations.

How economic scenarios are reflected in the personal lending calculation of ECL

The bank has developed a methodology for incorporating forecasts of economic conditions into ECL estimates. The impact of economic scenarios on PD is modelled at a portfolio level. Historic relationships between observed default rates and macro-economic variables are integrated into IFRS 9 ECL estimates by leveraging economic response models. The impact of these scenarios on PD is modelled over a period equal to the remaining maturity of underlying asset or assets. The impact on LGD is modelled for mortgage portfolios by forecasting future loan-to-value ('LTV') profiles for the remaining maturity of the asset by using forecasts of the house price index and applying the corresponding LGD expectation.

Economic scenarios sensitivity analysis of ECL estimates

Management considered the sensitivity of the ECL outcome against the economic forecasts as part of the ECL governance process by recalculating the ECL under each scenario described above for selected portfolios, applying a 100% weighting to each scenario in turn. The weighting is reflected in both the determination of significant increase in credit risk as well as the measurement of the resulting ECL.

The ECL calculated for the Upside and Downside scenarios should not be taken to represent the upper and lower limits of possible actual ECL outcomes. The impact of defaults that might occur in future under different economic scenarios is captured by recalculating ECL for loans in stages 1 and 2 at the balance sheet date. The population of stage 3 loans (in default) at the balance sheet date is unchanged in these sensitivity calculations. Stage 3 ECL would only be sensitive to changes in forecasts of future economic conditions if the LGD of a particular portfolio was sensitive to these changes.

For wholesale credit risk exposures, the sensitivity analysis excludes ECL and financial instruments related to defaulted obligors because the measurement of ECL is relatively more sensitive to credit factors specific to the obligor than future economic scenarios, and it is impracticable to separate the effect of macroeconomic factors in individual assessments.

For retail credit risk exposures, the sensitivity analysis includes ECL for loans and advances to customers related to defaulted obligors. This is because the retail ECL for secured mortgage portfolios including loans in all stages is sensitive to macroeconomic variables.

Wholesale portfolio analysis

The portfolios below were selected based on contribution to ECL and sensitivity to macro-economic factors.

IFRS 9 ECL sensitivity to future economic conditions[1]

ECL of financial instruments subject to significant measurement uncertainty at 31 December[2]

	2019	2018
	$m	$m
Reported ECL	**105**	111
Central scenario	**103**	111
Upside scenario	**83**	103
Downside scenario	**141**	121
Gross carrying amount/nominal amount[3]	**96,846**	99,084

1. *Excludes ECL and financial instruments relating to defaulted obligors because the measurement of ECL is relatively more sensitive to credit factors specific to the obligor than future economic scenarios.*
2. *Includes off-balance sheet financial instruments that are subject to significant measurement uncertainty.*
3. *Includes low credit-risk financial instruments such as debt instruments at FVOCI, which have high carrying amounts but low ECL under all the above scenarios.*

Personal portfolio analysis

Exposures modelled using small portfolio approach were excluded from the sensitivity analysis.

IFRS 9 ECL sensitivity to future economic conditions[1]

ECL of loans and advances to customers at 31 December[2]

	2019	2018
	$m	$m
Reported ECL	**50**	40
Central scenario	**50**	40
Upside scenario	**47**	38
Downside scenario	**53**	42
Gross carrying amount	**28,999**	27,225

1. *ECL sensitivities exclude portfolios utilizing less complex modelling approaches.*
2. *ECL sensitivity includes only on-balance sheet financial instruments to which IFRS 9 impairment requirements are applied.*

Reconciliation of allowances for loans and advances to banks and customers including loan commitments and financial guarantees

The following disclosure provides a reconciliation of the bank's allowances for loans and advances to banks and customers including loan commitments and financial guarantees.

The transfers of financial instruments represents the impact of stage transfers upon the gross carrying/nominal amount and associated allowance for ECL. The net remeasurement of ECL arising from stage transfers represents the change in ECL due to these transfers.

Reconciliation of allowances for loans and advances to banks and customers including loan commitments and financial guarantees*[1]

	2019				2018			
	Non-credit impaired		Credit-impaired		Non-credit impaired		Credit-impaired	
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan	**43**	**99**	**89**	**231**	38	91	185	314
Transfers of financial instruments:	**36**	**(44)**	**8**	**—**	30	(16)	(14)	—
– transfers from stage 1 to stage 2	**(6)**	**6**	**—**	**—**	(6)	6	—	—
– transfers from stage 2 to stage 1	**41**	**(41)**	**—**	**—**	36	(36)	—	—
– transfers to stage 3	**—**	**(12)**	**12**	**—**	(2)	(6)	8	—
– transfers from stage 3	**1**	**3**	**(4)**	**—**	2	20	(22)	—
Net remeasurement of ECL arising from transfer of stage	**(30)**	**14**	**—**	**(16)**	(24)	16	—	(8)
New financial assets originated or purchased	**9**	**—**	**—**	**9**	11	—	—	11
Changes to risk parameters (model inputs)	**(8)**	**38**	**88**	**118**	(9)	9	14	14
Asset derecognized (including final repayments)	**(3)**	**(6)**	**(15)**	**(24)**	(3)	(5)	(11)	(19)
Assets written off	**—**	**—**	**(48)**	**(48)**	—	—	(85)	(85)
Foreign exchange	**—**	**—**	**—**	**—**	—	4	—	4
Others	**—**	**—**	**(4)**	**(4)**	—	—	—	—
At 31 Dec	**47**	**101**	**118**	**266**	43	99	89	231
ECL income statement change for the period	**(32)**	**46**	**73**	**87**	(25)	20	3	(2)
Recoveries	**—**	**—**	**(10)**	**(10)**	—	—	(10)	(10)
Others	**—**	**—**	**—**	**—**	—	—	(3)	(3)
Total ECL income statement change for the period	**(32)**	**46**	**63**	**77**	(25)	20	(10)	(15)

1. *Excludes performance guarantee contracts.*

	At	Year ended	At	Year ended
	31 December 2019	31 December 2019	31 December 2018	31 December 2018
	Allowance for ECL/ Other credit loss provisions	ECL charge/ (release)	Allowance for ECL/ Other credit loss provisions	ECL charge/ (release)
	$m	$m	$m	$m
As above	**266**	**77**	231	(15)
Other financial assets measured at amortized cost	**30**	**—**	34	(12)
Performance guarantee contracts	**3**	**1**	2	—
Debt instruments measured at FVOCI	**1**	**—**	1	—
Total allowance for ECL / Total income statement ECL charge/(release) for the period	**300**	**78**	268	(27)

Credit quality of financial instruments*

We assess the credit quality of all financial instruments that are subject to credit risk. The credit quality of financial instruments is a point-in-time assessment of the probability of default ('PD') of financial instruments, whereas IFRS 9 stages 1 and 2 are determined based on relative deterioration of credit quality since initial recognition. Accordingly, for non-credit impaired financial instruments there is no direct relationship between the credit quality assessment and IFRS 9 stages 1 and 2, though typically the lower credit quality bands exhibit a higher proportion in stage 2.

The five credit quality classifications, as defined in earlier section, each encompasses a range of granular internal credit rating grades assigned to wholesale and personal lending businesses and the external ratings attributed by external agencies to debt securities.

The information on credit quality classifications is provided on page 32.

Distribution of financial instruments by credit quality and stage allocation*

	Gross carrying/notional amount						Allowance for ECL/ other credit loss provisions	Net
	Strong	Good	Satisfactory	Sub-standard	Credit-impaired	Total		
	$m	$m	$m	$m	$m	$m	$m	$m
In-scope for IFRS 9								
Debt instruments at fair value through other comprehensive income[1]	23,480	–	–	–	–	23,480	(1)	23,479
– stage 1	23,480	–	–	–	–	23,480	(1)	23,479
– stage 2	–	–	–	–	–	–	–	–
– stage 3	–	–	–	–	–	–	–	–
Loans and advances to customers at amortized cost	30,152	17,813	12,304	1,561	334	62,164	(242)	61,922
– stage 1	30,082	17,292	9,620	174	–	57,168	(40)	57,128
– stage 2	70	521	2,684	1,387	–	4,662	(85)	4,577
– stage 3	–	–	–	–	334	334	(117)	217
Loans and advances to banks at amortized cost	1,169	–	–	–	–	1,169	–	1,169
– stage 1	1,169	–	–	–	–	1,169	–	1,169
– stage 2	–	–	–	–	–	–	–	–
– stage 3	–	–	–	–	–	–	–	–
Other financial assets at amortized cost	7,513	2,401	1,647	75	26	11,662	(30)	11,632
– stage 1	7,513	2,373	1,401	18	–	11,305	(2)	11,303
– stage 2	–	28	246	57	–	331	(3)	328
– stage 3	–	–	–	–	26	26	(25)	1
Out-of-scope for IFRS 9								
Trading assets	4,157	165	–	–	–	4,322	–	4,322
Other financial assets mandatorily measured at fair value through profit or loss	5	–	–	–	–	5	–	5
Derivatives	3,065	133	67	2	–	3,267	–	3,267
Total gross carrying amount on-balance sheet	69,541	20,512	14,018	1,638	360	106,069	(273)	105,796
Percentage of total credit quality	65.6%	19.3%	13.2%	1.5%	0.3%	100.0%		
Loan and other credit-related commitments	16,851	16,796	8,208	779	66	42,700	(22)	42,678
– stage 1	16,831	15,908	5,772	109	–	38,620	(6)	38,614
– stage 2	20	888	2,436	670	–	4,014	(15)	3,999
– stage 3	–	–	–	–	66	66	(1)	65
Financial guarantees	1,151	610	241	120	2	2,124	(2)	2,122
– stage 1	1,151	610	151	9	–	1,921	(1)	1,920
– stage 2	–	–	90	111	–	201	(1)	200
– stage 3	–	–	–	–	2	2	–	2
In-scope: Loan and other credit-related commitments and financial guarantees	18,002	17,406	8,449	899	68	44,824	(24)	44,800
Out-of-scope: Performance guarantee contracts	1,179	1,164	891	89	22	3,345	(3)	3,342
At 31 Dec 2019	88,722	39,082	23,358	2,626	450	154,238	(300)	153,938

1. *For the purposes of this disclosure gross carrying value is defined as the amortized cost of a financial asset, before adjusting for any loss allowance. As such the gross carrying value of debt instruments at FVOCI as presented above will not reconcile to the balance sheet as it excludes fair value gains and losses.*

Distribution of financial instruments by credit quality and stage allocation (continued)*

	Gross carrying/notional amount						Allowance for ECL/other credit loss provisions	Net
	Strong	Good	Satisfactory	Sub-standard	Credit-impaired	Total		
	$m	$m	$m	$m	$m	$m	$m	$m
In-scope for IFRS 9								
Debt instruments at fair value through other comprehensive income[1]	24,145	—	—	—	—	24,145	(1)	24,144
– stage 1	24,145	—	—	—	—	24,145	(1)	24,144
– stage 2	—	—	—	—	—	—	—	—
– stage 3	—	—	—	—	—	—	—	—
Loans and advances to customers at amortized cost	25,936	18,238	11,558	1,346	243	57,321	(198)	57,123
– stage 1	25,839	18,000	9,089	185	—	53,113	(36)	53,077
– stage 2	97	238	2,469	1,161	—	3,965	(75)	3,890
– stage 3	—	—	—	—	243	243	(87)	156
Loans and advances to banks at amortized cost	1,221	—	—	—	—	1,221	—	1,221
– stage 1	1,221	—	—	—	—	1,221	—	1,221
– stage 2	—	—	—	—	—	—	—	—
– stage 3	—	—	—	—	—	—	—	—
Other financial assets at amortized cost	7,712	2,789	1,633	103	29	12,266	(34)	12,232
– stage 1	7,472	2,752	1,375	23	—	11,622	(2)	11,620
– stage 2	240	37	258	80	—	615	(3)	612
– stage 3	—	—	—	—	29	29	(29)	—
Out-of-scope for IFRS 9								
Trading assets	3,702	173	—	—	—	3,875	—	3,875
Other financial assets mandatorily measured at fair value through profit or loss	4	—	—	—	—	4	—	4
Derivatives	3,879	465	122	3	—	4,469	—	4,469
Total gross carrying amount on-balance sheet	66,599	21,665	13,313	1,452	272	103,301	(233)	103,068
Percentage of total credit quality	64.5%	21.0%	12.9%	1.4%	0.3%	100.0%		
Loan and other credit-related commitments	13,623	20,331	8,500	863	61	43,378	(32)	43,346
– stage 1	13,407	20,137	6,785	114	—	40,443	(7)	40,436
– stage 2	216	194	1,715	749	—	2,874	(23)	2,851
– stage 3	—	—	—	—	61	61	(2)	59
Financial guarantees	1,183	707	245	45	2	2,182	(1)	2,181
– stage 1	1,183	707	203	—	—	2,093	—	2,093
– stage 2	—	—	42	45	—	87	(1)	86
– stage 3	—	—	—	—	2	2	—	2
In-scope: Loan and other credit-related commitments and financial guarantees	14,806	21,038	8,745	908	63	45,560	(33)	45,527
Out-of-scope: Performance guarantee contracts	1,208	1,567	444	152	28	3,399	(2)	3,397
31 December 2018	82,613	44,270	22,502	2,512	363	152,260	(268)	151,992

1. *For the purposes of this disclosure gross carrying value is defined as the amortized cost of a financial asset, before adjusting for any loss allowance. As such the gross carrying value of debt instruments at FVOCI as presented above will not reconcile to the balance sheet as it excludes fair value gains and losses.*

Concentration of credit risk

Concentration of credit risk may arise when the ability of a number of borrowers or counterparties to meet their contractual obligations are similarly affected by external factors. Diversification of credit risk is a key concept by which we are guided. In assessing and monitoring for credit risk concentration, we aggregate exposures by industry and geographic area as presented in the following tables.

Large customer concentrations

We monitor and manage credit risk from large customer concentrations, which we define as borrowing groups where approved facilities exceed 10% of our regulatory capital base, or $690m at 31 December 2019 (2018: $642m). At 31 December 2019, the aggregate approved facilities from large customers was $27,041m (2018: $30,046m), an average of $1,082m (2018: $1,073m) per customer. The increase in total approved facilities from large customers is primarily comprised of increased facilities to Canadian provinces, existing corporate customers and to Canadian chartered banks.

Wholesale lending

Wholesale loans are money lent to sovereign borrowers, banks, non-bank financial institutions and corporate entities.

This section provides further detail on the industry driving the movement in wholesale loans and advances to customers. Additionally, it provides a reconciliation of the opening 1 January 2019 allowance for ECL to the 31 December 2019 balance.

Total wholesale lending for loans and advances to customers at amortized cost

	Footnote	2019		2018	
		Gross carrying amount	**Allowance for ECL**	Gross carrying amount[3]	Allowance for ECL
		$m	**$m**	$m	$m
Corporate and commercial					
– agriculture, forestry and fishing		**446**	**(9)**	410	(1)
– mining and quarrying	1	**1,878**	**(42)**	1,840	(30)
– manufacturing		**5,505**	**(27)**	4,634	(23)
– electricity, gas, steam and air-conditioning supply		**336**	**(1)**	562	(1)
– water supply, sewerage, waste management and remediation		**101**	**—**	101	—
– construction		**963**	**(11)**	859	(21)
– wholesale and retail trade, repair of motor vehicles and motorcycles		**5,728**	**(42)**	5,569	(35)
– transportation and storage		**2,829**	**(14)**	2,376	(11)
– accommodation and food		**1,167**	**(1)**	897	(1)
– publishing, audiovisual and broadcasting		**1,040**	**(6)**	783	(5)
– real estate		**8,509**	**(12)**	7,673	(7)
– professional, scientific and technical activities		**1,181**	**(6)**	1,061	(7)
– administrative and support services		**1,090**	**(5)**	596	(1)
– education		**171**	**—**	149	—
– health and care		**244**	**—**	197	(1)
– arts, entertainment and recreation		**294**	**—**	274	—
– other services		**195**	**(1)**	313	—
– government		**25**	**—**	30	—
– non-bank financial institutions		**1,270**	**(5)**	1,165	(1)
At 31 Dec		**32,972**	**(182)**	29,489	(145)
By geography	2				
Canada		**30,547**	**(171)**	27,328	(131)
– British Columbia		**9,309**	**(27)**	8,793	(28)
– Ontario		**10,486**	**(49)**	9,134	(26)
– Alberta		**5,562**	**(59)**	4,812	(60)
– Quebec		**3,812**	**(21)**	3,305	(14)
– Saskatchewan and Manitoba		**896**	**(10)**	862	(2)
– Atlantic provinces		**482**	**(5)**	422	(1)
United States of America		**1,437**	**(4)**	1,213	(7)
Other		**988**	**(7)**	948	(7)
At 31 Dec		**32,972**	**(182)**	29,489	(145)

1. Mining and quarrying includes energy related exposures.
2. Provincial geographic distribution is based on the address of originating branch and foreign geographic distribution is based on the country of incorporation.
3. Certain prior year amounts have been reclassified to conform to the current year presentation.

Wholesale lending reconciliation of allowances for loans and advances to banks and customers including loan commitments and financial guarantees*[1]

	2019				2018			
	Non-credit impaired		Credit-impaired		Non-credit impaired		Credit-impaired	
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan	29	74	73	176	29	69	165	263
Transfers of financial instruments:	7	(13)	6	—	14	(1)	(13)	—
– transfers from stage 1 to stage 2	(5)	5	—	—	(4)	4	—	—
– transfers from stage 2 to stage 1	12	(12)	—	—	19	(19)	—	—
– transfers to stage 3	—	(6)	6	—	(1)	(2)	3	—
– transfers from stage 3	—	—	—	—	—	16	(16)	—
Net remeasurement of ECL arising from transfer of stage	(7)	8	—	1	(12)	9	—	(3)
New financial assets originated or purchased	6	—	—	6	9	—	—	9
Changes to risk parameters (model inputs)	(2)	3	65	66	(10)	(5)	1	(14)
Asset derecognized (including final repayments)	(1)	(2)	(5)	(8)	(1)	(2)	(11)	(14)
Assets written off	—	—	(32)	(32)	—	—	(69)	(69)
Foreign exchange	—	—	—	—	—	4	—	4
Others	—	—	(4)	(4)	—	—	—	—
At 31 Dec	32	70	103	205	29	74	73	176
ECL income statement change for the period	(4)	9	60	65	(14)	2	(10)	(22)
Recoveries	—	—	(3)	(3)	—	—	(1)	(1)
Others	—	—	—	—	—	—	(2)	(2)
Total ECL income statement change for the period	(4)	9	57	62	(14)	2	(13)	(25)

1. Excludes performance guarantee contracts.

The wholesale lending allowance for ECL increased by $29m, primarily due to an increase of $30m in stage 3 and $3m in stage 1 with an offsetting decrease of $4m in stage 2. The wholesale stage 3 allowance for ECL increased mainly in the wholesale and retail trade, mining and agriculture sectors, in addition to the impact of ongoing normalization of credit losses from the change in the economic forecast compared to the prior year.

The write-offs during the year were related to specific customers, mainly in the construction sector.

The wholesale lending change in ECL for the year resulted in an income statement charge of $62m. This was primarily due to a charge of $57m in stage 3 and a charge of $9m in stage 2 and a release of $4m in stage 1. The charge in stage 3 is primarily driven from the wholesale and retail trade, mining and agriculture sectors.

Personal lending

Personal loans are money lent to individuals rather than institutions. This includes both secured and unsecured loans such as mortgages and credit card balances.

This section presents further disclosures related to personal lending. Additionally, it provides a reconciliation of the opening 1 January 2019 to 31 December 2019 closing allowance for ECL.

Total personal lending for loans and advances to customers at amortized cost

		2019		2018	
		Gross carrying amount	Allowance for ECL	Gross carrying amount[1]	Allowance for ECL
	Footnote	$m	$m	$m	$m
Residential mortgages		25,855	(23)	24,230	(17)
Home equity lines of credit		1,664	(4)	1,710	(4)
Personal revolving loan facilities		610	(14)	629	(11)
Other personal loan facilities		665	(4)	836	(5)
Retail card		341	(9)	352	(8)
Run-off consumer loan portfolio		57	(6)	75	(8)
At 31 Dec		29,192	(60)	27,832	(53)
By geography	2				
Canada		29,009	(58)	27,662	(50)
– British Columbia		14,327	(22)	14,964	(24)
– Ontario		11,161	(18)	9,537	(15)
– Alberta		1,663	(7)	1,511	(5)
– Quebec		1,327	(6)	1,161	(4)
– Saskatchewan and Manitoba		304	(2)	284	(1)
– Atlantic provinces		220	(3)	202	(1)
– Territories		7	—	3	—
Other		183	(2)	170	(3)
At 31 Dec		29,192	(60)	27,832	(53)

1. Certain prior year amounts have been reclassified to conform to the current year presentation.
2. Geographic distribution is based on the customer address.

Personal lending reconciliation of allowances for loans and advances to banks and customers including loan commitments and financial guarantees*[1]

	2019				2018			
	Non-credit impaired		Credit-impaired		Non-credit impaired		Credit-impaired	
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
	$m	$m	$m	$m	$m	$m	$m	$m
At 1 Jan	**14**	**25**	**16**	**55**	9	22	20	51
Transfers of financial instruments:	**29**	**(31)**	**2**	**—**	16	(15)	(1)	—
– transfers from stage 1 to stage 2	**(1)**	**1**	**—**	**—**	(2)	2	—	—
– transfers from stage 2 to stage 1	**29**	**(29)**	**—**	**—**	17	(17)	—	—
– transfers to stage 3	**—**	**(6)**	**6**	**—**	(1)	(4)	5	—
– transfers from stage 3	**1**	**3**	**(4)**	**—**	2	4	(6)	—
Net remeasurement of ECL arising from transfer of stage	**(23)**	**6**	**—**	**(17)**	(12)	7	—	(5)
New financial assets originated or purchased	**3**	**—**	**—**	**3**	2	—	—	2
Changes to risk parameters (model inputs)	**(6)**	**35**	**23**	**52**	1	14	13	28
Asset derecognized (including final repayments)	**(2)**	**(4)**	**(10)**	**(16)**	(2)	(3)	—	(5)
Assets written off	**—**	**—**	**(16)**	**(16)**	—	—	(16)	(16)
At 31 Dec	**15**	**31**	**15**	**61**	14	25	16	55
ECL income statement change for the period	**(28)**	**37**	**13**	**22**	(11)	18	13	20
Recoveries	**—**	**—**	**(7)**	**(7)**	—	—	(9)	(9)
Others	**—**	**—**	**—**	**—**	—	—	(1)	(1)
Total ECL income statement change for the period	**(28)**	**37**	**6**	**15**	(11)	18	3	10

1. *Excludes performance guarantee contracts.*

The total personal lending allowance for ECL increased by $6m during 2019, due to the impact of deterioration in the economic outlook for residential mortgages and personal revolving loan facilities portfolios.

The total personal lending ECL income statement change for the year was a charge of $15m. This was driven by an increase in the allowance for ECL on the residential mortgages and personal revolving loan facilities portfolios.

The write-offs are mainly from residential mortgages and personal revolving loan facilities.

Mortgages and home equity lines of credit

The bank's mortgage and home equity lines of credit portfolios are considered to be low-risk since the majority are secured by a first charge against the underlying real estate.

The following tables detail how the bank mitigates risk further by diversifying the geographical markets in which it operates as well as benefiting from borrower default insurance. In addition the bank maintains strong underwriting and portfolio monitoring standards to ensure the quality of its portfolio is maintained.

Insurance and geographic distribution[1]

	Year ended						
	Residential mortgages[5]					HELOC[2, 5]	
	Insured[3]		Uninsured[3]		Total	Uninsured	
	$m	%	$m	%	$m	$m	%
British Columbia	**1,144**	**8%**	**12,861**	**92%**	**14,005**	**826**	**100%**
Western Canada[4]	**436**	**28%**	**1,114**	**72%**	**1,550**	**190**	**100%**
Ontario	**1,200**	**13%**	**8,379**	**87%**	**9,579**	**586**	**100%**
Quebec and Atlantic provinces	**338**	**25%**	**994**	**75%**	**1,332**	**87**	**100%**
At 31 Dec 2019	**3,118**	**12%**	**23,348**	**88%**	**26,466**	**1,689**	**100%**

Insurance and geographic distribution[1]

	Year ended						
	Residential mortgages[5]					HELOC[2, 5, 6]	
	Insured[3]		Uninsured[3]		Total	Uninsured	
	$m	%	$m	%	$m	$m	%
British Columbia	948	7%	12,986	93%	13,934	853	100%
Western Canada[4]	347	25%	1,060	75%	1,407	206	100%
Ontario	925	11%	7,457	89%	8,382	603	100%
Quebec and Atlantic provinces	241	21%	934	79%	1,175	91	100%
At 31 Dec 2018	2,461	10%	22,437	90%	24,898	1,753	100%

1. *Geographic location is determined by the address of the originating branch.*
2. *HELOC is an abbreviation for Home Equity Lines of Credit, which are lines of credit secured by equity in real estate.*
3. *Insured mortgages are protected from potential losses caused by borrower default through the purchase of insurance coverage, either from the Canadian Housing and Mortgage Corporation or other accredited private insurers.*
4. *Western Canada excludes British Columbia.*
5. *Residential mortgages and HELOC include Wholesale lending and Personal lending exposures.*
6. *Certain prior year amounts have been reclassified to conform to the current year presentation.*

Amortization period[1]

	Year ended		
	Residential mortgages		
	≤ 20 years	> 20 years ≤ 25 years	> 25 years ≤ 30 years
At 31 Dec 2019	**20.1%**	**48.0%**	**31.9%**
At 31 Dec 2018	20.0%	40.5%	39.5%

1. Amortization period is based on the remaining term of residential mortgages.

Average loan-to-value ratios of new originations[1,2]

	Quarter ended	
	Uninsured % LTV[3]	
	Residential mortgages	HELOC
	%	%
British Columbia	**56%**	**52%**
Western Canada[4]	**67%**	**66%**
Ontario	**62%**	**58%**
Quebec and Atlantic provinces	**67%**	**62%**
Total Canada for the three months ended 31 Dec 2019	**61%**	**57%**
Total Canada for the three months ended 31 Dec 2018	59%	54%

1. All new loans and home equity lines of credit were originated by the bank; there were no acquisitions during the period.
2. New originations exclude existing mortgage renewals.
3. Loan-to-value ratios are simple averages, based on property values at the date of mortgage origination.
4. Western Canada excludes British Columbia.

Potential impact of an economic downturn on residential mortgage loans and home equity lines of credit

The bank performs stress testing on its personal lending portfolio to assess the impact of increased levels of unemployment, rising interest rates, reduction in property values and changes in other relevant macro-economic variables. Potential increase in losses in the mortgage portfolio under downturn economic scenarios are considered manageable given the composition of the portfolio, the low Loan-to-Value in the portfolio and risk mitigation strategies in place.

Credit-impaired loans*

The bank determines that a financial instrument is credit-impaired and in stage 3 by considering relevant objective evidence, primarily whether:

- contractual payments of either principal or interest are past due for more than 90 days;
- there are other indications that the borrower is unlikely to pay such as that a concession has been granted to the borrower for economic or legal reasons relating to the borrower’s financial condition; and
- the loan is otherwise considered to be in default. If such unlikeliness to pay is not identified at an earlier stage, it is deemed to occur when an exposure is 90 days past due. The definitions of credit-impaired and default are aligned as far as possible so that stage 3 represents all loans which are considered defaulted or otherwise credit-impaired.

The following table provides an analysis of the gross carrying value of loans and advances to banks and customers that are determined to be impaired (stage 3 financial assets).

Credit-impaired loans and advances to banks and customers*

	Footnotes	2019 Gross carrying amount $m	2019 Allowance for ECL $m	2018 Gross carrying amount $m	2018 Allowance for ECL $m
Corporate and commercial		**247**	**(102)**	173	(71)
– agriculture, forestry and fishing		**10**	**(5)**	—	—
– mining and quarrying	1	**62**	**(24)**	42	(13)
– manufacture		**39**	**(13)**	18	(10)
– construction		**13**	**(8)**	24	(17)
– wholesale and retail trade, repair of motor vehicles and motorcycles		**51**	**(29)**	16	(15)
– transportation and storage		**7**	**(5)**	7	(2)
– publishing, audiovisual and broadcasting		**15**	**(4)**	16	(4)
– real estate		**8**	**(7)**	7	(2)
– professional, scientific and technical activities		**37**	**(3)**	39	(7)
– administrative and support services		**4**	**(3)**	—	—
– other services		**—**	**—**	1	—
– non-bank financial institutions		**1**	**(1)**	3	(1)
Households	2	**87**	**(15)**	70	(16)
Loans and advances to banks		**—**	**—**	—	—
At 31 Dec		**334**	**(117)**	243	(87)

1. *Mining and quarrying includes energy related exposures.*
2. *Households includes the Retail portfolio.*

The wholesale credit-impaired allowance for ECL increased mainly in the wholesale and retail trade, mining and agriculture sectors, in addition to the impact of ongoing normalization of credit losses from the change in the economic forecast compared to the prior year.

Renegotiated loans

The carrying amount of renegotiated loans was $135m at 31 December 2019 (2018: $180m).

Collateral and other credit enhancements

Although collateral can be an important mitigant of credit risk, it is the bank's practice to lend on the basis of the customer's ability to meet their obligations out of cash flow resources rather than rely on the value of security offered. Depending on the customer's standing and the type of product, some facilities may be unsecured. However, for other lending a charge over collateral is obtained and considered in determining the credit decision and pricing. In the event of default, the bank may utilize the collateral as a source of repayment.

The principal collateral types are as follows:

- in the personal sector, mortgages over residential properties or charges over other personal assets being financed;
- in the commercial and industrial sector, charges over business assets such as land, buildings and equipment, inventory and receivables;
- in the commercial real estate sector, charges over the properties being financed; and
- in the financial sector, charges over financial instruments such as debt and equity securities in support of trading facilities.

Our credit risk management policies include appropriate guidelines on the acceptability of specific classes of collateral or credit risk mitigation. Valuation parameters are updated periodically depending on the nature of the collateral. Full covering corporate guarantees as well as bank and sovereign guarantees are recognized as credit mitigants for capital purposes.

Collateral held as security for financial assets other than loans is determined by the nature of the instrument. Government and other debt securities, including money market instruments, are generally unsecured, with the exception of asset-backed securities and similar instruments, which are secured by pools of financial assets.

The bank has policies in place to monitor the existence of undesirable concentration of the collateral supporting our credit exposures.

Collateral information for credit-impaired loans and advances to customers including loan commitments*

	2019 Gross carrying amount $m	2019 Allowance for ECL $m	2019 Net carrying amount $m	2019 Collateral $m	2018 Gross carrying amount $m	2018 Allowance for ECL $m	2018 Net carrying amount $m	2018 Collateral $m
Stage 3								
Corporate and commercial	**301**	**(103)**	**198**	**329**	223	(73)	150	177
Personal - Residential mortgages	**66**	**(10)**	**56**	**125**	52	(9)	43	153

Derivative portfolio

The bank participates in transactions exposing us to counterparty credit risk. Counterparty credit risk is the risk of financial loss if the counterparty to a transaction defaults before satisfactorily settling it. It arises principally from over-the-counter ('OTC') derivatives and securities financing transactions and is calculated in both the trading and non-trading books. Transactions vary in value by reference to a market factor such as an interest rate, exchange rate or asset price.

The credit equivalent amount of derivative exposure comprises the current replacement cost of positions plus an allowance for potential future fluctuation of derivative contracts. We enter into derivatives primarily to support our customers' requirements and to assist us in

the management of assets and liabilities, particularly relating to interest and foreign exchange rate risks.

A more detailed analysis of our derivative portfolio is presented in note 12.

Liquidity and funding risk

Liquidity and funding risk is the potential for loss if the bank is unable to generate sufficient cash or its equivalents to meet financial commitments in a timely manner at reasonable prices as they become due. Financial commitments include liabilities to depositors and suppliers, lending, investment and pledging commitments.

Liquidity and funding risk management

The objective of our liquidity and funding risk management framework is to ensure that all foreseeable funding commitments, including deposit withdrawals, can be met when due, and that access to the wholesale markets is coordinated and cost-effective. It is designed to allow us to withstand very severe liquidity stresses and be adaptable to changing business models, markets and regulations.

Governance

The Audit Risk and Conduct Review Committee ('ARC') is responsible for defining the bank's liquidity risk tolerances within the HSBC Group's liquidity and funding risk management framework, which mandates that each site manages its liquidity and funding on a self-sustaining basis. The ARC also reviews and approves the bank's liquidity and funding policy and is responsible for its oversight.

The bank's Asset and Liability Committee ('ALCO') is responsible for the development of policies and procedures to manage liquidity and funding risk including establishing liquidity risk parameters, monitoring metrics against risk appetite, funding costs, and early warning indicators of a liquidity stress. ALCO is also responsible for ensuring the operational effectiveness of the bank's contingency funding plan. Its mandate is established by HSBC Group policy, the ARC, and the bank's Executive Committee. ALCO supports the Chief Financial Officer's executive accountability for the oversight of liquidity and funding risk management.

Asset, Liability and Capital Management ('ALCM') team is responsible for the application of the liquidity and funding risk management framework.

Balance Sheet Management ('BSM') has responsibility for cash and liquidity management in accordance with practices and limits approved by ALCO, the ARC and HSBC Group. Compliance with policies is monitored by ALCO.

Liquidity Risk Management carries out independent review, challenge and assurance of the appropriateness of the risk management activities undertaken by ALCM and BSM. Their work includes setting control standards, advice on policy implementation, and review and challenge of reporting.

Internal Audit provides independent assurance that risk is managed effectively.

The bank continues to monitor liquidity and funding risk within our stated risk tolerance and management framework.

Our liquidity and funding risk management framework is delivered using the following key aspects:

- liquidity to be managed on a stand-alone basis with no implicit reliance on HSBC Group or central banks;
- minimum liquidity coverage ratio ('LCR') requirement;
- minimum net stable funding ratio ('NSFR') requirement;
- depositor concentration limit;
- three-month and twelve-month cumulative rolling term contractual maturity limits covering deposits from banks, deposits from non-bank financial institutions and securities issued;
- annual internal liquidity adequacy assessment process;
- minimum LCR requirement by currency;
- management and monitoring of intra-day liquidity;
- liquidity funds transfer pricing; and
- forward-looking funding assessments.

The internal liquidity and funding risk management framework and the risk limits were approved by the ARC.

The internal liquidity adequacy assessment, approved by ARC, is to identify risks that are not reflected in the bank's internal liquidity and funding risk management framework and, where required, to assess additional limits. As well it validates risk tolerance through the use of stress testing and verifies that the bank maintains liquidity resources which are adequate in both amount and quality at all times, ensuring that there is no significant risk that its liabilities cannot be made as they fall due, maintaining a prudent funding profile.

Management of liquidity and funding risk

In accordance with OSFI's Liquidity Adequacy Requirements guideline, which incorporates Basel liquidity standards, the bank is required to maintain a LCR above 100% as well as monitor the Net Cumulative Cash Flow. The LCR estimates the adequacy of liquidity over a 30 day stress period while the Net Cumulative Cash Flow calculates a horizon for net positive cash flows in order to capture the risk posed by funding mismatches between assets and liabilities. As at 31 December 2019, the bank was compliant with both requirements.

The bank's LCR is summarized in the following table. For the quarter ended 31 December 2019, the bank's average LCR of 140% is calculated as the ratio of the stock of High-Quality Liquid Assets ('HQLA') to the total net stressed cash outflows over the next 30 calendar days. The average LCR increased from 132% last year mainly due to average increased holdings of HQLA, positioning the bank for future growth.

OSFI liquidity coverage ratio[1]

	Average for the three months ended[1]	
	31 Dec 2019	31 Dec 2018
Total HQLA[2] ($m)	**24,434**	23,464
Total net cash outflows[2] ($m)	**17,450**	17,716
Liquidity coverage ratio (%)	**140**	132

1. *The data in this table has been calculated using averages of the three month-end figures in the quarter. Consequently, the LCR is an average ratio for the three months of the quarter and might not equal the LCR ratios calculated dividing total weighted HQLA by total weighted net cash outflows.*
2. *These are weighted values and are calculated after the application of the weights prescribed under the OSFI LAR Guideline for HQLA and cash inflows and outflows.*

As a basis to determine the bank's stable funding requirement, the bank calculates NSFR according to Basel Committee on Banking Supervision publication number 295, pending its implementation. OSFI will implement the NSFR on 1 January 2020 for domestic systemically important banks ('D-SIBs') only. OSFI is conducting further work to assess requirements for non D-SIBs, which includes the bank. In Europe, implementation of NSFR is expected in 2021. The NSFR requires institutions to maintain sufficient stable funding relative to required stable funding, and reflects a bank's long-term funding profile (funding with a term of more than a year). It is designed to complement the LCR.

Liquid assets

Liquid assets are held and managed on a stand-alone operating entity basis. Most are held directly by the BSM department, primarily for the purpose of managing liquidity risk in line with the internal liquidity and funding risk management framework. Liquid assets also include any unencumbered liquid assets held outside BSM departments for any other purpose. To qualify as part of the liquid asset buffer, assets must have a deep and liquid repo market in the underlying security. The internal liquidity and funding risk management framework gives ultimate control of all unencumbered assets and sources of liquidity to BSM.

The table below shows the estimated liquidity value unweighted (before assumed haircuts) of assets categorized as liquid and used for the purpose of calculating the OSFI LCR metric. The level of liquid assets reported reflects the stock of unencumbered liquid assets at the reporting date, using the regulatory definition of liquid assets. The increase in liquid assets is mainly to position the bank for future growth.

Liquid assets[1]

	2019	2018
	$m	$m
Level 1	**18,969**	18,362
Level 2a	**4,603**	4,009
Level 2b	**98**	61
As at 31 Dec	**23,670**	22,432

1. *The liquid asset balances stated here are as at the above dates (spot rate) and are unweighted and therefore do not match the liquid asset balances stated in the LCR ratio calculations which are the average for the quarter and are weighted.*

Sources of funding

Current accounts and savings deposits, payable on demand or on short notice, form a significant part of our funding. We place considerable importance on maintaining the stability and growth of these deposits, which provide a diversified pool of funds.

We also access wholesale funding markets (secured and unsecured) across diversified terms, funding types, and currencies, to ensure low exposure to a sudden contraction of wholesale funding capacity and to minimize structural liquidity gaps. As part of our wholesale funding arrangements we use a number of programs to raise funds so that undue reliance is not placed on any one source of funding.

No reliance is placed on unsecured money market wholesale funding as a source of core funding. Only wholesale funding with a residual term to maturity of one year or greater is counted towards the core funding base. In addition, our stress testing assumptions require an equivalent amount of liquid assets to be held against wholesale funding maturing within the relevant stress testing horizon.

Contractual maturity of financial liabilities

The table below shows, on an undiscounted basis, all cash flows relating to principal and future coupon payments (except for trading liabilities and derivatives not treated as hedging derivatives). For this reason, balances in the table below do not agree directly with those in our consolidated balance sheet. Undiscounted cash flows payable in relation to hedging derivative liabilities are classified according to their contractual maturities. Trading liabilities and derivatives not treated as hedging derivatives are included in the 'On demand' time bucket and not by contractual maturity.

In addition, loans and other credit-related commitments, financial guarantees and similar contracts are generally not recognized on our balance sheet. The undiscounted cash flows potentially payable under loan and other credit-related commitments, and financial guarantees and similar contracts are classified on the basis of the earliest date they can be called. Application of this policy was improved in 2018, and therefore comparative information has been represented.

Cash flows payable by the bank under financial liabilities by remaining contractual maturities*

	Footnotes	On demand	Due within 3 months	Due between 3 and 12 months	Due between 1 and 5 years	Due after 5 years	Total
		$m	$m	$m	$m	$m	$m
Deposits by banks		**1,036**	**—**	**—**	**—**	**—**	**1,036**
Customer accounts		**43,974**	**5,907**	**11,418**	**1,928**	**—**	**63,227**
Repurchase agreements - non-trading		**—**	**7,108**	**—**	**—**	**—**	**7,108**
Trading liabilities		**2,296**	**—**	**—**	**—**	**—**	**2,296**
Derivatives		**3,149**	**640**	**328**	**175**	**99**	**4,391**
Debt securities in issue		**—**	**2,316**	**2,022**	**10,918**	**127**	**15,383**
Subordinated liabilities[1]	1	**—**	**10**	**31**	**163**	**1,202**	**1,406**
Lease liabilities		**—**	**—**	**2**	**59**	**271**	**332**
Other financial liabilities		**1,355**	**4,333**	**389**	**1,461**	**—**	**7,538**
		51,810	**20,314**	**14,190**	**14,704**	**1,699**	**102,717**
Loan and other credit-related commitments		**42,721**	**—**	**—**	**—**	**—**	**42,721**
Financial guarantees		**2,124**	**—**	**—**	**—**	**—**	**2,124**
At 31 Dec 2019		**96,655**	**20,314**	**14,190**	**14,704**	**1,699**	**147,562**
Proportion of cash flows payable in period		**66%**	**14%**	**10%**	**10%**	**1%**	
Deposits by banks		1,148	—	—	—	—	1,148
Customer accounts		41,671	7,881	8,937	1,543	—	60,032
Repurchase agreements - non-trading		—	8,236	—	—	—	8,236
Trading liabilities		2,164	—	—	—	—	2,164
Derivatives		4,248	—	581	1,414	66	6,309
Debt securities in issue		—	579	2,483	11,400	325	14,787
Subordinated liabilities	1	—	11	33	174	1,262	1,480
Other financial liabilities		449	4,545	376	1,349	—	6,719
		49,680	21,252	12,410	15,880	1,653	100,875
Loan and other credit-related commitments		43,377	—	—	—	—	43,377
Financial guarantees		2,182	—	—	—	—	2,182
At 31 Dec 2018		95,239	21,252	12,410	15,880	1,653	146,434
Proportion of cash flows payable in period		65%	15%	8%	11%	1%	

1. *Excludes interest payable exceeding 15 years.*

Encumbered assets

In the normal course of business, the bank will pledge or otherwise encumber assets. The pledging of assets will occur to meet the bank's payments and settlement system obligations, as security in a repurchase transaction, to support secured debt instruments or as margining requirements. Limits are in place to control such pledging.

The bank actively monitors its pledging positions. Encumbered assets are not counted towards the bank's liquid assets used for internal stress testing scenarios. We further estimate the impact of credit rating downgrade triggers, and exclude the estimated impact from liquid assets within the bank's liquidity stress testing scenarios.

Market Risk

Market risk is the risk that movements in market risk factors, including interest rates, foreign exchange rates, credit spreads, commodity prices and equity prices, which will adversely affect our income or the value of our assets and liabilities.

Market risk management

Market risk management is independent of the business and acts as the second line of defence who oversees the market risk of the bank. The team is responsible for establishing the policies, procedures and limits that align with the risk appetite of the bank. The objective of market risk management is to identify, measure and control market risk exposures in order to optimize return on risk and remain within the bank's risk appetite.

We separate exposures to market risk into trading and non-trading portfolios. Trading portfolios include those positions arising from market-making and other positions designated as held-for-trading.

Market risk is managed and controlled in accordance with policies and risk limits set out by the Risk Management Meeting ('RMM') and approved by the Board as well as centrally by HSBC Group Risk Management. We set risk limits for each of our trading operations dependent upon the size, financial and capital resources of the operations, market liquidity of the instruments traded, business plan, experience and track record of management and dealers, internal audit ratings, support function resources and support systems. Risk limits are reviewed and set by the RMM on an annual basis at a minimum.

We use a range of risk metrics to monitor and limit market risk exposures. These include: present value of a basis point, Value at Risk ('VaR'), foreign exchange exposure limits, maximum loss limits, credit spread limits, and issuer limits.

Value at Risk*

VaR is a technique that estimates the potential losses that could occur on risk positions as a result of movements in market rates and prices over a specified time horizon and to a given level of confidence. The use of VaR is integrated into market risk management and calculated for all trading and non-trading portfolios to have a complete picture of risk.

The VaR models used are predominantly based on historical simulation that incorporates the following features:

- potential market movements are calculated with reference to data from the past two years;

- historical market rates and prices are calculated with reference to foreign exchange rates, credit spreads, interest rates, equity prices and the associated volatilities;
- VaR is calculated to a 99% confidence level; and
- VaR is calculated for a one-day holding period.

These models derive plausible future scenarios from past series of recorded market rates and prices, taking account of inter-relationships between different markets and rates such as interest rates and foreign exchange rates. The models also incorporate the effect of option features on the underlying exposures. The nature of the VaR models means that an increase in observed market volatility will lead to an increase in VaR without any changes in the underlying positions. Statistically, we would expect to see losses in excess of VaR only one percent of the time.

Although a valuable guide to risk, VaR should always be viewed in the context of its limitations. For example:

- the use of historical data as a proxy for estimating future events may not encompass all potential events, particularly extreme ones;
- the use of a holding period assumes that all positions can be liquidated or the risk offset during that period, which may not fully reflect the market risk arising at times of severe illiquidity, when the holding period may be insufficient to liquidate or hedge all positions fully;
- the use of a 99% confidence level, by definition, does not take into account losses that might occur beyond this level of confidence; and
- VaR is calculated on the basis of exposures outstanding at the close of business and therefore does not necessarily reflect intra-day exposures.

VaR disclosed in the following tables and graph is the bank's total VaR for both trading and non-trading books and remained within the bank's limits.

Total VaR of $9.3m at the year ended 31 December 2019 decreased by $6m from the prior year, largely due to lower credit spread risk in non-trading books. Over the same period, the average VaR of $12.1m increased by $1.3m. Total VaR is largely driven by non-trading VaR.

The average trading VaR of $1.6m decreased by $0.1m due to lower interest rate risk from growth in trading activities.

Total VaR*

	Year ended	
	31 Dec 2019	31 Dec 2018
	$m	$m
Year end	**9.3**	15.3
Average	**12.1**	10.8
Minimum	**7.7**	7.6
Maximum	**15.7**	16.8

Non-trading VaR*

	Year ended	
	31 Dec 2019	31 Dec 2018
	$m	$m
Year end	**9.2**	14.5
Average	**12.1**	10.5
Minimum	**8.6**	6.7
Maximum	**15.5**	16.7

Trading VaR (by risk type)*[1]

	Footnote	Foreign exchange and commodity	Interest rate	Equity	Credit spread	Portfolio diversification[2]	Total[4]
		$m	$m	$m	$m	$m	$m
January - December 2019							
At year end		**—**	**0.7**	**—**	**0.3**	**(0.2)**	**0.8**
Average		**—**	**1.3**	**—**	**0.8**	**(0.5)**	**1.6**
Minimum	3	**—**	**0.7**	**—**	**0.3**		**0.8**
Maximum	3	**0.1**	**2.0**	**—**	**2.5**		**3.2**
January - December 2018							
At year end		—	1.4	—	0.6	(0.4)	1.6
Average		—	1.6	—	0.5	(0.4)	1.7
Minimum	3	—	1.0	—	0.3		1.0
Maximum	3	—	3.1	—	0.8		3.1

1. *Trading portfolios comprise positions arising from the market-making of financial instruments and customer-driven derivatives positions.*
2. *Portfolio diversification is the market risk dispersion effect of holding a portfolio containing different risk types. It represents the reduction in unsystematic market risk that occurs when combining a number of different risk types, for example, interest rate, equity and foreign exchange, together in one portfolio. It is measured as the difference between the combined total VaR and the sum of the VaRs by individual risk type. A negative number represents the benefit of portfolio diversification.*
3. *As the maximum and minimum occur on different days for different risk types, it is not meaningful to calculate a portfolio diversification benefit for these measures. Some small differences in figures presented are due to rounding.*
4. *The total VaR is non-additive across risk types due to diversification effects.*

Daily total VaR. 1 year history of daily figures

Structural interest rate risk

Interest rate risk is the risk of an adverse impact to earnings or capital due to changes in market interest rates. Structural interest rate risk is that which originates from the bank's non-trading assets and liabilities and shareholder's funds.

There are three main sub-categories of structural interest rate risk. Interest rate mismatch risk arises when there are differences in term to maturity or repricing of our assets and liabilities, both on- and off-balance sheet. Basis risk arises from the relative changes in interest rates for financial instruments that have similar tenors but are priced using different interest rate indices. Option risk arises from optionality embedded in products features which allow customers to alter cash flows, such as scheduled maturities or repricing dates.

The ARC is responsible for setting the structural interest rate risk policy and risk limits. ALCO supports the Chief Financial Officer's executive accountability for oversight.

We use a variety of cash and derivative instruments to manage our interest rate risk within prescribed limits. We use derivatives to modify the interest rate characteristics of related balance sheet instruments and to hedge anticipated exposures when market conditions are considered beneficial.

The risk is measured based on contractual re-pricing, as well as incorporating embedded optionality of early redemption, prepayment or re-pricing (such as redeemable deposit products, mortgages with prepayment options and fixed rate mortgage commitments). Non-maturity products are laddered out over an assumed maturity profile, based on historical behaviour.

We use two primary interest rate risk metrics to monitor and control the risk:

- Economic value of equity sensitivity - the change in the notional equity (or market) value of the non-trading portfolio under different interest rate scenarios, with the balance sheet valued on a run off basis.
- Earnings at risk sensitivity - the change in projected net interest income over the next 12 months across a range of interest rate scenarios based on a static balance sheet.

The following table shows structural interest rate sensitivities; earnings at risk is the impact over the next 12 months whereas economic value of equity is a balance sheet valuation on a run off basis. At December 2019, an immediate +100 basis points shock would have a negative impact to the bank's economic value of equity of $280m, up from $195m last year. An immediate -100 basis points shock at December 2019 would have a negative impact to earnings of $143m, an increase from $84m last year. Relative to last year, the increased earnings sensitivity is primarily due to growth in the balance sheet and changes in modelled deposit pricing sensitivity to movements in market rates.

Sensitivity of structural interest rate risk in the non-trading portfolio

(Before-tax impact resulting from an immediate and sustained shift in interest rates):

	Year ended			
	31 Dec 2019		31 Dec 2018	
	Economic value of equity	**Earnings at risk**	Economic value of equity	Earnings at risk
	$m	**$m**	$m	$m
100 basis point increase	**(280)**	**137**	(195)	105
100 basis point decrease	**212**	**(143)**	150	(84)

Resilience risk

Overview

Resilience risk is the risk that we are unable to provide critical services to our customers, affiliates and counterparties as a result of sustained and significant operational disruption.

Resilience risk arises from failures or inadequacies in processes, people, systems or external events. These may be driven by rapid technological innovation, changing behaviours of our consumers, cyber-threats, cross-border dependencies and third-party relationships.

Resilience risk management

Key developments in 2019

In line with our simplified risk taxonomy, we formed a new Resilience Risk sub-function to ensure our operations continue functioning when an operational disturbance occurs. Our resilience strategy is focused on the establishment of robust back-up plans, detailed response methods, alternative delivery channels and recovery options. Resilience risk was formed to simplify the way we interact with our stakeholders and to deliver clear, consistent and credible responses.

Governance and structure

Resilience risk provides guidance and stewardship to our businesses

and functions about how we can prevent, adapt, and learn from resilience-related threats when something goes wrong. We view resilience through six lenses: strategic change and emerging threats; third-party risk; information and data resilience; payments and processing resilience; systems and cyber resilience; and protective security risk.

Key risk management processes

Operational resilience is our ability to adapt operations to continue functioning when an operational disturbance occurs. We measure resilience in terms of the maximum disruption period or their impact tolerance that we are willing to accept for a business service. Resilience risk cannot be managed down to zero, so we concentrate on critical business and strategic change programmes that have the highest potential to threaten our ability to provide continued service to our customers. Our resilience strategy is focused on the establishment of robust back-up plans, detailed response methods, alternative delivery channels and recovery options.

The Resilience Risk team oversees the identification, management and control of resilience risks.

Regulatory compliance risk

Overview

Regulatory compliance risk is the risk that we fail to observe the letter and spirit of all relevant laws, codes, rules, regulations and standards of good market practice, and incur fines and penalties and suffer damage to our business as a consequence.

Regulatory compliance risk arises from the risks associated with breaching our duty to our customers and other counterparties, inappropriate market conduct and breaching other regulatory requirements.

Regulatory compliance risk management

Key developments in 2019

There were no material changes to the policies and practices for the management of regulatory compliance risk in 2019, except for the initiatives that we undertook to raise our standards in relation to the conduct of our business, as described below under 'Conduct of business'.

Governance and structure

The Regulatory Compliance sub-function provides independent, objective oversight and challenge, and promotes a compliance-orientated culture that supports the business in delivering fair outcomes for customers, maintaining the integrity of financial markets and achieving our strategic objectives.

Key risk management processes

We regularly review our policies and procedures. Policies and procedures require the prompt identification and escalation of any actual or potential regulatory breach to Regulatory Compliance. Reportable events are escalated to the Risk Management Meeting and the Audit, Risk and Conduct Review Committee.

Conduct of business

In 2019, we continued to promote and encourage good conduct through our people's behaviour and decision making in order to deliver fair outcomes for our customers, and to maintain financial market integrity. During 2019:

- We developed and implemented a set of principles to govern the ethical management and use of data and artificial intelligence ('AI'), which includes support of digital products and services. This was complemented with training of our people to use customer data appropriately.
- We continued to focus on the needs of vulnerable customers in our product and process design.
- We further defined roles and responsibilities for our people as part of the enterprise risk management framework to consider the customer in decision making and action.
- We delivered our fifth annual global mandatory training course on conduct, and reinforced the importance of conduct by highlighting examples of good conduct.

Financial crime risk

Overview

Financial crime and fraud risk is the risk that we knowingly or unknowingly help parties to commit or to further potentially illegal activity. Financial crime and fraud risk arises from day-to-day banking operations.

Financial crime and fraud risk management

Key developments in 2019

During 2019, we continued to increase our efforts to strengthen our ability to combat financial crime. We integrated into our day-to-day operations the majority of the financial crime risk core capabilities delivered through the Global Standards programme, which the Group set up in 2013 to enhance our risk management policies, processes and systems. The global programme infrastructure closed in 2019, and work has begun to define the next phase of financial crime risk management.

- We continued to strengthen our anti-fraud capabilities, focusing upon threats posed by new and existing technologies, and have delivered a comprehensive fraud training programme to our people.
- We continued to invest in the use of AI and advanced analytics techniques to develop a financial crime risk management framework for the future.
- We launched industry-leading anti-money laundering ('AML') and sanctions automation systems to detect and disrupt financial crime in international trade. These systems will strengthen our ability to fight financial crime through the identification of criminal activity and networks.

Governance and structure

We continue to strengthen and review the effectiveness of our governance framework for the management of financial crime risk. We established a formal financial crime risk management committee in 2018 to enable compliance with the letter and the spirit of all applicable financial crime compliance laws and regulations, as well as our own standards, values and policies relating to financial crime risks.

Key risk management processes

We continued to deliver an anti-bribery and corruption transformation programme to further enhance the policies and controls around identifying and managing the risks of bribery and corruption across our business. Our transformation programme continued to focus on our anti-fraud and anti-tax evasion capabilities. Further enhancements were made to our governance and policy frameworks, and to our management of information on standardized financial crime controls.

We are investing in the next generation of capabilities to fight financial crime by applying advanced analytics and AI. We remain committed to enhancing our risk assessment capabilities and to delivering more proactive risk management.

Working in partnership with the public sector and other financial

institutions is vital to managing financial crime risk. HSBC is a strong proponent of public-private partnerships and participates in information-sharing initiatives around the world to better understand these risks so that they can be mitigated more effectively.

Model Risk

Overview

Model risk is the potential for adverse consequences from business decisions informed by models, which can be exacerbated by errors in methodology, design or the way they are used. Model risk arises in both financial and non-financial contexts whenever business decision making includes reliance on models.

Key developments in 2019

We have undertaken a number of initiatives to strengthen model risk management, including:

- We refined the model risk policy to enable a more risk-based approach to model risk management.
- The Group designed a new target operating model for Model Risk Management, referring to internal and industry best practice.

Governance and structure

The Head of Model Risk Management reports to the Chief Risk Officer.

Key risk management processes

Model risk is managed consistently with other non-financial risks. A Model Risk Committee chaired by the Chief Risk Officer was established in 2019. This committee reviews our model risk management policies and procedures, and requires the first line of defence to demonstrate comprehensive and effective controls.

Model Risk Management reports on model risk to senior management on a regular basis through the use of the risk map, risk appetite metrics and top and emerging risks.

Factors that may affect future results

The risk management section of the MD&A describes the most significant risks to which the bank is exposed and if not managed appropriately could have a material impact on our future financial results. This section outlines additional factors which may affect future financial results. Please be aware that the risks discussed below, many of which are out of our control, are not exhaustive and there may be other factors that could also affect our results.

General economic and market conditions

Factors such as the general health of capital and/or credit markets, including liquidity, level of activity, volatility and stability, could have a material impact on our business. As well, interest rates, foreign exchange rates, consumer saving and spending, housing prices, consumer borrowing and repayment, business investment, government spending and the rate of inflation affect the business and economic environment in which we operate.

In addition, the financial services industry is characterized by interrelations among financial services companies. As a result, defaults by other financial services companies could adversely affect our earnings. Given the interconnectedness of global financial markets and the importance of trade flows, changes in the global economic and political environment, such as the UK's exit from the European Union ('EU'), could affect the pace of economic growth in Canada.

Fiscal and monetary policies

Our earnings are affected by fiscal, monetary and economic policies that are adopted by Canadian regulatory authorities. Such policies can have the effect of increasing or reducing competition and uncertainty in the markets. Such policies may also adversely affect our customers and counterparties, causing a greater risk of default by these customers and counterparties. In addition, expectations in the bond and money markets about inflation and central bank monetary policy have an impact on the level of interest rates. Changes in market expectations and monetary policy are difficult to anticipate and predict. Fluctuations in interest rates that result from these changes can have an impact on our earnings. Future changes to such policies will directly impact our earnings.

Changes in laws, regulations and approach to supervision

Regulators in Canada are actively considering legislation on a number of fronts, including consumer protection, data protection and privacy, capital markets activities, anti-money laundering, and the oversight and strengthening of risk management. Regulations are in place to protect our customers and the public interest. Considerable changes have been made to laws and regulations that relate to the financial services industry, including changes related to capital and liquidity requirements. Changes in laws and regulations, including their interpretation and application, and changes in approaches to supervision could adversely affect our earnings.

Failure to comply with laws and regulations could result in sanctions, financial penalties and/or reputational damage that could adversely affect our strategic flexibility and earnings.

Level of competition and disruptive technology

The level of competition among financial services companies is high. Customer loyalty and retention can be influenced by a number of factors, including service levels, prices for products or services, our reputation and the actions of our competitors. Changes in these factors or any subsequent loss of market share could adversely affect our earnings. Furthermore, non-financial companies (such as financial technology ('fintech') companies) have increasingly been offering services traditionally provided by banks. While this presents a number of opportunities that we are actively engaging in, there is also a risk that it could disrupt financial institutions' traditional business model.

Changes to our credit rating

Credit ratings are important to our ability to raise both capital and funding to support our business operations. Maintaining strong credit ratings allows us to access the capital markets at competitive pricing. Should our credit ratings experience a material downgrade, our costs of funding would likely increase significantly and our access to funding and capital through capital markets could be reduced.

Climate change risk

Climate change can create physical risks such as severe weather events of increasing severity and/or frequency. The move to a lower-carbon economy also creates transition risks both at idiosyncratic and systemic levels, such as through policy, regulatory, and technological changes. These physical and transition risks create potential financial impacts for the bank through higher risk-weighted assets, greater transactional losses, and increased capital requirements.

There is potential for a rapid deterioration of credit quality in sectors and/or countries most exposed to transition risks, particularly if policy changes are quickly enacted. The bank could be impacted by increased credit risk-weighted assets and losses through exposure to pools of stranded assets if it does not adequately respond to the changing landscape.

The HSBC Group and HSBC Bank Canada are increasingly incorporating climate-related risk, both physical and transition, into how we manage and oversee risks internally

and with our customers. A programme of work to measure and monitor the transition risk of our portfolio is underway. This includes identifying those customers that need to adapt most rapidly to a transition to a low-carbon economy and integrating climate change risk considerations into credit risk analysis, decision making, and credit policies.

IBOR transition

Interbank offered rates ('IBORs') are used to set interest rates on a large range of financial transactions and are used extensively for valuation purposes, risk measurement, and performance benchmarking. Following the recommendations of the Financial Stability Board, a fundamental review and reform of the major interest rates benchmarks, including IBORs, are underway across the world's largest financial markets. In some cases, the reform will include replacing interest rate benchmarks with alternative risk-free rates. This replacement process is at different stages, and is progressing at different speeds, across several major currencies. Therefore, there is uncertainty as to the basis, method, and timing of transition and the implications on the participants in the financial markets. The bank has identified a number of potential prudential, conduct, and systemic risks associated with the transition, such as potential earnings volatility resulting from contract modifications, changes in hedge accounting, and a large volume of product and associated process changes.

As a result of the likely cessation of the London interbank offered rate ('LIBOR') in 2021, the bank has established an interbank offered rate transition programme with the objective of facilitating an orderly transition from LIBOR to the replacement rates for the bank and its clients. The programme is currently focused on developing replacement rate products and the supporting processes and systems that reference the replacement rates and making them available to customers. The programme is concurrently developing the capability to transition through repapering outstanding LIBOR contracts. We are participating on an HSBC Group IBOR transition project which involves HSBC Bank Canada and HSBC Group continues to engage with industry participants to support the orderly transition.

In Canada, it has been announced that an enhanced version of the Canadian Overnight Repo Rate Average ('CORRA') will be introduced as part of IBOR reform, which is expected to be administered by the Bank of Canada. CDOR is currently a key benchmark rate used in Canada. The long-term implications for CDOR as a result of the introduction of revised CORRA rate have not yet been determined and may evolve over time. The Bank will continue to closely monitor the evolving Canadian environment for benchmark rates.

Effective 1 January 2019, and as noted in the 'Changes in accounting policy during 2019' section of the MD&A and in note 1(b), the bank has adopted the 'Interest Rate Benchmark Reform' amendments to IAS 39 published by the IASB in September 2019. The additional disclosures as required by the amendments are included in note 12.

Other risks

Other factors that may impact our results include changes in accounting standards, including their effect on our accounting policies, estimates and judgments; changes in tax rates, tax law and policy, and its interpretation by taxing authorities; our ability to attract, develop and retain key personnel; risk of fraud by employees or others; unauthorized transactions by employees and human error.

Despite the contingency plans we have in place for resilience in the event of sustained and significant operational disruption, our ability to conduct business may be adversely affected by a disruption in the infrastructure that supports both our operations and the communities in which we do business, including but not limited to disruption caused by public health emergencies, environmental disasters or terrorist acts.

Capital

Our objective in the management of capital is to maintain appropriate levels of capital to support our business strategy and meet our regulatory requirements.

Capital management*

The bank manages its capital in accordance with the principles contained within its capital management policy and its annual capital plan, which include the results of its internal capital adequacy assessment process ('ICAAP'). The bank determines an optimal amount and composition of regulatory and working capital required to support planned business growth, taking into consideration economic capital and the costs of capital, accepted market practices and the volatility of capital and business levels in its annual operating plan.

The bank maintains a capital position commensurate with its overall risk profile and control environment as determined by the ICAAP. The ICAAP supports capital management and ensures that the bank carries sufficient capital to meet regulatory requirements and internal targets to cover current and future risks; and, survive periods of severe economic downturn (stressed scenarios). The key elements of the bank's ICAAP include: a risk appetite framework; the identification and assessment of the risks the bank is exposed to; and, an assessment of capital adequacy against regulatory requirements as well as under stressed scenarios.

Management has established appropriate governance structures and internal controls to ensure the ICAAP remains effective in supporting the bank's capital management objectives.

The bank met its regulatory requirements throughout 2019.

Basel III capital and leverage rules

The bank assesses capital adequacy against standards established in guidelines issued by OSFI in accordance with the Basel III capital adequacy framework.

The Basel III capital adequacy framework significantly revised the definitions of regulatory capital and introduced the requirement that all regulatory capital must be able to absorb losses in a failed financial institution. Capital instruments issued prior to the adoption of the existing requirements in 2013 that do not meet these requirements are being phased out as regulatory capital over a ten year period from 2013 to 2022.

The framework emphasizes common equity as the predominant component of tier 1 capital by adding a minimum common equity tier 1 ('CET1') capital ratio. The Basel III rules also require institutions to hold capital buffers designed to avoid breaches of minimum regulatory requirements during periods of stress.

OSFI has established capital targets (including capital conservation buffer) that all institutions are expected to attain or exceed, as follows: CET1 capital ratio of 7.0%, tier 1 capital ratio of 8.5% and total capital ratio of 10.5%.

Regulatory capital

Total regulatory capital*

	Footnotes	Year ended	
		31 Dec 2019	31 Dec 2018
		$m	$m
Gross common equity	1	**5,009**	4,733
Regulatory adjustments		**(246)**	(202)
Common equity tier 1 capital		**4,763**	4,531
Additional tier 1 eligible capital		**1,100**	850
Tier 1 capital		**5,863**	5,381
Tier 2 capital	2	**1,037**	1,044
Total capital		**6,900**	6,425

1. Includes common share capital, retained earnings and accumulated other comprehensive income.
2. Includes a capital instrument subject to phase out and allowances.

Regulatory capital ratios

Risk-weighted assets

	Footnotes	Year ended	
		31 Dec 2019	31 Dec 2018
		$m	$m
Risk-weighted assets ('RWA') used in the calculation	1, 2		
– common equity tier 1 capital RWA		**42,080**	40,142
– tier 1 capital RWA		**42,080**	40,142
– total capital RWA		**42,080**	40,142

1. Effective January 2014, OSFI allowed Canadian banks to phase in the Basel III Credit Valuation Adjustment (CVA) risk capital charge over a five-year period ending December 2018. As of January 2019, the CVA scalars were fully phased-in for each tier of capital, resulting in all tiers of capital having the same risk weighted assets value. In 2018, the CVA scalars for Common equity tier 1, Tier 1, and Total capital RWA were 80%, 83% and 86%.
2. In January 2018, OSFI announced its decision to update the existing capital floor for institutions using advanced approaches for credit risk and operational risk. The capital floor is based on the Standardized approach under Basel II framework with the floor factor set at 75%.

Actual regulatory capital ratios and capital requirements

	Footnotes	Year ended	
		31 Dec 2019	31 Dec 2018
Actual regulatory capital ratios	1		
– common equity tier 1 capital ratio		**11.3%**	11.3%
– tier 1 capital ratio		**13.9%**	13.4%
– total capital ratio		**16.4%**	16.0%
– leverage ratio		**4.9%**	4.6%
Regulatory capital requirements	2		
– minimum common equity tier 1 capital ratio		**7.0%**	7.0%
– minimum tier 1 capital ratio		**8.5%**	8.5%
– minimum total capital ratio		**10.5%**	10.5%

1. Presented under a Basel III basis with non-qualifying capital instruments phased out over 10 years starting 1 January 2013.
2. OSFI target capital ratios including mandated capital conservation buffer.

Outstanding shares and dividends

Outstanding shares and dividends declared and paid on our shares in each of the last three years were as follows:

		31 December 2019			31 December 2018			31 December 2017		
	Footnotes	**Dividend**	**Number of issued shares**	**Carrying value**	Dividend	Number of issued shares	Carrying value	Dividend	Number of issued shares	Carrying value
		$ per share	**'000's**	**$m**	$ per share	'000's	$m	$ per share	'000's	$m
Common shares	*1*	**0.86230**	**498,668**	**1,225**	1.62433	498,668	1,225	0.47126	498,668	1,225
Class 1 preferred shares	*2*									
– Series C	*3*	**—**	**—**	**—**	—	—	—	1.27500	—	—
– Series D	*3*	**—**	**—**	**—**	—	—	—	1.25000	—	—
– Series G		**1.00000**	**20,000**	**500**	1.00000	20,000	500	1.00000	20,000	500
– Series I	*4*	**1.15000**	**14,000**	**350**	1.23250	14,000	350	—	14,000	350
– Series K	*5*	**0.35560**	**10,000**	**250**	—	—	—	—	—	—

1. *Dividends recorded in the financial statements are dividends per ordinary share declared in a year and are not dividends in respect of, or for, that year.*
2. *Cash dividends on preferred shares are non-cumulative and are payable quarterly.*
3. *Preferred shares - Class 1, Series C and D were redeemed on 31 December 2017.*
4. *Preferred shares - Class 1, Series I were issued on 7 December 2017; initial dividends were declared during the first quarter of 2018 and paid in accordance with their terms in the usual manner on 31 March 2018 or the first business day thereafter.*
5. *Preferred shares - Class 1, Series K were issued on 27 September 2019; initial dividends were declared during the fourth quarter of 2019 and paid in accordance with their terms in the usual manner on 31 December 2019 or the first business day thereafter.*

Dividends declared in 2019

During the year, the bank declared and paid $430m in dividends on HSBC Bank Canada common shares, a decrease of $380m compared with the prior year (which included a special dividend of $400m), and $40m in dividends on all series of HSBC Bank Canada Class 1 preferred shares, an increase of $3m compared with the prior year.

Dividends declared in 2020

On 13 February 2020, the bank declared regular quarterly dividends for the first quarter 2020 on all series of HSBC Bank Canada Class 1 preferred shares, to be paid in accordance with their terms in the usual manner on 31 March 2020 or the first business day thereafter to the shareholder of record on 15 March 2020.

On 13 February 2020, the bank also declared a final dividend of $160m on HSBC Bank Canada common shares in respect of the financial year ending 31 December 2019, which will be paid on or before 30 March 2020 to the shareholder of record on 13 February 2020.

As the quarterly dividends on preferred shares for the first quarter 2020 and the final dividend on common shares for 2019 were declared after 31 December 2019, the amounts have not been included in the balance sheet of the bank as a liability.

Statement of Management's Responsibility for Financial Information

The presentation and preparation of the annual consolidated financial statements, Management's Discussion and Analysis ('MD&A') and all other information in the *Annual Report and Accounts 2019* is the responsibility of the management of HSBC Bank Canada ('the bank'). The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards. The consolidated financial statements and information in the MD&A include amounts based on informed judgments and estimates of the expected effects of current events and transactions with appropriate consideration to materiality.

In meeting its responsibility for the reliability of financial information, management relies on comprehensive internal accounting, operating and system controls. The bank's overall controls include: an organizational structure providing for effective segregation of responsibilities; delegation of authority and personal accountability; written communication of policies and procedures of corporate conduct throughout the bank; careful selection and training of personnel; regular updating and application of written accounting and administrative policies and procedures necessary to ensure adequate internal control over transactions, assets and records; and a continuing program of extensive internal audit covering all aspects of the bank's operations. These controls are designed to provide reasonable assurance that financial records are reliable for preparing the consolidated financial statements and maintaining accountability for assets that assets are safeguarded against unauthorized use or disposition and that the bank is in compliance with all regulatory requirements. Management has a process in place to evaluate internal control over financial reporting based on the criteria established in the Internal Control - Integrated Framework (2013), issued by the Committee of Sponsoring Organizations of the Treadway Commission ('COSO').

At least once a year, the Office of the Superintendent of Financial Institutions Canada ('OSFI'), makes such examination and enquiry into the affairs of the bank as deemed necessary to ensure that the provisions of the Bank Act, having reference to the rights and interests of the depositors and the creditors of the bank, are being complied with and that the bank is in a sound financial condition.

The bank's Board of Directors oversees management's responsibilities for financial reporting through the Audit, Risk and Conduct Review Committee, which is composed of Directors who are not officers or employees of the bank. The Audit, Risk and Conduct Review Committee reviews the bank's interim and annual consolidated financial statements and MD&A. The committee approves the interim statements and recommends the Annual statements for approval by the Board of Directors. Other key responsibilities of the Audit, Risk and Conduct Review Committee include monitoring the bank's system of internal control, monitoring its compliance with legal and regulatory requirements, considering the appointment of the Shareholder's auditors and reviewing the qualifications, independence and performance of Shareholder's auditors and internal auditors.

As at 31 December 2019, we, the bank's Chief Executive Officer and Chief Financial Officer, have certified the design and effectiveness of our internal control over financial reporting as defined by the Canadian Securities Administrators under National Instrument 52-109 (Certification of Disclosure in Issuers' Annual and Interim Filings).

The Shareholder's auditors, the bank's Chief Internal Auditor and OSFI have full and free access to the Board of Directors and its committees to discuss audit, financial reporting and related matters.

Sandra Stuart
President and Chief Executive Officer
HSBC Bank Canada

Gerhardt Samwell
Chief Financial Officer
HSBC Bank Canada

Vancouver, Canada

13 February 2020

Our opinion

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of HSBC Bank Canada and its subsidiaries (together, the Bank) as at December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in accordance with International Financial Reporting Standards (IFRS).

What we have audited

The Bank's consolidated financial statements comprise:

- the consolidated income statements for the years ended December 31, 2019 and 2018;
- the consolidated statements of comprehensive income for the years ended December 31, 2019 and 2018;
- the consolidated balance sheets as at December 31, 2019 and 2018;
- the consolidated statements of cash flows for the years ended December 31, 2019 and 2018;
- the consolidated statements of changes in equity for the years ended December 31, 2019 and 2018; and
- the notes to the consolidated financial statements, which include a summary of significant accounting policies.

Certain required disclosures have been presented elsewhere in Management's Discussion and Analysis, rather than in the notes to the consolidated financial statements. These disclosures are cross-referenced from the consolidated financial statements and are identified as audited.

Basis for opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the consolidated financial statements* section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the Bank in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada. We have fulfilled our other ethical responsibilities in accordance with these requirements.

Other information

Management is responsible for the other information. The other information obtained prior to the date of this auditor's report comprises Management's Discussion and Analysis.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed on the other information obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with IFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Bank's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Bank or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Bank's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Bank's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Bank's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Bank to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Bank to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

PricewaterhouseCoopers LLP

Chartered Professional Accountants

Vancouver, Canada

February 14, 2020

Consolidated Financial Statements

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Consolidated income statement

for the year ended 31 December

	Notes	2019 $m	2018 $m
Net interest income		**1,268**	1,292
– interest income		**2,785**	2,421
– interest expense		**(1,517)**	(1,129)
Net fee income	3	**677**	673
– fee income		**779**	762
– fee expense		**(102)**	(89)
Net income from financial instruments held for trading		**165**	136
Changes in fair value of other financial instruments mandatorily measured at fair value through profit or loss		**—**	(2)
Gains less losses from financial investments		**38**	56
Dividend income		**—**	1
Other operating income		**37**	108
Total operating income		**2,185**	2,264
Change in expected credit losses and other credit impairment charges - (charge)/release		**(78)**	27
Net operating income	4	**2,107**	2,291
Employee compensation and benefits	5, 6	**(658)**	(696)
General and administrative expenses		**(533)**	(555)
Depreciation		**(72)**	(32)
Amortization and impairment of intangible assets		**(28)**	(17)
Total operating expenses		**(1,291)**	(1,300)
Profit before income tax expense		**816**	991
Income tax expense	7	**(221)**	(273)
Profit for the year		**595**	718
Attributable to:			
– the common shareholder		**555**	681
– the preferred shareholder		**40**	37
Profit for the year		**595**	718
Average number of common shares outstanding (000’s)		**498,668**	498,668
Basic and diluted earnings per common share ($)		**$ 1.11**	$ 1.36

Certain sections within the Management’s Discussion and Analysis, that are marked with an asterisk (*), and the accompanying notes form an integral part of these consolidated financial statements.

Consolidated statement of comprehensive income

for the year ended 31 December

	Notes	2019 $m	2018 $m
Profit for the year		**595**	718
Other comprehensive income			
Items that will be reclassified subsequently to profit or loss when specific conditions are met:			
Debt instruments at fair value through other comprehensive income		**130**	(80)
– fair value gains/(losses)		**215**	(53)
– fair value gains transferred to the income statement on disposal		**(38)**	(56)
– income taxes		**(47)**	29
Cash flow hedges		**21**	31
– fair value gains/(losses)		**103**	(73)
– fair value losses/(gains) reclassified to the income statement		**(75)**	115
– income taxes		**(7)**	(11)
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit plans		**(16)**	45
– before income taxes	5	**(23)**	62
– income taxes	7	**7**	(17)
Equity instruments designated at fair value through other comprehensive income		**(1)**	(1)
– fair value loss		**(1)**	(1)
Other comprehensive income/(loss) for the year, net of tax		**134**	(5)
Total comprehensive income for the year		**729**	713
Attributable to:			
– the common shareholder		**689**	676
– the preferred shareholder		**40**	37
Total comprehensive income for the year		**729**	713

Certain sections within the Management's Discussion and Analysis, that are marked with an asterisk (*), and the accompanying notes form an integral part of these consolidated financial statements.

Consolidated balance sheet

at 31 December

	Notes	2019 $m	2018 $m
Assets			
Cash and balances at central banks		**54**	78
Items in the course of collection from other banks		**15**	8
Trading assets	11	**4,322**	3,875
Other financial assets mandatorily measured at fair value through profit or loss		**5**	4
Derivatives	12	**3,267**	4,469
Loans and advances to banks		**1,169**	1,221
Loans and advances to customers		**61,922**	57,123
Reverse repurchase agreements – non-trading		**6,269**	5,860
Financial investments	13	**23,645**	24,054
Other assets	18	**1,580**	2,200
Prepayments and accrued income		**241**	234
Customers' liability under acceptances		**3,500**	3,932
Current tax assets		**26**	51
Property, plant and equipment	15	**339**	101
Goodwill and intangible assets	19	**155**	121
Deferred tax assets		**62**	75
Total assets		**106,571**	103,406
Liabilities and equity			
Liabilities			
Deposits by banks		**1,036**	1,148
Customer accounts		**62,889**	59,812
Repurchase agreements – non-trading		**7,098**	8,224
Items in the course of transmission to other banks		**225**	252
Trading liabilities	20	**2,296**	2,164
Derivatives	12	**3,431**	4,565
Debt securities in issue	21	**14,594**	13,863
Other liabilities	22	**3,384**	1,891
Acceptances		**3,505**	3,937
Accruals and deferred income		**600**	574
Retirement benefit liabilities	5	**265**	270
Subordinated liabilities	23	**1,033**	1,039
Provisions		**41**	41
Current tax liabilities		**65**	43
Total liabilities		**100,462**	97,823
Equity			
Common shares	26	**1,225**	1,225
Preferred shares	26	**1,100**	850
Other reserves		**39**	(111)
Retained earnings		**3,745**	3,619
Total shareholder's equity		**6,109**	5,583
Total liabilities and equity		**106,571**	103,406

Certain sections within the Management's Discussion and Analysis, that are marked with an asterisk (*), and the accompanying notes form an integral part of these consolidated financial statements.

Approved on behalf of the Board of Directors:

Samuel Minzberg
Chairman
HSBC Bank Canada

Sandra Stuart
President and Chief Executive Officer
HSBC Bank Canada

Consolidated statement of cash flows

for the year ended 31 December

	Footnote	2019 $m	2018 $m
Profit before income tax expense		**816**	991
Adjustments for non-cash items:			
Depreciation and amortization		**100**	49
Share-based payment expense		**12**	12
Change in expected credit losses		**78**	(27)
Charge for defined benefit pension plans		**15**	19
Changes in operating assets and liabilities			
Change in prepayment and accrued income		**(7)**	(9)
Change in net trading securities and net derivatives		**(247)**	113
Change in loans and advances to customers		**(4,877)**	(6,791)
Change in reverse repurchase agreements – non-trading		**(314)**	106
Change in other assets		**1,085**	(163)
Change in accruals and deferred income		**26**	99
Change in deposits by banks		**(112)**	(321)
Change in customer accounts		**3,077**	2,766
Change in repurchase agreements – non-trading		**(1,126)**	3,620
Change in debt securities in issue		**731**	3,043
Change in other liabilities		**744**	(1,288)
Tax paid		**(214)**	(234)
Net cash from operating activities		**(213)**	1,985
Purchase of financial investments		**(12,885)**	(13,442)
Proceeds from the sale and maturity of financial investments		**13,470**	12,182
Purchase of intangibles and property, plant and equipment		**(83)**	(76)
Proceeds from sale of property, plant and equipment		**—**	1
Net cash from investing activities		**502**	(1,335)
Issuance of preferred shares		**250**	—
Redemption of preferred shares		**—**	(350)
Dividends paid to shareholder		**(470)**	(847)
Repurchase of subordinated debentures	1	**(6)**	—
Lease principal payments		**(39)**	n/a
Net cash from financing activities		**(265)**	(1,197)
Net increase/(decrease) in cash and cash equivalents		**24**	(547)
Cash and cash equivalents at 1 Jan		**1,333**	1,880
Cash and cash equivalents at 31 Dec		**1,357**	1,333
Cash and cash equivalents comprise:			
Cash and balances at central bank		**54**	78
Items in the course of collection from other banks and Items in the course of transmission to other banks		**(210)**	(244)
Loans and advances to banks of one month or less		**1,169**	1,221
Non-trading reverse repurchase agreements with banks of one month or less		**321**	227
T-Bills and certificates of deposits less than three months		**23**	51
Cash and cash equivalents at 31 Dec		**1,357**	1,333
Interest:			
Interest paid		**(1,479)**	(1,038)
Interest received		**2,790**	2,369

1. *Changes to subordinated liabilities during the year are attributed to cash outflow from the repurchase of $6m of subordinated debentures. Non-cash changes during the year were nil.*

Certain sections within the Management's Discussion and Analysis, that are marked with an asterisk (*), and the accompanying notes form an integral part of these consolidated financial statements.

Consolidated statement of changes in equity

for the year ended 31 December

				Other reserves			
		Share capital[1]	Retained earnings	Financial assets at FVOCI reserve	Cash flow hedging reserve	Total other reserves	Total equity
	Note	$m	$m	$m	$m	$m	$m
At 1 Jan 2019		**2,075**	**3,619**	**(93)**	**(18)**	**(111)**	**5,583**
Profit for the year		**—**	**595**	**—**	**—**	**—**	**595**
Other comprehensive income/(loss), net of tax		**—**	**(16)**	**129**	**21**	**150**	**134**
– debt instruments at fair value through other comprehensive income		**—**	**—**	**130**	**—**	**130**	**130**
– equity instruments designated at fair value through other comprehensive income		**—**	**—**	**(1)**	**—**	**(1)**	**(1)**
– cash flow hedges		**—**	**—**	**—**	**21**	**21**	**21**
– remeasurement of defined benefit asset/liability		**—**	**(16)**	**—**	**—**	**—**	**(16)**
Total comprehensive income for the year		**—**	**579**	**129**	**21**	**150**	**729**
Deemed contribution	32	**—**	**13**	**—**	**—**	**—**	**13**
Dividends paid on common shares		**—**	**(430)**	**—**	**—**	**—**	**(430)**
Dividends paid on preferred shares		**—**	**(40)**	**—**	**—**	**—**	**(40)**
Issuance of preferred shares		**250**	**—**	**—**	**—**	**—**	**250**
Shares issued under employee remuneration and share plan		**—**	**4**	**—**	**—**	**—**	**4**
At 31 Dec 2019		**2,325**	**3,745**	**36**	**3**	**39**	**6,109**

			Other reserves				
	Share capital[1]	Retained earnings	Available-for-sale fair value reserve[2]	Financial assets at FVOCI reserve[2]	Cash flow hedging reserve	Total other reserves	Total equity
		$m	$m	$m	$m	$m	$m
At 1 Jan 2018	2,075	3,696	(12)	n/a	(49)	(61)	5,710
Changes on initial application of IFRS 9	—	11	12	(12)	—	—	11
Restated balance at 1 Jan 2018 under IFRS 9	2,075	3,707	—	(12)	(49)	(61)	5,721
Profit for the year	—	718	n/a	—	—	—	718
Other comprehensive income/(loss), net of tax	—	45	n/a	(81)	31	(50)	(5)
– debt instruments at fair value through other comprehensive income	—	—	n/a	(80)	—	(80)	(80)
– equity instruments designated at fair value through other comprehensive income	—	—	n/a	(1)	—	(1)	(1)
– cash flow hedges	—	—	n/a	—	31	31	31
– remeasurement of defined benefit asset/liability	—	45	n/a	—	—	—	45
Total comprehensive income for the year	—	763	n/a	(81)	31	(50)	713
Dividends paid on common shares	—	(810)	n/a	—	—	—	(810)
Dividends paid on preferred shares	—	(37)	n/a	—	—	—	(37)
Shares issued under employee remuneration and share plan	—	(4)	n/a	—	—	—	(4)
At 31 Dec 2018	2,075	3,619	n/a	(93)	(18)	(111)	5,583

1. *Share capital is comprised of common shares $1,225m and preferred shares $1,100m (31 December 2018: common shares $1,225m and preferred shares of $850m).*
2. *'Available-for-sale fair value reserve' was transferred to 'Financial assets at FVOCI reserve' on 1 January 2018 as a result of IFRS 9 initial application.*

Certain sections within the Management's Discussion and Analysis, that are marked with an asterisk (*), and the accompanying notes form an integral part of these consolidated financial statements.

1 Basis of preparation

(a) Compliance with International Financial Reporting Standards

International Financial Reporting Standards ('IFRSs') comprise accounting standards as issued or adopted by the International Accounting Standards Board ('IASB') as well as interpretations issued or adopted by the IFRS Interpretations Committee.

HSBC Bank Canada and its subsidiary undertakings (together 'the bank', 'we', 'our', 'HSBC') is an indirectly wholly-owned subsidiary of HSBC Holdings plc ('the Parent', 'HSBC Holdings'). In these consolidated financial statements, HSBC Group means the Parent and its subsidiary companies.

The consolidated financial statements of the bank have been prepared in accordance with IFRSs and in consideration of the accounting guidelines as issued by the Office of the Superintendent of Financial Institutions Canada ('OSFI'), as required under Section 308(4) of the Bank Act. Section 308 (4) states that except as otherwise specified by OSFI, the financial statements shall be prepared in accordance with IFRS.

(b) Standards adopted during the year ended 31 December 2019

The bank adopted the requirements of IFRS 16 'Leases' ('IFRS 16') from 1 January 2019. As a result of the adoption of IFRS 16, the bank has recognized a right-of-use asset and a corresponding financial liability on the balance sheet. In accordance with the IFRS 16 transition options, the bank has applied the standard using a modified retrospective approach where the cumulative effect of initially applying the standard, if any, is recognized as an adjustment to the opening balance of retained earnings and comparative balances are not restated. The adoption of IFRS 16 by the bank had no impact to retained earnings as the bank measured right-of-use assets at an amount equal to the lease liability recognized on transition which is a permitted transition options for IFRS 16. The impact on assets and liabilities is set out under note 2(m).

The bank adopted the 'Interest Rate Benchmark Reform' amendments to IAS 39 published by the IASB in September 2019. The amendments modify specific hedge accounting requirements so that entities apply those hedge accounting requirements assuming that the interest rate benchmark on which the hedged cash flows and cash flows of the hedging instrument are based is not altered as a result of interest rate benchmark reform. These amendments replace the need for specific judgments to determine whether certain hedge accounting relationships that hedge the variability of cash flows or interest rate risk exposures for periods after the interest rate benchmarks are expected to be reformed or replaced continue to qualify for hedge accounting as at 31 December 2019. For example, in the context of cash flow hedging, the amendments require the IBOR cash flows to be assumed to be highly probable over the period of the documented hedge relationship, while uncertainty over the interest rate benchmark reform exists. The IASB is expected to provide further guidance on the implication for hedge accounting during the reform process and after the reform uncertainty is resolved. These amendments apply from 1 January 2020 with early adoption permitted. The bank has adopted the amendments that apply to IAS 39 from 1 January 2019 and has made the additional disclosures as required by the amendments. Further information is included in note 12.

In addition, the bank has also adopted a number of interpretations and amendments to standards which have had an insignificant effect on the consolidated financial statements of the bank.

(c) Future accounting developments

Major new IFRSs

IFRS 17 'Insurance contracts'

The IASB issued IFRS 17 'Insurance contracts' in May 2017. It sets out the requirements that an entity should apply in accounting for insurance contracts it issues and reinsurance contracts it holds. IFRS 17 is effective from 1 January 2021, although the IASB is considering delaying the mandatory implementation date by one year. The bank is considering the impact of IFRS 17 on the consolidated financial statements of the bank.

Minor amendments to IFRSs

The IASB has published a number of minor amendments to IFRSs which are effective from 1 January 2020. We expect they will have an insignificant effect, when adopted, on our consolidated financial statements.

(d) Foreign currencies

The bank's consolidated financial statements are presented in Canadian dollars which is also its functional currency. The abbreviation '$m' represents millions of dollars. All tabular amounts are in millions of dollars except where otherwise noted.

Transactions in foreign currencies are recorded at the rate of exchange on the date of the transaction. Assets and liabilities denominated in foreign currencies are translated at the rate of exchange at the balance sheet date except non-monetary assets and liabilities measured at historical cost that are translated using the rate of exchange at the initial transaction date. Exchange differences are included in other comprehensive income or in the income statement depending on where the gain or loss on the underlying item is recognized.

(e) Presentation of information

Certain sections within the accompanying Management's Discussion and Analysis, that are marked with an asterisk (*), form an integral part of these consolidated financial statements.

(f) Critical accounting estimates and assumptions

The preparation of financial information requires the use of estimates and judgments about future conditions. In view of the inherent uncertainties and the high level of subjectivity involved in the recognition or measurement of items listed below, it is possible that the outcomes in the next financial year could differ from those on which management's estimates are based. This could result in materially different estimates and judgments from those reached by management for the purposes of these Financial Statements. Management's selection of the bank's accounting policies which contain critical estimates and judgments are listed below and discussed in the 'Critical

accounting estimates and judgments' section of Management's Discussion and Analysis. It reflects the materiality of the items to which the policies are applied and the high degree of judgment and estimation uncertainty involved.

- Expected credit loss;
- Valuation of financial instruments;
- Income taxes and deferred tax assets; and
- Defined benefit obligations.

(g) Segmental analysis

The bank's chief operating decision maker is the Chief Executive Officer, supported by the Executive Committee. Operating segments are reported in a manner consistent with the internal reporting provided to the Chief Executive Officer and the Executive Committee. The bank's operations are managed according to the following global businesses: Commercial Banking, Global Banking and Markets, Retail Banking and Wealth Management as well as Corporate Centre.

Measurement of segmental assets, liabilities, income and expenses is in accordance with the bank's accounting policies. Segmental income and expenses include transfers between segments and these transfers are conducted at arm's length. Shared costs are included in segments on the basis of the actual recharges made.

(h) Going concern

The financial statements are prepared on a going concern basis, as the Directors are satisfied that the bank has the resources to continue in business for the foreseeable future. In making this assessment, the Directors have considered a wide range of information relating to present and future conditions, including future projections of profitability, cash flows and capital resources.

2 Summary of significant accounting policies

(a) Consolidation and related policies

Investments in subsidiaries

The bank controls and consequently consolidates an entity when it is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Control is initially assessed based on consideration of all facts and circumstances, including the purpose and design of the entity, the facts and circumstances relating to decision making rights and the rights to returns and/or the ability of the bank to vary the returns. Control is subsequently reassessed when there are significant changes to the initial setup, taking into account any changes in these facts and circumstances, significant changes in the rights to returns and/or the ability of the bank to vary the returns.

Where an entity is governed by voting rights, the bank would consolidate when it holds, directly or indirectly, the necessary voting rights to pass resolutions by the governing body. In all other cases, the assessment of control is more complex and requires judgment of other factors, including having exposure to variability of returns, power over the relevant activities or holding the power as agent or principal.

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured at the fair value of the consideration, including contingent consideration, given at the date of exchange. Acquisition-related costs are recognized as an expense in the income statement in the period in which they are incurred. The acquired identifiable assets, liabilities and contingent liabilities are generally measured at their fair values at the date of acquisition. The amount of non-controlling interest is measured either at fair value or at the non-controlling interest's proportionate share of the acquiree's identifiable net assets. This election is made for each business combination.

All intra-bank transactions are eliminated on consolidation.

Business combinations of entities under common control

Business combinations between the bank and other entities under the common control of HSBC Holdings plc are accounted for using predecessor accounting. The assets and liabilities are transferred at their existing carrying amount and the difference between the carrying value of the net assets transferred and the consideration received is recorded directly in equity.

Goodwill

Goodwill is measured as the excess of the aggregate of the consideration transferred, the amount of non-controlling interest and the fair value of the bank's previously held equity interest, if any, over the net of the amounts of the identifiable assets acquired and the liabilities assumed.

Goodwill is allocated to cash-generating units ('CGU's) for the purpose of impairment testing, which is undertaken at the lowest level at which goodwill is monitored for internal management purposes. Impairment testing is performed at least annually, or whenever there is an indication of impairment, by comparing the recoverable amount of a CGU with its carrying amount.

Structured entities

The bank is considered to sponsor another entity if, in addition to ongoing involvement with the entity, it had a key role in establishing that entity or in bringing together the relevant counterparties so the transaction that is the purpose of the entity could occur. The bank is not considered to be a sponsor if the only involvement with the entity is to provide services at arm's length and it ceases to be a sponsor once it has no ongoing involvement with the structured entity.

A structured entity is an entity that has been designed so that voting or similar rights are not the dominant factor in deciding who controls the entity, for example when any voting rights relate to administrative tasks only, and key activities are directed by contractual arrangements. Structured entities often have restricted activities and a narrow and well defined objective.

Structured entities are assessed for consolidation in accordance with the accounting policy as set out above.

Interests in associates

The bank classifies investments in entities over which it has significant influence, and that are not subsidiaries (note 16), as associates.

Investments in associates are recognized using the equity method. Under this method, such investments are initially stated at cost, including attributable goodwill, and are adjusted thereafter for the post-acquisition change in the bank's share of net assets.

Profits on transactions between the bank and its associates are eliminated to the extent of the bank's interest in the respective associates. Losses are also eliminated to the extent of the bank's interest in the associates unless the transaction provides evidence of an impairment of the asset transferred.

(b) Operating income

Interest income and expense

Interest income and expense for all financial instruments, except for those classified as held for trading or designated at fair value are recognized in 'Interest income' and 'Interest expense' in the income statement using the effective interest method. The effective interest rate is the rate that exactly discounts estimated future cash receipts or payments through the expected life of the financial instrument or, where appropriate, a shorter period, to the net carrying amount of the financial asset or financial liability.

Interest on impaired financial assets is recognized using the rate of interest used to discount the future cash flows for the purpose of measuring the impairment loss.

Fee Income and expense

The recognition of revenue can be either over time or at a point in time depending on when the performance obligation is satisfied. When control of a good or service is transferred over time, if the customer simultaneously receives and consumes the benefits provided by the bank's performance as we perform, the bank satisfies the performance obligation and recognizes revenue over time. Otherwise, revenue is recognized at the point in time at which we transfer control of the good or service to the customer. Variable fees are recognized when all uncertainties are resolved.

For all fee types, where there is a single performance obligation, the transaction price is allocated in its entirety to that performance obligation. Where there are multiple performance obligations, the transaction price is allocated to the performance obligation to which it relates based on stand-alone selling prices.

Income which forms an integral part of the effective interest rate of a financial instrument (for example, certain loan commitment fees) is recognized as an adjustment to the effective interest rate and recorded in 'Interest income'.

The main types of fee income arising from contracts with customers, including information about performance obligations, determining the timing and satisfaction of performance obligations and determining the transaction price and the amounts allocated to performance are as follows:

Credit facilities

Credit facility fees include fees generated from providing a credit facility that are not included within the Effective Interest Rate ('EIR'), such as annual facility fees (commitment fees), standby fees and other transaction based fees charged for late payments, return payments, over credit charges and foreign usage. Fees associated with loan commitments and standby letters of credit are billed upfront and recognized on a straight-line basis over the period the service is performed and the performance obligation is met (e.g. the commitment period). In the event a loan commitment or standby letter of credit is exercised, the remaining unamortized fee is recognized as an adjustment to yield over the loan term. The transaction price (excluding any interest element) usually includes an annual facility fee, which could be a fixed charge or a percentage of the approved credit limit, and other transaction-based charges, which could be either a fixed price or a percentage of the transaction value. Although fees charged can be variable (percentage of credit limit or transaction value), the uncertainty is resolved by the time the revenue is recognized as the credit limit or transaction value is known on the contract or transaction date. Therefore, there is no need to estimate the variable consideration or apply the constraint. On the basis that the services are provided evenly over the term of the agreement, the fee is recognized on a straight line basis over the commitment period.

Funds under management

Funds under management include management fees, administration fees and transaction based fees.

Management fees are generally percentage based and therefore represent variable consideration. This amount is subject to the variable consideration constraint and is only included in the transaction price to the extent that it is highly probable that a significant reversal of cumulative revenue will not occur when the uncertainty associated with the variable consideration is subsequently resolved. At the end of each payment period, or at each reporting date, the management fee is allocated to the distinct management services that have been provided during that period. Fee income from management fees is recognized evenly over time on a straight-line basis as the services are provided and the related performance obligations are satisfied evenly over time. The fee percentage and payment period are agreed with the customer upfront. Generally, payment periods are monthly or quarterly and coincide with our reporting periods, thereby resolving the uncertainty of the variable consideration by the reporting date. For payment periods that do not coincide with our reporting periods, judgment is required to estimate the fee and determine the amount to recognize as accrued income, accrued income is only recorded to the extent it is highly probably that a significant reversal of revenue will not occur. A significant reversal of accrued management fee revenue is not highly probable for most contracts.

Administration fees, where applicable, are agreed with the customer and based on the terms of each contract. These fees are either fixed upfront charges or percentage based fees calculated as a percentage of the average value of a customer's assets at the end of an agreed period. Percentage based administrative fees are included in the transaction price only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved.

Other fees are transaction based and are recognized and billed at the point in time the transaction occurs and the performance obligation is met.

Cards

Credit card arrangements involve numerous contracts between various parties. The bank has determined that the more significant contracts within the scope of IFRS 15 are:

- the contract between the bank and the credit card holder ('Cardholder Agreement') under which we earn miscellaneous fees (e.g., late payment fees, over-limit fees, foreign exchange fees, etc.) and for some products annual fees; and
- an implied contract between the bank and merchants who accept our credit cards in connection with the purchase of their goods and/or services ('Merchant Agreement') under which we earn interchange fees.

The Cardholder Agreement obligates the bank, as the card issuer, to perform activities such as redeem loyalty points by providing goods, cash or services to the cardholder, provide ancillary services such as concierge services, travel insurance, airport lounge access and the like, process late payments, provide foreign exchange services, and others. The primary fees arising under cardholder agreements which are in scope of IFRS 15 include annual fees, transaction based fees, and penalty fees for late payments. The amount of each fee stated in the contract represents the transaction price for that performance obligation. Annual fees on credit cards are billed upfront and recognized on a straight-line basis. Other credit card fees, as noted above, are transaction based and are recognized and billed at the point in time the transaction occurs and the performance obligation is met.

Interchange fees

The implied contract between the bank and the merchant results in the bank receiving an interchange fee from the merchant. The interchange fee represents the transaction price associated with the implied contract between the bank and the merchant because it represents the amount of consideration to which the bank expects to be entitled in exchange for transferring the promised service (i.e., purchase approval and payment remittance) to the merchant. The performance obligation associated with the implied contract between the bank and the merchant is satisfied upon performance and simultaneous consumption by the customer of the underlying service (i.e. purchase approval and payment remittance). Therefore, the interchange fee is recognized as revenue each time the bank approves a purchase and remits payment to the merchant.

Account services

The bank provides services for current accounts that generate fees from various activities including: accounts statements, ATM transactions, cash withdrawals, wire transfers, utilization of cheques, debit cards and internet and phone banking. The fees for these services are established in the customer account agreement and are either billed individually at the time the service is performed and the performance obligation is met, or on a monthly basis for a package or bundle of services as the services are performed and the performance obligation is met. Customer account agreements typically include a package of services with multiple performance obligations or a bundle of services making up a single performance obligation. In the case of a package of services, the pattern of transfer to the customer is the same for all services (stand ready obligation) therefore, all the goods and services are treated as a single performance obligation. The transaction price is allocated in its entirety to the single performance obligation. The performance obligation associated with account services is satisfied as a stand ready obligation to provide services evenly over time, and therefore, the fee income from account services is recognized evenly over time.

Net income from financial instruments measured at fair value through profit or loss includes:

- 'Net income from financial instruments held for trading'. This element is comprised of the net trading income, which includes all gains and losses from changes in the fair value of financial assets and liabilities held for trading, together with the related interest income, expense and dividends; and it also includes all gains and losses from changes in the fair value of derivatives that are managed in conjunction with financial assets and liabilities measured at fair value through profit or loss.
- 'Changes in fair value of long-term debt'. Interest paid on the external long-term debt and interest cash flows on related derivatives is presented in interest expense.
- 'Changes in fair value of other financial instruments mandatorily measured at fair value through profit or loss'.

Dividend income is recognized when the right to receive payment is established. This is the ex-dividend date for listed equity securities, and usually the date when shareholders approve the dividend for unlisted equity securities.

(c) Valuation of financial instruments

All financial instruments are initially recognized at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value of a financial instrument on initial recognition is generally its transaction price (that is, the fair value of the consideration given or received). However, sometimes the fair value will be based on other observable current market transactions in the same instrument, without modification or repackaging, or on a valuation technique whose variables include only data from observable markets, such as interest rate yield curves, option volatilities and currency rates. If there is a difference between the transaction price and the fair value of financial instruments whose fair value is based on a quoted price in an active market or a valuation technique that uses only data from observable markets, the bank recognizes the difference as a trading gain or loss at inception (a 'day 1 gain or loss'). In all other cases, the entire day 1 gain or loss is deferred and recognized in the income statement over the life of the transaction either until the transaction matures or is closed out, the valuation inputs become observable or the bank enters into an offsetting transaction.

(d) Financial instruments measured at amortized cost

Financial assets that are held to collect the contractual cash flows and that contain contractual terms that give rise on the specified dates to cash flows that are solely payments of principal and interest, such as most loans and advances to banks and customers and some debt securities, are measured at amortized cost. In addition, most financial liabilities are measured at amortized cost. The bank accounts for regular way amortized cost financial instruments using trade date accounting. The carrying value of these financial assets at initial

recognition includes any directly attributable transactions costs. If the initial fair value is lower than the cash amount advance, such as in the case of some leveraged finance and syndicated lending activities, the difference is deferred and recognized over the life of the loan through the recognition of interest income.

The bank may commit to underwriting loans on fixed contractual terms for specified periods of time. When the loan arising from the lending commitment is expected to be held for trading, the commitment to lend is recorded as a derivative. When the bank intends to hold the loan, the loan commitment is included in the impairment calculations set out below.

Non-trading reverse repurchase, repurchase and similar agreements

When debt securities are sold subject to a commitment to repurchase them at a predetermined price ('repos'), they remain on the balance sheet and a liability is recorded in respect of the consideration received. Securities purchased under commitments to resell ('reverse repos') are not recognized on the balance sheet and an asset is recorded in respect of the initial consideration paid. Non-trading repos and reverse repos are measured at amortized cost. The difference between the sale and repurchase price or between the purchase and resale price is treated as interest expense and interest income respectively, and recognized in net interest income over the life of the agreement.

(e) Financial assets measured at fair value through other comprehensive income ('FVOCI')

Financial assets held for a business model that is achieved by both collecting contractual cash flows and selling and that contain contractual terms that give rise on specified dates to cash flows that are solely payments of principal and interest are measured at FVOCI. These comprise primarily debt securities. They are recognized on trade date when the bank enters into contractual arrangements to purchase and are normally derecognized when they are either sold or redeemed. They are subsequently remeasured at fair value and changes therein (except for those relating to impairment, interest income and foreign currency exchange gains and losses which are recognized immediately in net income) are recognized in other comprehensive income until the assets are sold. Upon disposal, the cumulative gains or losses in other comprehensive income are recognized in the income statement as 'Gains less losses from financial investments'. Financial assets measured at FVOCI are included in the impairment calculations set out below and impairment is recognized in profit or loss.

(f) Equity securities measured at fair value with fair value movements presented in OCI

The equity securities for which fair value movements are shown in OCI are business facilitation and other similar investments where the bank holds the investments other than to generate a capital return. Gains or losses on the derecognition of these equity securities are not transferred to profit or loss. Otherwise equity securities are measured at fair value through profit or loss (except for dividend income which is recognized in profit or loss).

(g) Financial instruments designated and otherwise mandatorily measured at fair value through profit or loss ('FVPL')

Equity securities for which the fair value movements are not shown in OCI are mandatorily classified in this category.

Additionally, financial instruments, other than those held for trading, are classified in this category if they meet one or more of the criteria set out below and are so designated as irrevocably at inception:

- the use of the designation removes or significantly reduces an accounting mismatch;
- when a group of financial assets and liabilities or a group of financial liabilities is managed and its performance is evaluated on a fair value basis, in accordance with a documented risk management or investment strategy; and
- where the financial liability contains one or more non-closely related embedded derivatives.

Designated financial assets are recognized when the bank enters into contracts with counterparties, which is generally on trade date, and are normally derecognized when the rights to the cash flows expire or are transferred. Designated financial liabilities are recognized when the bank enters into contracts with counterparties, which is generally on settlement date, and are normally derecognized when extinguished. Subsequent changes in fair values are recognized in the income statement.

Under the above criterion, there are no such financial instruments designated at fair value by the bank at 31 December 2019.

(h) Derivatives

Derivatives are financial instruments that derive their value from the price of underlying items such as equities, interest rates or other indices. Derivatives are recognized initially, and are subsequently re-measured, at fair value through profit or loss. Fair values of derivatives are obtained either from quoted market prices or by using valuation techniques. Derivatives are only offset for accounting purposes if the offsetting criteria are met.

Embedded derivatives in financial liabilities are treated as separate derivatives ('bifurcated') when their economic characteristics and risks are not closely related to those of the host non-derivative contract, their contractual terms would otherwise meet the definition of a stand-alone derivative and the combined contract is not measured at fair value through profit or loss.

Derivatives are classified as assets when their fair value is positive or as liabilities when their fair value is negative. Derivative assets and liabilities arising from different transactions are only offset if the transactions are with the same counterparty, a legal right of offset exists, and the parties intend to settle the cash flows on a net basis.

Gains and losses from changes in the fair value of derivatives, including the contractual interest, that do not qualify for hedge accounting are reported in 'Net income from financial instruments held for trading'.

When derivatives are designated as hedges, the bank classifies them as either: (i) hedges of the change in fair value of recognized assets or liabilities or firm commitments ('fair value hedges'); or (ii) hedges of the variability in highly probably future cash flows attributable to a recognized asset or liability, or a forecast transaction ('cash flow hedges').

Hedge accounting

As permitted by IFRS 9, the bank has exercised an accounting policy choice to remain with IAS 39 hedge accounting. At the inception of a hedging relationship, the bank documents the relationship between the hedging instruments and the hedged items, its risk management

objective and its strategy for undertaking the hedge. The bank requires a documented assessment, both at hedge inception and on an ongoing basis, of whether or not the hedging instruments are highly effective in offsetting the changes attributable to the hedged risks in the fair values or cash flows of the hedged items.

Fair value hedge

Fair value hedge accounting does not change the recording of gains and losses on derivatives and other hedging instruments, but results in recognizing changes in the fair value of the hedged assets or liabilities attributable to the hedged risk that would not otherwise be recognized in the income statement. If a hedging relationship no longer meets the criteria for hedge accounting, the hedge accounting is discontinued; the cumulative adjustment to the carrying amount of the hedged item is amortized to the income statement on a recalculated effective interest rate over the residual period to maturity, unless the hedged item has been derecognized, in which case it is recognized to the income statement immediately.

Cash flow hedge

The effective portion of gains and losses on hedging instruments is recognized in other comprehensive income; the ineffective portion of the change in fair value of derivative hedging instruments that are part of a cash flow hedge relationship is recognized immediately in the income statement within 'Net income from financial instruments held for trading'.

The accumulated gains and losses recognized in other comprehensive income are reclassified to the income statement in the periods in which the hedged item affects profit or loss. In hedges of forecast transactions that result in recognition of a non-financial asset or liability, previous gains and losses recognized in other comprehensive income are included in the initial measurement of the asset or liability.

When a hedge relationship is discontinued, any cumulative gain or loss recognized in other comprehensive income remains in equity until the forecast transaction is recognized in the income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss previously recognized in other comprehensive income is immediately reclassified to the income statement.

Hedge effectiveness testing

To qualify for hedge accounting, the bank requires that, at the inception of the hedge and throughout its life, each hedge must be expected to be highly effective both prospectively and retrospectively, on an ongoing basis.

The documentation of each hedging relationship sets out how the effectiveness of the hedge is assessed and the method adopted by an entity to assess hedge effectiveness will depend on its risk management strategy. For prospective effectiveness, the hedging instrument must be expected to be highly effective in offsetting changes in fair value or cash flows attributable to the hedged risk during the period for which the hedge is designated, with the effectiveness range being defines at 0.8 to 1.25. Hedge ineffectiveness is recognized in the income statement in 'Net income from financial instruments held for trading'.

Derivatives that do not qualify for hedge accounting

Non-qualifying hedges are derivatives entered into as economic hedges of assets and liabilities for which hedge accounting was not applied.

(i) Impairment of amortized cost and FVOCI financial assets

Expected credit losses ('ECL') are recognized for loans and advances to banks and customers, non-trading reverse repurchase agreements, other financial assets held at amortized cost, debt instruments measured at fair value through other comprehensive income, and certain loan commitments and financial guarantee contracts. At the end of the first reporting period after initial recognition, an allowance (or provision in the case of some loan commitments and financial guarantees) is required for ECL resulting from default events that are possible within the next 12 months (or less, where the remaining life is less than 12 months) ('12-month ECL'). In the event of a significant increase in credit risk, an allowance (or provision) is required for ECL resulting from all possible default events over the expected life of the financial instruments ('lifetime ECL'). Financial assets where 12-month ECL is recognized are considered to be 'stage 1'; financial assets which are considered to have experienced a significant increase in credit risk are in 'stage 2'; financial assets for which there is objective evidence of impairment so are considered to be in default or otherwise credit-impaired are in 'stage 3'.

Credit-impaired (stage 3)

The bank determines that a financial instrument is credit-impaired and in stage 3 by considering relevant objective evidence, primarily whether:

- contractual payments or either principal or interest are past due for more than 90 days;
- there are other indications that the borrower is unlikely to pay such as that a concession has been granted to the borrower for economic or legal reasons relating to the borrower's financial condition; and
- the loan is otherwise considered to be in default.

If such unlikeliness to pay is not identified at an earlier stage, it is deemed to occur when a exposure is 90 days past due, even where regulatory rules permit default to be defined based on 180 days past due. Therefore the definition of credit-impaired and default are aligned as far as possible so that stage 3 represents all loans which are considered defaulted to otherwise credit-impaired.

Interest income is recognized by applying the effective interest rate to the amortized cost amount, i.e. gross carrying amount less ECL allowance.

Write-off

Financial assets (and the related impairment allowances) are normally written off, either partially or in full, when there is no realistic prospect of recovery. Where loans are secured, this is generally after receipt of any proceeds from the realization of security. In circumstances where the net realizable value of any collateral has been determined and there is no reasonable expectation of further recovery, write-off may be earlier.

Renegotiation

Loans are identified as renegotiated and classified as credit impaired when we modify the contractual payment terms due to significant credit distress of the borrower. Renegotiated loans remain classified as credit-impaired until there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows and retain the designation of renegotiated until maturity or derecognition.

A loan that is renegotiated is derecognized if the existing agreement is canceled and a new agreement is made on substantially different terms or if the terms of an existing agreement are modified such that the renegotiated loan is a substantially different financial instrument. Any new loans that arise following derecognition events in these circumstances are considered to be purchased or originated credit-impaired financial assets and will continue to be disclosed as renegotiated loans.

Other than originated credit-impaired loans, all other modified loans could be transferred out of stage 3 if they no longer exhibit any evidence of being credit-impaired and, in the case of renegotiated loans, there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows, over the minimum observation period, and there are no other indicators of impairment. These loans could be transferred to stage 1 or 2 based on the mechanism as described below by comparing the risk of a default occurring at the reporting date (based on the modified contractual terms) and the risk of a default occurring at initial recognition (based on the original, unmodified contractual terms). Any amount written off as a result of the modification of contractual terms would not be reversed.

Loan modifications that are not credit-impaired

Loan modifications that are not identified as renegotiated are considered to be commercial restructuring. Where a commercial restructuring results in a modification (whether legalized through an amendment to the existing terms or the issuance of a new loan contract) such that the bank's rights to the cash flows under the original contract have expired, the loan is derecognized and a new loan is recognized at fair value. The rights to cash flows are generally considered to have expired if the commercial restructure is at market rates and no payment-related concession has been provided.

Significant increase in credit risk (stage 2)

An assessment of whether credit risk has increased significantly since initial recognition is performed at each reporting period by considering the change in the risk of default occurring over the remaining life of the financial instrument. The assessment explicitly or implicitly compares the risk of default occurring at the reporting date compared to that at initial recognition, taking into account reasonable and supportable information, including information about past events, current conditions and future economic conditions. The assessment is unbiased, probability-weighted, and to the extent relevant, uses forward-looking information consistent with that used in the measurement of ECL. The analysis of credit risk is multi-factor. The determination of whether a specific factor is relevant and its weight compared with other factors depends on the type of product, the characteristics of the financial instrument and the borrower, and the geographical region. Therefore, it is not possible to provide a single set of criteria that will determine what is considered to be a significant increase in credit risk and these criteria will differ for different types of lending, particularly between retail and wholesale. However, unless identified at an earlier stage, all financial assets are deemed to have suffered a significant increase in credit risk when payments are 30 days past due. In addition, wholesale loans that are individually assessed, typically corporate and commercial customers, and included on a watch or worry list are included in stage 2.

For wholesale portfolios, the quantitative comparison assesses default risk using a lifetime probability of default which encompasses a wide range of information including the obligor's customer risk rating, macroeconomic condition forecasts and credit transition probabilities. Significant increase in credit risk is measured by comparing the average PD for the remaining term estimated at origination with the equivalent estimation at reporting date. The significance of changes in PD was informed by expert credit risk judgment, referenced to historical credit migrations and to relative changes in external market rates.

For loans originated prior to the implementation of IFRS 9, the origination PD does not include adjustments to reflect expectations of future macroeconomic conditions since these are not available without the use of hindsight. In the absence of this data, the origination PD is approximated assuming through-the-cycle ('TTC') PDs and TTC migration probabilities, consistent with the instrument's underlying modeling approach and the credit risk rating ('CRR') at origination. For these loans, the quantitative comparison is supplemented with additional CRR deterioration- based thresholds, as set out in the table below:

Origination CRR	Additional significance criteria - number of CRR grade notches deterioration required to identify as significant credit deterioration (stage 2) (> or equal to)
0.1	5 notches
1.1 - 4.2	4 notches
4.3 - 5.1	3 notches
5.2 - 7.1	2 notches
7.2 - 8.2	1 notch
8.3	0 notch

Further information about the 23-grade scale used for CRR can be found on page 32.

For certain portfolios of debt securities where external market ratings are available and credit ratings are not used in credit risk management, the debt securities will be in stage 2 if their credit risk increases to the extent they are no longer considered investment grade. Investment grade is where the financial instrument has a low risk of incurring losses, the structure has a strong capacity to meet its contractual cash flow obligations in the near term and adverse changes in economic and business conditions in the longer term may, but will not necessarily, reduce the ability of the borrower to fulfill their contractual cash flow obligations.

For retail portfolios, default risk is assessed using a reporting date 12-month PD derived from credit scores which incorporate all available information about the customer. This PD is adjusted for the effect of macroeconomic forecasts for periods longer than 12 months and is considered to be a reasonable approximation of a lifetime PD measure. Retail exposures are first segmented into homogeneous portfolios, generally by country, product and brand. Within each portfolio, the stage 2 accounts are defined as accounts with an adjusted 12-month PD greater than the average 12-month PD of loans in that portfolio 12 months before they become 30 days past due. The expert credit risk

judgment is that no prior increase in credit risk is significant. This portfolio-specific threshold identifies loans with a PD higher than would be expected from loans that are performing as originally expected and higher than that which would have been acceptable at origination. It therefore approximates a comparison of origination to reporting date PDs.

Unimpaired and without significant increase in credit risk (stage 1)

ECL resulting from default events that are possible within the next 12 months ('12- month ECL') are recognized for financial instruments that remain in stage 1.

Movement between stages

Financial assets can be transferred between the different categories depending on their relative increase or decrease in credit risk since initial recognition. Financial instruments are transferred out of stage 2 if their credit risk is no longer considered to be significantly increased since initial recognition based on the assessments described above. Except for renegotiated loans, financial instruments are transferred out of stage 3 when they no longer exhibit any evidence of credit impairment as described above. Renegotiated loans will continue to be in stage 3 until there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows, observed over a minimum one-year period and there are no other indicators of impairment. For loans that are assessed for impairment on a portfolio basis, the evidence typically comprises a history of payment performance against the original or revised terms, as appropriate to the circumstances. For loans that are assessed for impairment on an individual basis, all available evidence is assessed on a case-by-case basis.

Measurement of ECL

The assessment of credit risk, and the estimation of ECL, are unbiased and probability-weighted, and incorporate all available information which is relevant to the assessment including information about past events, current conditions and reasonable and supportable forecasts of future events and economic conditions at the reporting date. In addition, the estimation of ECL should take into account the time value of money.

In general, the bank calculates ECL using three main components, a probability of default, a loss given default and the exposure at default ('EAD').

The 12-month ECL is calculated by multiplying the 12-month PD, LGD, and EAD. Lifetime ECL is calculated using the lifetime PD instead. The 12-month and lifetime PDs represent the probability of default occurring over the next 12 months and the remaining maturity of the instrument respectively.

The EAD represents the expected balance at default, taking into account the repayment of principal and interest from the balance sheet date to the default event together with any expected drawdowns of committed facilities. The LGD represents expected losses on the EAD given the event of default, taking into account, among other attributes, the mitigating effect of collateral value at the time it is expected to be realized and the time value of money.

The bank leverages the Basel II IRB framework where possible, with recalibration to meet the differing IFRS 9 requirements as follows:

Model	Regulatory capital	IFRS 9
PD	• Through the cycle (represents long-run average PD through a full economic cycle) • The definition of default includes a backstop of 90+ days past due	• Point in time (based on current conditions, adjusted to take into account estimates of future conditions that will impact PD) • Default backstop of 90+ days past due
EAD	• Cannot be lower than current balance	• Amortization captured for term products
LGD	• Downturn LGD (consistent losses expected to be suffered during a severe but plausible economic downturn) • Regulatory floors may apply to mitigate risk of underestimating downturn LGD due to lack of historical data • Discounted using cost of capital • All collection costs included	• Expected LGD (based on estimate of loss given default including the expected impact of future economic conditions such as the change in value of collateral) • No floors • Discounted using the original effective interest rate of the loan • Only costs associated with obtaining/selling collateral included
Other		• Discounted back from point of default to balance sheet date

While 12-month PDs are recalibrated from Basel models where possible, the lifetime PDs are determined by projecting the 12-month PD using a term structure. For the wholesale methodology, the lifetime PD also takes into account credit migration, i.e. a customer migrating through CRR bands over its life.

The ECL for wholesale stage 3 is determined on an individual basis using a discounted cash flows ('DCF') methodology. The expected future cash flows are based on the credit risk officer's estimates as at the reporting date, reflecting reasonable and supportable assumptions and projections of future recoveries and expected future receipts of interest. Collateral is taken into account if it is likely that the recovery of the outstanding amount will include realization of collateral based on its estimated fair value of collateral at the time of expected realization, less costs for obtaining and selling the collateral. The cash flows are discounted at a reasonable approximation of the original effective interest rate. For significant cases, cash flows using up to four different scenarios are probability-weighted by reference to the three economic scenarios applied more generally by the bank and the judgment of the credit risk officer in relation to the likelihood of the workout strategy succeeding or receivership being required. For less significant cases, the effect of different economic scenarios and work-out strategies is approximated and applied as an adjustment to the most likely outcome. The movements associated with these variables are referred to as 'Changes to risk parameters (model inputs)' in the 'Reconciliation of allowances for loans and advances to banks and customers including loan commitments and financial guarantees' section within Management's Discussion and Analysis.

Period over which ECL is measured

ECL is measured at each reporting date after the initial recognition of the financial asset. The maximum period considered when measuring ECL (be it 12-month or lifetime ECL) is the maximum contractual period over which the bank is exposed to credit risk. For wholesale overdrafts, credit risk management actions are taken no less frequently than on an annual basis and therefore this period is to the expected date of the next substantive credit review. The date of the substantive credit review also represents the initial recognition of the new facility. However, where the financial instrument includes both a drawn and undrawn commitment and the contractual ability to demand repayment and cancel the undrawn commitment does not serve to limit the bank's exposure to credit risk to the contractual notice period, the contractual period does not determine the maximum period considered. Instead, ECL is measured over the period the bank remains exposed to credit risk that is not mitigated by credit risk management actions. This applies to retail overdrafts and credit cards, where the period is the average time taken for stage 2 exposures to default or close as performing accounts, determined on a portfolio basis and ranging from between three and six years. In addition, for these facilities it is not possible to identify the ECL on the loan commitment component separately from the financial asset component. As a result, the total ECL is recognized in the loss allowance for the financial asset unless the total ECL exceeds the gross carrying amount of the financial asset, in which case the ECL is recognized as a provision.

Forward-looking economic inputs

The bank will in general apply three forward-looking global economic scenarios determined with reference to external forecast distributions, the Consensus Economic Scenario approach. This approach is considered sufficient to calculate unbiased expected loss in most economic environments. They represent a 'most likely outcome' (the Central scenario) and two, less likely, 'Outer' scenarios on either side of the Central, referred to as an Upside and a Downside scenario respectively. The Central scenario is used by the annual operating planning process and, with regulatory modifications, will also be used in enterprise-wide stress tests. The Upside and Downside are constructed following a standards process supported by a scenario narrative reflecting the bank's current top and emerging risks. The relationship between the Outer scenarios and Central scenario will generally be fixed with the Central scenario being assigned a weighting of 80% and the Upside and Downside scenarios 10% each, with the difference between the Central and Outer scenarios in terms of economic severity being informed by the spread of external forecast distributions among professional industry forecasts. The Outer scenarios are economically plausible, internally consistent states of the world and will not necessarily be as severe as scenarios used in stress testing. The period of forecast is five years, after which the forecasts will revert to a view based on average past experience. The economic factors include, but are not limited to, gross domestic product, unemployment, interest rates, inflation and commercial property prices.

In general, the consequences of the assessment of credit risk and the resulting ECL outputs will be probability-weighted using the standard probability weights. This probability weighting may be applied directly or the effect of the probability weighting determined on a periodic basis, at least annually, and then applied as an adjustment to the outcomes resulting from the central economic forecast. The central economic forecast is updated quarterly.

The bank recognizes that the Consensus Economic Scenario approach using three scenarios will be insufficient in certain economic environments. Additional analysis may be prepared at management's discretion, including the production of extra scenarios. If conditions warrant, this could result in a management overlay for economic uncertainty which is included in the ECL estimates.

(j) Employee compensation and benefits

Post-employment benefits

The bank operates a number of pension and other post-employment benefit plans. These plans include both defined benefit and defined contribution plans and various other post-employment benefits such as post-employment healthcare. Pension plans in which the risks are shared by entities under common control are considered group pension plans. As a result of the transfer of employees to ServCo as of 1 January 2019, one of the pension plans became a group pension plan. The pension plans are funded by contributions from the bank and ServCo and the employees of both entities. The bank and ServCo make contributions to the defined benefit plans in respect of their employees, based on actuarial valuation. The supplemental pension arrangements and post-employment benefits are not funded.

Payments to defined contribution plans are charged as an expense to the bank as the employees render service.

The defined benefit pension costs and the present value of defined benefit obligations are calculated at the reporting date by the schemes' actuaries using the Projected Unit Credit Method. The bank and Servco are charged defined benefit pension costs for their respective employees.

The net charge to the income statement mainly comprises the service cost and the net interest on the net defined benefit liability and is presented in operating expenses.

The past service cost which is charged immediately to the income statement, is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting from a plan amendment (the introduction or withdrawal of, or changes to, a defined benefit plan) or curtailment (a significant reduction by the entity in the number of employees covered by a plan). A settlement is a transaction that eliminates all further legal and constructive obligations for part or all of the benefits provided under a defined benefit plan, other than a payment of benefits to, or on behalf of, employees that is set out in the terms of the plan and included in the actuarial assumptions.

Re-measurements of the net defined benefit liability, which comprise actuarial gains and losses, return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income.

Actuarial gains and losses comprise experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred), as well as the effects of changes in actuarial assumptions.

The net defined benefit asset or liability represents the present value of defined benefit obligations reduced by the fair value of plan assets, after applying the asset ceiling test, where the net defined benefit surplus is limited to the present value of available refunds and reductions in future contributions to the plan.

The cost of obligations arising from other post-employment defined benefit plans, such as defined benefit health-care plans, are accounted for on the same basis as defined benefit pension plans.

Share-based payments

The bank enters into both equity-settled and cash-settled share-based payment arrangements with its employees as compensation for services provided by employees.

The vesting period for these schemes may commence before the grant date if the employees have started to render services in respect of the award before the grant date. Expenses are recognized when the employee starts to render service to which the award relates.

HSBC Holdings is the grantor of its equity instruments awarded to employees of the bank. The bank is required to partially fund share-based payment arrangements awarded to its employees. The cost of share-based payment arrangements with employees is measured by reference to the fair value of equity instruments on the date they are granted, and recognized as an expense on a straight-line basis over the vesting period. As a result of the bank's share-based payment arrangements being accounted for as equity-settled, the difference between the share-based payment expense, and the fair value of the equity instruments issued to satisfy those arrangements, is recognized in 'Retained Earnings' over the vesting period.

Fair value is determined by using appropriate valuation models, taking into account the terms and conditions of the award. Vesting conditions include service conditions and performance conditions; any other features of the arrangement are non-vesting conditions. Market performance conditions and non-vesting conditions are taken into account when estimating the fair value of the award at the grant date. Vesting conditions, other than market performance conditions, are not taken into account in the initial estimate of the fair value at the grant date. They are taken into account by adjusting the number of equity instruments included in the measurement of the transaction.

A cancellation that occurs during the vesting period is treated as an acceleration of vesting, and recognized immediately for the amount that would otherwise have been recognized for services over the vesting period. Failure to meet a vesting condition by the employee is not treated as a cancellation and the amount of expense recognized for the award is adjusted to reflect the number of awards expected to vest.

(k) Tax

Income tax comprises current tax and deferred tax. Income tax is recognized in the income statement except to the extent that it relates to items recognized in other comprehensive income or directly in equity, in which case it is recognized in the same statement in which the related item appears.

Current tax is the tax expected to be payable on the taxable profit for the year, calculated using tax rates enacted or substantively enacted by the balance sheet date, and any adjustment to tax payable in respect of previous years. The bank provides for potential current tax liabilities that may arise on the basis of the amounts expected to be paid to the tax authorities. Current tax assets and liabilities are offset when the bank intends to settle on a net basis and the legal right to offset exists.

Tax laws are complex and can be subject to interpretation. Management applies its own judgment to the application and interpretation of tax laws, but the interpretation by the relevant tax authorities may differ. Tax liabilities are recognized based on best estimates of the probable outcome. If the final outcome is in favor of the decisions made by the relevant tax authorities, additional liabilities and expense in excess of the amounts recorded may result.

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the balance sheet and the amounts attributed to such assets and liabilities for tax purposes. Deferred tax liabilities are generally recognized for all taxable temporary differences and deferred tax assets are recognized to the extent that it is probable that future taxable profits will be available against which deductible temporary differences can be utilized.

Deferred tax is calculated using the tax rates expected to apply in the periods in which the assets will be realized or the liabilities settled, based on tax rates and laws enacted, or substantively enacted, by the balance sheet date. Deferred tax assets and liabilities are offset when the bank has a legal right to offset.

Deferred tax relating to actuarial gains and losses on post-employment benefits is recognized in other comprehensive income. Deferred tax relating to share-based payment transactions is recognized directly in equity to the extent that the amount of the estimated future tax deduction exceeds the amount of the related cumulative remuneration expense. Tax relating to fair value re-measurements of debt instruments at fair value through other comprehensive income and cash flow hedging instruments which are charged or credited directly to other comprehensive income is recognized in the statement of comprehensive income and is subsequently recognized in the income statement when the deferred fair value gain or loss is recognized in the income statement.

(l) Provisions, contingent liabilities and guarantees

Provisions

Provisions represent liabilities of uncertain timing or amount and are recognized when the bank has a present legal or constructive obligation as a result of a past event which results in a probable outflow of resources to settle the obligation and when a reliable estimate can be made of the obligation at the reporting date. Provisions are measured based upon the best estimate of the amount that would be required to settle the provision at the reporting date. The bank makes provisions for undrawn commitments and guarantees to reflect the best estimate of losses incurred by the bank at the reporting date. In other instances the bank may periodically make provisions for other matters such as litigation in instances where the recognition criteria described above is met.

Contingent liabilities

Contingent liabilities are possible obligations that arise from past events whose existence will be confirmed by uncertain future events not wholly within the control of the bank; or are present obligations that have arisen from past events where it is not probable that settlement will require the outflow of economic benefits or because the amount of settlement cannot be reliably measured. Contingent liabilities, which include certain guarantees and letters of credit pledged as collateral security and contingent liabilities related to legal proceedings or regulatory matters, are not recognized in the financial statements but are disclosed unless the probability of settlement is remote.

Financial guarantee contracts

Financial guarantee contacts are contracts that require the bank to make specified payments to reimburse the holder for a loss incurred because a specified debtor fails to make payment when due. Liabilities under financial guarantee contracts are recorded initially at their fair value, which is generally the fee received or receivable. Subsequently, financial guarantee liabilities are measured at the higher of the initial fair value, less cumulative amortization, and the expected credit loss.

(m) Lease commitments

Agreements which convey the right to control the use of an identified asset for a period of time in exchange for consideration are classified as leases. As a lessee, the bank recognizes a right-of-use asset in 'Property, plant and equipment' and a corresponding liability in 'Other liabilities'. The asset will be amortized over the length of the lease, and the lease liability measured using a methodology similar to amortized cost. The lease liability is initially recognized as the net present value of the lease payments over the term of the lease. The lease term is considered to be the non-cancellable period of the lease together with the periods covered by an option to extend if the bank is reasonably certain to extend and periods covered by an option to terminate the lease if the bank is reasonably certain not to terminate early. In determining the lease term, the bank considers all relevant facts and circumstances that create an economic incentive for it to exercise an extension option or not to terminate early. The right-of-use asset is initially recognized at an amount equal to the lease liability adjusted by any lease incentives received.

The amortization charge of the right-of-use asset is included in 'Depreciation'. Interest on the lease liability is included in 'interest expense'. As permitted by IFRS 16, the bank has used the practical expedient of excluding lease payments for short-term leases and leases for which the underlying asset value is low when recognizing right-of-use assets and corresponding liabilities. These are recognized as an expense on a straight-line basis over the lease term.

As a lessor, leases which transfer substantially all the risks and rewards incidental to the ownership of assets, are classified as finance leases. Under finance leases, the bank presents the present value of the future finance lease payments receivable and residual value accruing to it in 'Loans and advances to banks' or 'Loans and advances to customers'. All other leases are classified as operating leases. The bank presents assets subject to operating leases in 'Property, plant and equipment'. Impairment losses are recognized to the extent that carrying values are not fully recoverable. Finance income on the finance lease are recognized in 'Net interest income' over the lease term so as to give a constant rate of return. Rentals receivable under operating leases are recognized on a straight-line basis over the lease term and are recognized in 'Other operating income'.

Transition to IFRS 16

The bank discounted future lease payments using its incremental borrowing rate at 1 January 2019. The weighted average rate applied was 3.8%. The right-of-use assets were recognized at an amount equal to the lease liability, adjusted by the amount of any remaining liability for incentives received from the lessor recognized in the statement of financial position as at 31 December 2018.

On transition to IFRS 16, the bank recognized an additional $269m of right-of-use assets and $274m of lease liabilities.

	$m
Operating lease commitment at 31 Dec 2018	277
Recognition exemption for:	(109)
– short-term leases	(5)
– leases of low-value assets	(9)
– lease agreements with a commencement date after 1 Jan 2019	(95)
Impact of discounting operating lease commitments at 31 Dec 2018 using the incremental borrowing rate at 1 Jan 2019	(14)
Extension and termination options reasonably certain to be exercised	120
Lease liabilities recognized at 1 Jan 2019	**274**

The recognized right-of-use assets relate to the lease of properties for our branches and offices.

The impact of depreciation charge and interest expense relating to right-of-use assets and lease liabilities is recognized in the income statement effective from 1 January 2019. The comparative figures for 2018 are not restated.

In applying IFRS 16 for the first time, as permitted by the standard, the bank has elected not to reassess whether a contract is, or contains, a lease at the date of initial application. Instead, IFRS 16 was applied only to contracts that were previously identified as leases under IAS 17 *Leases* and IFRIC 4 *Determining whether an Arrangement contains a Lease*. Additionally, the bank has applied the following practical expedients as permitted by the standard:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics; and
- leases with lease terms of less than 12 months as at 1 January 2019 have been accounted for as short-term leases and the lease payments will be recognized as an expense on a straight-line basis over the remaining lease term.

(n) Offsetting of financial assets and financial liabilities

Financial assets and financial liabilities are offset and the net amount is reported in the balance sheet when there is an unconditional legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis, or realize the asset and settle the liability simultaneously.

(o) Property, plant and equipment

Land and buildings are stated at historical cost, or fair value at the Parent's date of transition to IFRSs ('deemed cost'), less impairment losses and depreciation over their estimated useful lives, as follows:

- freehold land is not depreciated;
- freehold buildings are depreciated over their estimated useful lives, which are generally between 20 and 40 years; and

- leasehold improvements are depreciated over the shorter of their unexpired lease terms of the leases or their remaining useful lives.

Equipment, fixtures and fittings (including equipment on operating leases where the bank is the lessor) are stated at cost less impairment losses and depreciation over their useful lives, which are generally between 3 and 5 years.

Property, plant and equipment is subject to an impairment review if their carrying amount may not be recoverable.

(p) Intangible assets

The bank's intangible assets include both purchased and internally generated computer software. The cost of internally generated software comprises all directly attributable costs necessary to create, produce and prepare the software to be capable of operating in the manner intended by management. Costs incurred in the ongoing maintenance of software are expensed immediately as incurred.

Intangible assets are subject to impairment review if there are events or changes in circumstances that indicate that the carrying amount may not be recoverable. Computer software is stated at cost less amortization and accumulated impairment losses and is amortized over the estimated useful life of between 3 and 5 years.

(q) Share capital

Financial instruments issued are generally classified as equity when there is no contractual obligation to transfer cash or other financial assets. Incremental costs directly attributable to the issue of equity instruments are shown in equity as a deduction from the proceeds, net of tax.

(r) Cash and cash equivalents

Cash and cash equivalents include highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of change in value. Such investments are normally those with less than three months' maturity from the date of acquisition, and include cash and cash balances at the central bank, debt securities, loans and advances to banks, items in the course of collection from or in transmission to other banks and certificates of deposit.

3 Net fee income

Net fee income by global business

	2019				2018			
	Commercial Banking	**Global Banking and Markets**	**Retail Banking and Wealth Management**	**Total**	Commercial Banking	Global Banking and Markets	Retail Banking and Wealth Management	Total
	$m	**$m**	**$m**	**$m**	$m	$m	$m	$m
Account services	**42**	**7**	**15**	**64**	42	7	15	64
Broking income	**–**	**–**	**8**	**8**	–	–	10	10
Cards	**20**	**–**	**46**	**66**	18	–	43	61
Credit facilities	**242**	**67**	**–**	**309**	218	76	–	294
Funds under management	**–**	**–**	**193**	**193**	–	–	190	190
Imports/exports	**10**	**1**	**–**	**11**	11	1	–	12
Insurance agency commission	**–**	**–**	**5**	**5**	–	–	6	6
Other	**24**	**16**	**6**	**46**	19	20	5	44
Remittances	**23**	**8**	**4**	**35**	22	8	4	34
Underwriting	**2**	**40**	**–**	**42**	1	46	–	47
Fee income	**363**	**139**	**277**	**779**	331	158	273	762
Less: fee expense	**(17)**	**(11)**	**(74)**	**(102)**	(15)	(6)	(68)	(89)
Net fee income	**346**	**128**	**203**	**677**	316	152	205	673

4 Operating profit

Operating profit is stated after the following items

	Footnote	2019 $m	2018 $m
Income			
Interest recognized on financial assets measured at amortized cost	1	**2,293**	1,979
Interest recognized on financial assets measured at FVOCI	1	**492**	442
Fees earned on financial assets that are not at fair value through profit and loss (other than amounts included in determining the effective interest rate)		**418**	398
Fees earned on trust and other fiduciary activities		**198**	195
Expense			
Interest on financial instruments, excluding interest on financial liabilities held for trading or otherwise mandatorily measured at fair value		**(1,420)**	(1,066)
Fees payable on financial liabilities that are not at fair value through profit and loss (other than amounts included in determining the effective interest rate)		**(58)**	(56)
Fees payable relating to trust and other fiduciary activities		**(3)**	(3)
Depreciation on the right-of-use assets		**(40)**	n/a
Interest expense recognized on lease liabilities		**(9)**	n/a

1. *Interest revenue calculated using the effective interest method comprises interest recognized on financial assets measured at either amortized cost or fair value through other comprehensive income.*

5 Employee compensation and benefits

Total employee compensation

	2019 $m	2018 $m
Wages and salaries	**518**	571
Post-employment benefits	**52**	60
Other	**88**	65
Year ended 31 Dec	**658**	696

Post-employment benefits

We sponsor a number of defined benefit and defined contribution plans providing pension, other retirement and post-employment benefits to eligible employees. Non-pension plans are comprised of healthcare and other post-employment benefits and are not funded.

Income statement charge

	2019 $m	2018 $m
Defined benefit plans	**13**	19
– pension plans	**15**	19
– non-pension plans	**(2)**	—
Defined contribution pension plans	**39**	41
Year ended 31 Dec	**52**	60

Post-employment defined benefit plans

Principal actuarial assumptions

The principal actuarial financial assumptions used to calculate the bank's obligations under its defined benefit plans are presented in the table below. The 2019 and 2018 assumptions will also form and have formed the basis for measuring periodic costs under the plans in 2020 and 2019 respectively.

		Pension plans		Non-pension plans	
		2019	2018	2019	2018
	Footnote	%	%	%	%
Discount rate		**3.05**	3.65	**3.05**	3.65
Rate of pay increase		**2.75**	2.75	**2.75**	2.75
Healthcare cost trend rates – Initial rate		**n/a**	n/a	**7.00**	7.00
Healthcare cost trend rates – Ultimate rate	1	**n/a**	n/a	**5.00**	5.00

1. *The non-pension 'Healthcare cost trend rates – Ultimate rate' is applied from 2024.*

The bank determines the discount rates to be applied to its obligations in consultation with the plans' actuaries, on the basis of the current average yield of high quality Canadian corporate bonds, with maturities consistent with those of the defined benefit obligations. At 31 December 2019, the weighted average duration of the defined benefit obligation was 14.5 years (2018: 15.3 years).

Mortality assumption

Assumptions regarding future mortality have been based on published mortality tables. The life expectancies underlying the defined benefit obligation at the reporting dates are as follows:

	Average years from age 65	
	2019	2018
For a male currently aged 65	**24**	22
For a male currently aged 45	**25**	23
For a female currently aged 65	**25**	24
For a female currently aged 45	**26**	25

Actuarial assumption sensitivities

The following table shows the effect of a ¼ percentage point change ('25bps') in key assumptions on the present value of defined benefit obligation as at 31 December:

Pension plans

	2019	2018
	$m	$m
Discount rate		
Change in defined benefit obligation at year-end from a 25 bps increase	**(27)**	(26)
Change in defined benefit obligation at year-end from a 25 bps decrease	**28**	28
Rate of pay increase		
Change in defined benefit obligation at year-end from a 25 bps increase	**4**	4
Change in defined benefit obligation at year-end from a 25 bps decrease	**(4)**	(4)

Non-pension plans

	2019	2018
	$m	$m
Change in defined benefit obligation at year-end from a 25 bps increase in the discount rate	**(5)**	(5)
Change in defined benefit obligation at year-end from a 25 bps decrease in the discount rate	**5**	5

Fair value of plan assets and present value of defined benefit obligations

		Plans for the bank				Group Plan[2]
		Pension plans		Non-pension plans		Pension Plan
		2019	2018	**2019**	2018	**2019**
	Footnote	**$m**	$m	**$m**	$m	**$m**
Fair value of plan assets						
At 1 Jan		**614**	620	**—**	—	**n/a**
Transfer to group pension plan	*1*	**(28)**	n/a	**—**	n/a	**28**
Bank's share in group plan at 1 Jan 2019		**(6)**	n/a	**n/a**	n/a	**6**
Interest on plan assets		**21**	21	**—**	—	**1**
Contributions by the employer		**21**	26	**4**	4	**2**
Contributions by employees		**1**	1	**—**	—	**—**
Actuarial gains/(losses)		**55**	(21)	**—**	—	**3**
Benefits paid		**(33)**	(32)	**(4)**	(4)	**(1)**
Non-investment expenses		**(1)**	(1)	**—**	—	**—**
At 31 Dec		**644**	614	**—**	—	**39**
Present value of defined benefit obligations						
At 1 Jan		**(710)**	(732)	**(128)**	(188)	**n/a**
Transfer to group pension plan	*1*	**36**	n/a	**6**	n/a	**(36)**
Bank's share in group plan at 1 Jan 2019		**6**	n/a	**n/a**	n/a	**(6)**
Current service cost		**(8)**	(12)	**(2)**	(5)	**(1)**
Interest cost		**(24)**	(24)	**(4)**	(6)	**(2)**
Contributions by employees		**(1)**	(1)	**—**	—	**—**
Actuarial gains/(losses) arising from changes in:		**(85)**	27	**(19)**	56	**(6)**
– demographic assumptions		**(19)**	—	**(6)**	7	**—**
– financial assumptions		**(62)**	28	**(13)**	23	**(6)**
– experience adjustments		**(4)**	(1)	**—**	26	**—**
Benefits paid		**32**	32	**5**	4	**1**
Past service cost		**—**	—	**8**	11	**—**
At 31 Dec		**(754)**	(710)	**(134)**	(128)	**(50)**
– funded		**(674)**	(638)	**—**	—	**(11)**
– unfunded		**(80)**	(72)	**(134)**	(128)	**—**
Other – effect of limit on plan surpluses		**(21)**	(47)	**—**	—	**—**
Net liability	*3*	**(131)**	(143)	**(134)**	(128)	**(11)**

1. *Effective 1 January 2019, 608 employees have been transferred from the bank to the ServCo, a related party and entity under common control. Certain employees of ServCo are eligible to participate in a group plan. The bank and ServCo agreed that all costs and unfunded pension obligations up to the date of transfer would be borne by the bank.*
2. *The pension plan in which both ServCo and the bank employees actively participate is considered 'group plan' as the risks are shared by entities under common control. The group plan is funded by contributions from the bank and ServCo and the employees of both entities. The bank and ServCo determine their respective contributions to the defined benefit plan in regards to their employees, based on actuarial valuation.*
3. *At 31 December 2019, the bank's share of net liability in group plan was nil.*

Pension plan assets

	Plans for the bank		Group plans
	2019	2018	**2019**
	$m	$m	**$m**
Fair value of plan assets	**644**	614	**39**
– equities	**55**	53	**4**
– bonds[1]	**586**	557	**35**
– other – principally bank balances and short term investments	**3**	4	**—**

1. *The bank plans have a payable for transfers of $28m to the group plan with a corresponding receivable recognized as a group plan asset of $28m.*

The actual return on plan assets for the year ended 31 December 2019 was $76m (2018: $1m).

Actuarial valuations for the majority of the bank's pension plans are prepared annually and for non-pension arrangements triennially. The most recent actuarial valuations of the defined benefit pension plans for funding purposes were conducted as at 31 December 2018 and the most recent actuarial valuation of the non-pension arrangements was as at 31 December 2017. Based on the most recent valuations of the plans, the bank expects to make $20.3m of contributions to defined benefit pension plans during 2020.

The defined benefit pension plans expose the bank to risks, including: interest rate risk to the extent that the assets are not invested in bonds that match the plans' obligations, general market risk in respect of its equity investments, and longevity risk in respect of pensioners and beneficiaries living longer than assumed. These risks would be realized through higher pension costs and a higher defined benefit liability.

The bank takes steps to manage these risks through an asset liability management program, which includes reducing interest rate and market risk over time by increasing its asset allocation to bonds that more closely match the plan's obligations.

Summary of remeasurement, net on defined benefit obligations

	Pension plans		Non-pension plans	
	2019	2018	**2019**	2018
	$m	$m	**$m**	$m
Actuarial gains/(losses) on assets	**55**	(21)	**—**	—
Actuarial gains/(losses) on liabilities	**(85)**	27	**(19)**	56
Actuarial gains on maximum balance sheet item	**26**	—	**—**	—
Net charge to the consolidated statement of comprehensive income	**(4)**	6	**(19)**	56

6 Share-based payments

Share-based payments income statement charge

	2019	2018
	$m	$m
Restricted share awards	**12**	12
Cash settled restricted shares and other shares	**—**	1
Year ended 31 Dec	**12**	13

During 2019, $12m was charged to the income statement in respect of share-based payment transactions (2018: $13m) mostly relating to restricted share awards. These awards are generally granted to employees early in the year following the year to which the award relates. The charge for these awards is recognized from the start of the period to which the service relates to the end of the vesting period. The vesting period is the period over which the employee satisfies certain service conditions in order to become entitled to the award. Due to the staggered vesting profile of certain deferred share awards, the employee becomes entitled to a portion of the award at the end of each year during the vesting period. The income statement charge reflects this vesting profile.

The purpose of restricted share awards is to support retention of key employees, and to reward employee performance and potential. Vesting of restricted share awards is generally subject to continued employment with a vesting period and may be subject to performance conditions.

The weighted average fair value of shares awarded by the HSBC Group for restricted share awards in2019 was $10.75 per share (2018: $11.91 per share). Fair value is measured at the prevailing market price at the date of the share award.

The bank carries a liability in respect of restricted share awards of $11m as at 31 December 2019 (2018: $17m) to its parent, HSBC Holdings, for the funding of awards that will vest in the future.

7 Tax expense

Analysis of tax expense

	2019	2018
	$m	$m
Current taxation	**208**	251
– federal	**117**	141
– provincial	**91**	110
Deferred taxation	**13**	22
– origination and reversal of temporary differences	**13**	22
Year ended 31 Dec	**221**	273

The provision for income taxes shown in the consolidated income statement is at a rate that is different than the combined federal and provincial statutory income tax rate for the following reasons:

	2019	2018
	%	%
Combined federal and provincial income tax rate	**26.8**	26.8
Adjustments resulting from:		
– adjustments related to prior years	**—**	—
– other, net	**0.2**	0.8
Effective tax rate	**27.0**	27.6

In addition to the amount charged to the income statement, the aggregate amount of current and deferred taxation relating to items that are taken directly to equity was a $47m decrease in equity (2018: $1m increase in equity).

Deferred Taxation

Movement in deferred taxation during the year

	2019	2018
	$m	$m
At 1 Jan	**75**	118
Income statement credit/(charge)	**(13)**	(22)
Other movements	**—**	(4)
Other comprehensive income:		
– share-base payments	**(2)**	—
– actuarial gains and losses	**7**	(17)
– actuarial gains and losses transferred to ServCo	**(5)**	n/a
At 31 Dec	**62**	75

Deferred taxation accounted for in the balance sheet

	2019	2018
	$m	$m
Net deferred tax assets	**62**	75
– retirement benefits	**71**	72
– loan impairment allowances	**43**	43
– property, plant and equipment	**(23)**	(7)
– assets leased to customers	**(74)**	(79)
– share-based payments	**4**	5
– relief for tax losses carried forward	**1**	1
– other temporary differences	**40**	40

The amount of temporary differences for which no deferred tax asset is recognized in the balance sheet is $11.7m (2018: $4.2m). This amount is in respect of capital losses where the recoverability of potential benefits is not considered likely. The entire amount has no expiry date.

Deferred tax is not recognized in respect of the bank's investments in subsidiaries where remittance of retained earning is not contemplated, and for those associates where it has been determined that no additional tax will arise. The aggregate amount of temporary differences associated with investments where no deferred tax liability is recognized is $209m (2018: $229m).

On the evidence available, including management's updated analysis and projection of income, there will be sufficient taxable income generated by the bank to support the recognition of its net deferred tax asset.

8 Dividends

Dividends declared on our shares

		2019		2018	
	Footnotes	$ per share	$m	$ per share	$m
Common shares	1	**0.8623**	**430**	1.6243	810
Class 1 preferred shares:					
– Series G		**1.0000**	**20**	1.0000	20
– Series I	2	**1.1500**	**16**	1.2325	17
– Series K	3	**0.3556**	**4**	—	—

1. *In 2018, the bank declared and paid $810m in dividends on common shares, including a special dividend of $400m.*
2. *Preferred shares - Class 1, Series I were issued on 7 December 2017; initial dividends were declared during the first quarter of 2018 and paid in accordance with their terms in the usual manner on 31 March 2018 or the first business day thereafter.*
3. *Preferred shares - Class 1, Series K were issued on 27 September 2019; initial dividends were declared during the fourth quarter of 2019 and paid in accordance with their terms in the usual manner on 31 December 2019 or the first business day thereafter.*

9 Segment analysis

We manage and report our operations according to four operating segments: three global businesses and a corporate centre. The three global businesses are Commercial Banking, Global Banking and Markets, Retail Banking and Wealth Management. Various estimate and allocation methodologies are used in the preparation of the segment financial information. We allocate expenses directly related to earning revenue, to the segment that earned the related revenue. Expenses not directly related to earning revenue, such as overhead expenses, are allocated using appropriate formulas. Segments' net interest income reflects internal funding charges and credits on the global businesses' assets, liabilities and capital, at market rates, taking into account relevant terms. The offset of the net impact of these charges and credits is reflected in Corporate Centre.

A description of each operating segment is as follows:

Commercial Banking

Commercial Banking serves customers ranging from small enterprises focused primarily on domestic markets through to corporates operating globally. It supports customers with tailored financial products and services to allow them to operate efficiently and to grow. Services provided include working capital, term loans, payment services and international trade facilitation, among other services, as well as expertise in mergers and acquisitions, and access to financial markets.

Global Banking and Markets

Global Banking and Markets provides tailored financial solutions to major government, corporate and institutional clients worldwide. Managed as a global business, Global Banking and Markets operates a long-term relationship management approach to build a full understanding of clients' financial requirements. Sector-focused client service teams comprising of relationship managers and product specialists develop financial solutions to meet individual client needs. Global Banking and Markets is managed as three principal business lines: Markets, Capital Financing and Banking.

Retail Banking and Wealth Management

Retail Banking and Wealth Management provides banking and wealth management services for our personal customers to help them to manage their finances and protect and build their financial future. Customer offerings include: liability-driven services (deposits and account services), asset-driven services (credit and lending), and fee-driven and other services (financial advisory and asset management).

Corporate Centre

Corporate Centre contains balance sheet management, interests in associates and joint ventures, the results of movements in fair value of own debt, expense related to information technology services provided to HSBC Group companies on an arm's length basis with associated recoveries and other transactions which do not directly relate to our global businesses.

Profit for the year

	2019				
	Commercial Banking	Global Banking and Markets	Retail Banking and Wealth Management	Corporate Centre	Total
	$m	$m	$m	$m	$m
Net interest income	**608**	**107**	**516**	**37**	**1,268**
Net fee income	**346**	**128**	**203**	**—**	**677**
Net income from financial instruments held for trading	**34**	**91**	**30**	**10**	**165**
Other income	**3**	**1**	**13**	**58**	**75**
Total operating income	**991**	**327**	**762**	**105**	**2,185**
Change in expected credit losses and other credit impairment charges - (charge)/release	**(47)**	**(13)**	**(18)**	**—**	**(78)**
Net operating income	**944**	**314**	**744**	**105**	**2,107**
– external	**1,015**	**306**	**640**	**146**	**2,107**
– inter-segment	**(71)**	**8**	**104**	**(41)**	**—**
Total operating expenses	**(405)**	**(155)**	**(686)**	**(45)**	**(1,291)**
Profit before income tax expense	**539**	**159**	**58**	**60**	**816**
	2018				
Net interest income	586	107	489	110	1,292
Net fee income	316	152	205	—	673
Net income from financial instruments held for trading	34	71	30	1	136
Other income	18	1	13	131	163
Total operating income	954	331	737	242	2,264
Change in expected credit losses and other credit impairment charges - (charge)/release	38	(1)	(10)	—	27
Net operating income	992	330	727	242	2,291
– external	1,024	313	704	250	2,291
– inter-segment	(32)	17	23	(8)	—
Total operating expenses	(403)	(150)	(656)	(91)	(1,300)
Profit before income tax expense	589	180	71	151	991

Balance sheet information

	Commercial Banking	Global Banking and Markets	Retail Banking and Wealth Management	Corporate Centre	Total
	$m	$m	$m	$m	$m
At 31 Dec 2019					
Loans and advances to customers	**28,240**	**4,178**	**29,504**	**—**	**61,922**
Customers' liability under acceptances	**1,978**	**1,510**	**12**	**—**	**3,500**
Total external assets	**31,371**	**18,531**	**30,078**	**26,591**	**106,571**
Customer accounts	**21,019**	**5,437**	**34,123**	**2,310**	**62,889**
Acceptances	**1,982**	**1,511**	**12**	**—**	**3,505**
Total external liabilities	**24,284**	**17,181**	**36,212**	**22,785**	**100,462**
At 31 Dec 2018					
Loans and advances to customers	24,768	4,232	28,123	—	57,123
Customers' liability under acceptances	2,418	1,500	14	—	3,932
Total external assets	26,910	19,524	33,672	23,300	103,406
Customer accounts	20,614	6,156	30,411	2,631	59,812
Acceptances[1]	2,422	1,501	14	—	3,937
Total external liabilities	23,830	18,158	32,593	23,242	97,823

1. *Certain prior year amounts have been reclassified to conform to the current year presentation.*

10 Analysis of financial assets and liabilities by measurement basis

Financial assets and financial liabilities are measured on an ongoing basis at either fair value or amortized cost. The following tables analyze the carrying amount of financial assets and liabilities by category and by balance sheet heading:

	2019				
	Financial instruments measured at FVPL	Debt instruments measured at FVOCI	Equity instruments measured at FVOCI	Financial instruments measured at amortized cost	Total
	$m	$m	$m	$m	$m
Financial assets					
Cash and balances at central bank	—	—	—	**54**	**54**
Items in the course of collection from other banks	—	—	—	**15**	**15**
Trading assets	**4,322**	—	—	—	**4,322**
Other financial assets mandatorily measured at fair value through profit or loss	**5**	—	—	—	**5**
Derivatives	**3,267**	—	—	—	**3,267**
Loans and advances to banks	—	—	—	**1,169**	**1,169**
Loans and advances to customers	—	—	—	**61,922**	**61,922**
Reverse repurchase agreements – non-trading	—	—	—	**6,269**	**6,269**
Financial investments	—	**23,625**	**20**	—	**23,645**
Customers' liability under acceptances	—	—	—	**3,500**	**3,500**
Total	**7,594**	**23,625**	**20**	**72,929**	**104,168**
Financial liabilities					
Deposits by banks	—	—	—	**1,036**	**1,036**
Customer accounts	—	—	—	**62,889**	**62,889**
Repurchase agreements – non-trading	—	—	—	**7,098**	**7,098**
Items in the course of transmission to other banks	—	—	—	**225**	**225**
Trading liabilities	**2,296**	—	—	—	**2,296**
Derivatives	**3,431**	—	—	—	**3,431**
Debt securities in issue	—	—	—	**14,594**	**14,594**
Acceptances	—	—	—	**3,505**	**3,505**
Subordinated liabilities	—	—	—	**1,033**	**1,033**
Total	**5,727**	—	—	**90,380**	**96,107**

	2018				
	Financial instruments measured at FVPL	Debt instruments measured at FVOCI	Equity instruments measured at FVOCI	Financial instruments measured at amortized cost	Total
	$m	$m	$m	$m	$m
Financial assets					
Cash and balances at central bank	—	—	—	78	78
Items in the course of collection from other banks	—	—	—	8	8
Trading assets	3,875	—	—	—	3,875
Other financial assets mandatorily measured at fair value through profit or loss	4	—	—	—	4
Derivatives	4,469	—	—	—	4,469
Loans and advances to banks	—	—	—	1,221	1,221
Loans and advances to customers	—	—	—	57,123	57,123
Reverse repurchase agreements – non-trading	—	—	—	5,860	5,860
Financial investments	—	24,033	21	—	24,054
Customers' liability under acceptances	—	—	—	3,932	3,932
Total	8,348	24,033	21	68,222	100,624
Financial liabilities					
Deposits by banks	—	—	—	1,148	1,148
Customer accounts	—	—	—	59,812	59,812
Repurchase agreements – non-trading	—	—	—	8,224	8,224
Items in the course of transmission to other banks	—	—	—	252	252
Trading liabilities	2,164	—	—	—	2,164
Derivatives	4,565	—	—	—	4,565
Debt securities in issue	—	—	—	13,863	13,863
Acceptances	—	—	—	3,937	3,937
Subordinated liabilities	—	—	—	1,039	1,039
Total	6,729	—	—	88,275	95,004

11 Trading assets

	Footnote	2019	2018
		$m	$m
Debt securities			
– Canadian and Provincial Government bonds	1	**3,496**	3,034
– treasury and other eligible bills		**464**	390
– other debt securities		**362**	451
At 31 Dec		**4,322**	3,875
Trading assets			
– not subject to repledge or resale by counterparties		**2,170**	1,764
– which may be repledged or resold by counterparties		**2,152**	2,111
At 31 Dec		**4,322**	3,875

1. Including government guaranteed bonds.

Term to maturity of debt securities

	2019	2018
	$m	$m
Less than 1 year	**1,689**	1,042
1-5 years	**1,130**	1,042
5-10 years	**889**	1,277
Over 10 years	**614**	514
At 31 Dec	**4,322**	3,875

12 Derivatives

Fair values of derivatives by product contract type held

	Assets			Liabilities		
	Held for trading	Hedge accounting	Total	Held for trading	Hedge accounting	Total
	$m	$m	$m	$m	$m	$m
Foreign exchange	**1,562**	**—**	**1,562**	**1,529**	**58**	**1,587**
Interest rate	**1,588**	**117**	**1,705**	**1,620**	**224**	**1,844**
Commodity	**—**	**—**	**—**	**—**	**—**	**—**
At 31 Dec 2019	**3,150**	**117**	**3,267**	**3,149**	**282**	**3,431**
Foreign exchange	2,566	12	2,578	2,535	144	2,679
Interest rate	1,758	125	1,883	1,704	174	1,878
Commodity	8	—	8	8	—	8
At 31 Dec 2018	4,332	137	4,469	4,247	318	4,565

Notional amounts by remaining term to maturity of the derivative portfolio

	Held for trading				Hedge accounting				Total
	Less than 1 year	1 - 5 years	Over 5 years	Total	Less than 1 year	1 - 5 years	Over 5 years	Total	
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Interest rate contracts	**195,801**	**154,570**	**43,191**	**393,562**	**7,809**	**13,520**	**5,531**	**26,860**	**420,422**
– exchange traded futures	**14,500**	**23,350**	**1**	**37,851**	**—**	**—**	**—**	**—**	**37,851**
– swaps	**180,031**	**131,030**	**43,190**	**354,251**	**7,809**	**13,520**	**5,531**	**26,860**	**381,111**
– caps	**—**	**190**	**—**	**190**	**—**	**—**	**—**	**—**	**190**
– other interest rate	**1,270**	**—**	**—**	**1,270**	**—**	**—**	**—**	**—**	**1,270**
Foreign exchange contracts	**134,200**	**13,830**	**651**	**148,681**	**894**	**64**	**—**	**958**	**149,639**
– spot	**3,415**	**—**	**—**	**3,415**	**—**	**—**	**—**	**—**	**3,415**
– forward	**120,724**	**4,815**	**102**	**125,641**	**—**	**—**	**—**	**—**	**125,641**
– currency swaps and options	**10,061**	**9,015**	**549**	**19,625**	**894**	**64**	**—**	**958**	**20,583**
Other derivative contracts	**10**	**—**	**—**	**10**	**—**	**—**	**—**	**—**	**10**
– commodity	**10**	**—**	**—**	**10**	**—**	**—**	**—**	**—**	**10**
At 31 Dec 2019	**330,011**	**168,400**	**43,842**	**542,253**	**8,703**	**13,584**	**5,531**	**27,818**	**570,071**
Interest rate contracts	104,617	160,851	51,524	316,992	2,394	12,878	5,933	21,205	338,197
– exchange traded futures	13,205	18,251	180	31,636	—	—	—	—	31,636
– swaps	88,133	142,389	48,075	278,597	2,394	12,878	5,933	21,205	299,802
– caps	1,700	211	3,269	5,180	—	—	—	—	5,180
– other interest rate	1,579	—	—	1,579	—	—	—	—	1,579
Foreign exchange contracts	119,564	15,785	1,172	136,521	566	1,191	—	1,757	138,278
– spot	1,796	—	—	1,796	—	—	—	—	1,796
– forward	103,841	4,502	30	108,373	—	—	—	—	108,373
– currency swaps and options	13,927	11,283	1,142	26,352	566	1,191	—	1,757	28,109
Other derivative contracts	20	35	—	55	—	—	—	—	55
– commodity	20	35	—	55	—	—	—	—	55
At 31 Dec 2018	224,201	176,671	52,696	453,568	2,960	14,069	5,933	22,962	476,530

The following tables summarize the fair values of the bank's derivative portfolio at 31 December segregated between derivatives that are in a favourable or receivable position and those in an unfavourable or payable position. Fair values of derivative instruments are determined using observable inputs (note 24).

	Held for trading			Hedge accounting			
	Favourable position	Unfavourable position	Net position	Favourable position	Unfavourable position	Net position	Total net position
	$m	$m	$m	$m	$m	$m	$m
Interest rate contracts	**1,588**	**(1,620)**	**(32)**	**117**	**(224)**	**(107)**	**(139)**
– swaps	**1,580**	**(1,613)**	**(33)**	**117**	**(224)**	**(107)**	**(140)**
– caps	**—**	**—**	**—**	**—**	**—**	**—**	**—**
– other interest rate	**8**	**(7)**	**1**	**—**	**—**	**—**	**1**
Foreign exchange contracts	**1,562**	**(1,529)**	**33**	**—**	**(58)**	**(58)**	**(25)**
– spot	**2**	**(2)**	**—**	**—**	**—**	**—**	**—**
– forward	**1,057**	**(1,030)**	**27**	**—**	**—**	**—**	**27**
– currency swaps and options	**503**	**(497)**	**6**	**—**	**(58)**	**(58)**	**(52)**
Other derivative contracts	**—**	**—**	**—**	**—**	**—**	**—**	**—**
– commodity	**—**	**—**	**—**	**—**	**—**	**—**	**—**
At 31 Dec 2019	**3,150**	**(3,149)**	**1**	**117**	**(282)**	**(165)**	**(164)**
Interest rate contracts	1,758	(1,703)	55	125	(174)	(49)	6
– swaps	1,753	(1,685)	68	125	(174)	(49)	19
– caps	4	(4)	—	—	—	—	—
– other interest rate	1	(14)	(13)	—	—	—	(13)
Foreign exchange contracts	2,566	(2,536)	30	12	(144)	(132)	(102)
– spot	4	(4)	—	—	—	—	—
– forward	1,811	(1,788)	23	—	—	—	23
– currency swaps and options	751	(744)	7	12	(144)	(132)	(125)
Other derivative contracts	8	(8)	—	—	—	—	—
– commodity	8	(8)	—	—	—	—	—
At 31 Dec 2018	4,332	(4,247)	85	137	(318)	(181)	(96)

Use of derivatives

The bank undertakes derivative activities for three primary purposes: to create risk management solutions for clients, to manage the portfolio risks arising from client business, and to manage and hedge our own risks. Most of the bank's derivative exposures arise from sales and trading activities and are treated as traded risk for market risk management purposes.

The bank's derivative activities give rise to open positions in portfolios of derivatives. These positions are managed constantly to ensure that they remain within acceptable risk levels in accordance with the bank's approved risk management policies, with offsetting deals being used to achieve this where necessary. When entering into derivative transactions, the bank employs the same credit risk management procedures that are used for traditional lending to assess and approve potential credit exposures.

Analysis of the derivative portfolio and related credit exposure

	2019				2018			
	Notional amount[1]	Positive replacement cost[2]	Credit equivalent amount[3]	Risk-weighted balance[4]	Notional amount[1]	Positive replacement cost[2]	Credit equivalent amount[3]	Risk-weighted balance[4]
	$m	$m	$m	$m	$m	$m	$m	$m
Interest rate contracts	**420,422**	**351**	**824**	**327**	338,197	495	917	203
– future	**37,851**	**—**	**17**	**1**	31,636	—	—	—
– swaps	**381,111**	**342**	**784**	**318**	299,802	491	883	165
– caps	**190**	**—**	**1**	**2**	5,180	3	33	38
– other interest rate contracts	**1,270**	**9**	**22**	**6**	1,579	1	1	—
Foreign exchange contracts	**149,639**	**428**	**2,368**	**835**	138,278	1,437	2,363	820
– spot	**3,415**	**—**	**3**	**2**	1,796	—	1	1
– forward	**125,641**	**196**	**1,796**	**605**	108,373	993	1,548	433
– currency swaps and options	**20,583**	**232**	**569**	**228**	28,109	444	814	386
Other derivative contracts	**10**	**—**	**1**	**1**	55	2	5	4
– commodity	**10**	**—**	**1**	**1**	55	2	5	4
– equities	**—**	**—**	**—**	**—**	—	—	—	—
At 31 Dec	**570,071**	**779**	**3,193**	**1,163**	476,530	1,934	3,285	1,027

1. *The notional contract amounts of derivatives held for trading purposes and derivatives designated in hedge accounting relationships indicate the nominal value of transactions outstanding at the balance sheet date; they do not represent amounts at risk.*
2. *Positive replacement cost represents the total fair value of all outstanding contracts in a gain position after factoring in the master netting agreements.*
3. *Credit equivalent amount is the current replacement cost plus an amount for future credit exposure associated with the potential for future changes in currency and interest rates. The future credit exposure is calculated using a formula prescribed by OSFI in its capital adequacy guidelines.*
4. *Risk-weighted balance represents a measure of the amount of regulatory capital required to support the derivative activities. It is estimated by risk weighting the credit equivalent amounts according to the credit worthiness of the counterparties using factors prescribed by OSFI in its capital adequacy guidelines.*

Interest rate futures are exchange-traded. All other contracts are over-the-counter.

Derivatives held for trading

Most of the bank's derivative transactions relate to sales and trading activities. Sales activities include the structuring and marketing of derivative products to customers to enable them to take, transfer, modify or reduce current or expected risks. Trading activities in derivatives are entered into principally for the purpose of generating profits from short-term fluctuations in price or margin. Positions may be traded actively or be held over a period of time to benefit from expected changes in currency rates, interest rates, equity prices or other market parameters. Trading includes market-making, positioning and arbitrage activities. Market-making entails quoting bid and offer prices to other market participants for the purpose of generating revenues based on spread and volume; positioning means managing market risk positions in the expectation of benefiting from favourable movements in prices, rates or indices; arbitrage involves identifying and profiting from price differentials between markets and products.

Other derivatives classified as held for trading include non-qualifying hedging derivatives, ineffective hedging derivatives and the components of hedging derivatives that are excluded from assessing hedge effectiveness. Non-qualifying hedging derivatives are entered into for risk management purposes as described in the following section but do not meet the criteria for hedge accounting.

Derivatives in hedge accounting relationships

The bank uses derivatives (principally interest rate swaps) for hedging purposes in the management of its own asset and liability portfolios and structural positions. This enables the bank to optimize the overall cost to the bank of accessing debt capital markets, and to mitigate the market risk which would otherwise arise from structural imbalances in the maturity and other profiles of its assets and liabilities.

Fair value hedges

The bank's fair value hedges principally consist of interest rate swaps that are used to protect against changes in the fair value of fixed-rate financial instruments due to movements in market interest rates. For qualifying fair value hedges, all changes in the fair value of the derivative and in the fair value of the item in relation to the risk being hedged are recognized in the income statement. If the hedge relationship is terminated, the fair value adjustment to the hedged item continues to be reported as part of the basis of the item and is amortized to the income statement as a yield adjustment over the remainder of the hedging period.

Hedging instrument by hedged risk

	Hedging Instrument				
		Carrying amount			
	Notional amount[1]	Assets	Liabilities	Balance sheet presentation	Change in fair value[2]
Hedged Risk	$m	$m	$m		$m
Interest rate	**14,452**	**72**	**180**	**Derivatives**	**(180)**
At 31 Dec 2019	**14,452**	**72**	**180**		**(180)**
Interest rate	14,241	90	112	Derivatives	(36)
At 31 Dec 2018	14,241	90	112		(36)

1. *The notional contract amounts of derivatives designated in qualifying hedge accounting relationships indicate the nominal value of transactions outstanding at the balance sheet date; they do not represent amounts at risk.*
2. *Used in effectiveness testing; comprising the full fair value change of the hedging instrument not excluding any component.*

Hedged item by hedged risk

	Hedged Item						Ineffectiveness	
	Carrying amount		Accumulated fair value hedge adjustments included in carrying amount			Change in fair value[1]	Recognized in profit and loss	
	Assets	Liabilities	Assets	Liabilities	Balance sheet presentation			Profit and loss presentation
Hedged Risk	$m	$m	$m	$m		$m	$m	
Interest rate	**12,457**	**—**	**89**	**—**	**Financial investments**	**176**	**1**	**Net income from financial instruments held for trading**
	—	**2,303**	**—**	**9**	**Debt securities in issue**	**5**		
At 31 Dec 2019	**12,457**	**2,303**	**89**	**9**		**181**	**1**	
Interest rate	12,930	—	4	—	Financial investments	36	—	Net income from financial instruments held for trading
	—	1,438	—	(4)	Debt securities in issue	—		
At 31 Dec 2018	12,930	1,438	4	(4)		36	—	

1. *Used in effectiveness assessment; comprising amount attributable to the designated hedged risk that can be a risk component.*

The accumulated amount of fair value adjustments remaining in the statement of financial position for hedged items that have ceased to be adjusted for hedging gains and losses is nil.

Sources of hedge ineffectiveness may arise from basis risk including but not limited to the discount rates used for calculating the fair value of derivatives, hedges using instruments with a non-zero fair value and notional and timing differences between the hedged items and hedging instruments.

For some debt securities held, the bank manages interest rate risk in a dynamic risk management strategy. The assets in scope of this strategy are high quality fixed-rate debt securities, which may be sold to meet liquidity and funding requirements.

The interest rate risk of fixed rate debt securities issued by the bank is managed in a non-dynamic risk management strategy.

Forecast hedging instrument (excluding dynamic hedges)

	Notional amount 3 months or less	Rate (average)	Notional amount More than 3 months but less than 1 year	Rate (average)	Notional amount More than 1 year but less than 5 years	Rate (average)	Notional amount More than 5 years	Rate (average)
Hedged risk	$m	%	$m	%	$m	%	$m	%
Interest rate								
– swaps	**522**	**2.04%**	**328**	**1.21%**	**1,390**	**2.30%**	**75**	**2.93%**
At 31 Dec 2019	**522**		**328**		**1,390**		**75**	
Interest rate								
– swaps	—	—	425	1.87%	927	1.86%	90	2.88%
At 31 Dec 2018	—		425		927		90	

Cash flow hedges

The bank's cash flow hedging instruments consist principally of interest rate swaps and cross-currency swaps that are used to manage the variability in future interest cash flows of non-trading financial assets and liabilities, arising due to changes in market interest rates and foreign-currency basis.

The bank applies macro cash flow hedging strategies for interest-rate risk exposures on portfolios of replenishing current and forecasted issuances of non-trading assets and liabilities that bear interest at variable rates, including rolling such instruments. The amounts and timing of future cash flows, representing both principal and interest flows, are projected for each portfolio of financial assets and liabilities on the basis of their contractual terms and other relevant factors, including estimates of prepayments and defaults. The aggregate cash flows representing both principal balances and interest cash flows across all portfolios are used to determine the effectiveness and ineffectiveness. Macro cash flow hedges are considered to be dynamic hedges.

The bank also hedges the variability in future cash-flows on foreign-denominated financial assets and liabilities arising due to changes in foreign exchange market rates with cross-currency swaps; these are considered non-dynamic hedges.

Hedging instrument by hedged risk

	Hedging Instrument					Hedged Item	Ineffectiveness	
		Carrying amount						
	Notional amount[1]	Assets	Liabilities	Balance sheet presentation	Change in fair value	Change in fair value	Recognized in profit and loss	Profit and loss presentation
Hedged Risk	$m	$m	$m		$m	$m	$m	$m
Foreign currency	**958**	**—**	**58**	**Derivatives**	**88**	**(88)**	**—**	**Net income from financial instruments held for trading**
Interest rate	**12,408**	**44**	**44**	**Derivatives**	**16**	**(15)**	**1**	
At 31 Dec 2019	**13,366**	**44**	**102**		**104**	**(103)**	**1**	
Foreign currency	1,757	12	144	Derivatives	(115)	115	—	Net income from financial instruments held for trading
Interest rate	6,964	35	62	Derivatives	41	(41)	—	
At 31 Dec 2018	8,721	47	206		(74)	74	—	

1. *The notional contract amounts of derivatives designated in qualifying hedge accounting relationships indicate the nominal value of transactions outstanding at the balance sheet date; they do not represent amounts at risk.*

Sources of hedge ineffectiveness may arise from basis risk, including but not limited to timing differences between the hedged items and hedging instruments and hedges using instruments with a non-zero fair value.

Reconciliation of equity and analysis of other comprehensive income by risk type

	2019		2018	
	Interest rate	**Foreign Currency**	Interest rate	Foreign Currency
	$m	**$m**	$m	$m
Cash flow hedging reserve at 1 Jan	**(15)**	**(3)**	(39)	(10)
Fair value gains/(losses)	**15**	**88**	42	(115)
Fair value (gains)/losses reclassified from the cash flow hedge reserve to the income statement	**10**	**(85)**	(9)	124
Income taxes	**(6)**	**(1)**	(9)	(2)
Cash flow hedging reserve at 31 Dec	**4**	**(1)**	(15)	(3)

Interest Rate Benchmark Reform: Amendments to IFRS 9, IAS 39 and IFRS 7

Following the request received by the Financial Stability Board from the G20, a fundamental review and reform of the major interest rate benchmarks is under way across the world's largest financial markets. This reform was not contemplated when IAS 39 was published, and consequently the IASB has published a set of temporary exceptions from applying specific hedge accounting requirements to provide clarification on how the standard should be applied in these circumstances.

Amendments to IFRS 9 and IAS 39 were issued in September 2019 and modify specific hedge accounting requirements (the 'temporary exceptions'). For example, under the temporary exceptions, Inter-Bank Offered Rates ('IBORs') are assumed to continue for the purposes of hedge accounting until such time as the uncertainty is resolved.

The application of this set of temporary exceptions is mandatory for accounting periods starting on or after 1 January 2020, but early adoption is permitted and the bank has elected to apply these exceptions for the year ended 31 December 2019. Significant judgment will be required in determining when uncertainty is expected to be resolved and therefore when the temporary exceptions will cease to apply, however at 31 December 2019 the uncertainty exists and therefore the temporary exceptions apply to all of the bank's hedge accounting relationships that reference IBORs.

The bank has cash flow and fair value hedge accounting relationships that are exposed to different IBORs, predominantly CDOR, US Dollar Libor, Sterling Libor and Euribor. Existing derivatives, loans, bonds, and other financial instruments designated in these relationships referencing IBORs will transition to new Risk-Free Rates ('RFRs') in different ways and at different times. External progress on the transition to RFRs is being monitored, with the objective of ensuring a smooth transition for the bank's hedge accounting relationships. The specific issues arising will vary with the details of each hedging relationship, but may arise due to the transition of existing products included in the designation, a change in expected volumes of products to be issued, a change in contractual terms of new products issued, or a combination of these factors. Some hedges may need to be de-designated and new relationships entered into, while others may survive the transition.

The hedge accounting relationships that are affected by the adoption of the temporary exceptions are hedged items presented in the balance sheet as 'Financial investments', 'Loans and advances to customers' and 'Debt securities in issue'.

The notional amounts of the derivatives designated in hedge accounting relationships represent the extent of the risk exposure managed by the bank that is directly affected by IBOR reform and impacted by the temporary exceptions. Details of these are presented below:

Hedging instrument impacted by IBOR reform

	Hedging instrument Impacted by IBOR Reform						
	EUR	**GBP**	**USD**	**CAD**	**Total**	**Not Impacted by IBOR Reform**	**Notional contract amount**[1]
	$m	**$m**	**$m**	**$m**	**$m**	**$m**	**$m**
Fair Value Hedges	**184**	**69**	**5,073**	**9,090**	**14,416**	**36**	**14,452**
Cash Flow Hedges	**—**	**—**	**—**	**12,408**	**12,408**	**—**	**12,408**
At 31 Dec 2019	**184**	**69**	**5,073**	**21,498**	**26,824**	**36**	**26,860**

1. *The notional contract amounts of derivatives designated in qualifying hedge accounting relationships indicate the nominal value of transactions outstanding at the balance sheet date; they do not represent amounts at risk.*

13 Financial investments

Carrying amount of financial investments

	Footnote	2019 $m	2018 $m
Debt securities		**23,625**	24,033
– Canadian and Provincial Government bonds	1	**14,577**	17,545
– international Government bonds	1	**3,326**	2,800
– other debt securities issued by banks and other financial institutions		**4,105**	3,399
– treasury and other eligible bills		**1,617**	289
Equity securities		**20**	21
At 31 Dec		**23,645**	24,054
Financial investments		**23,645**	24,054
– not subject to repledge or resale by counterparties		**20,083**	20,409
– which may be repledged or resold by counterparties		**3,562**	3,645

1. *Includes government guaranteed bonds.*

Term to maturity of financial investments

	2019 $m	2018 $m
Less than 1 year	**3,533**	2,197
1-5 years	**14,277**	15,514
5-10 years	**5,815**	6,322
No specific maturity	**20**	21
At 31 Dec	**23,645**	24,054

14 Interest rate sensitivity

Analysis of the interest rate sensitivity position based on contractual repricing dates of assets and liabilities

	2019									
	Floating rate	Within 3 months	3 - 12 months	Average interest rate	1 - 5 years	Average interest rate	Greater than 5 years	Average interest rate	Non-interest sensitive	Total
	$m	$m	$m	%	$m	%	$m	%	$m	$m
Cash and balances at central bank	—	—	—	—%	—	—%	—	—%	54	54
Items in the course of collection from other banks	—	—	—	—%	—	—%	—	—%	15	15
Trading assets	4,322	—	—	1.8%	—	—%	—	—%	—	4,322
Other financial assets mandatorily measured at fair value through profit or loss	—	—	—	—%	—	—%	—	—%	5	5
Derivatives	—	—	—	—%	—	—%	—	—%	3,267	3,267
Loans and advances to banks	—	174	—	1.8%	—	—%	—	—%	995	1,169
Loans and advances to customers	25,509	17,279	3,668	3.4%	15,233	2.9%	233	3.7%	—	61,922
Reverse repurchase agreements – non-trading	—	6,171	98	1.7%	—	—%	—	—%	—	6,269
Financial investments	—	3,418	2,346	1.5%	12,331	1.9%	5,529	2.3%	21	23,645
Customers' liability under acceptances	—	—	—	—%	—	—%	—	—%	3,500	3,500
Other assets	—	—	—	—%	—	—%	—	—%	2,315	2,315
Current tax assets	—	—	—	—%	—	—%	—	—%	26	26
Deferred tax assets	—	—	—	—%	—	—%	—	—%	62	62
Total assets	**29,831**	**27,042**	**6,112**		**27,564**		**5,762**		**10,260**	**106,571**
Deposits by banks	—	—	—	—%	—	—%	—	—%	1,036	1,036
Customer accounts	29,998	6,061	10,971	1.6%	1,880	2.7%	—	—%	13,979	62,889
Repurchase agreements – non-trading	—	7,098	—	1.8%	—	—%	—	—%	—	7,098
Items in the course of transmission to other banks	—	—	—	—%	—	—%	—	—%	225	225
Trading liabilities	2,296	—	—	1.8%	—	—%	—	—%	—	2,296
Derivatives	—	—	—	—%	—	—%	—	—%	3,431	3,431
Debt securities in issue	—	2,952	1,587	2.4%	9,933	2.6%	122	3.5%	—	14,594
Other liabilities	—	—	—	—%	—	—%	—	—%	4,290	4,290
Acceptances	—	—	—	—%	—	—%	—	—%	3,505	3,505
Subordinated liabilities	—	1,033	—	3.8%	—	—%	—	—%	—	1,033
Current tax liabilities	—	—	—	—%	—	—%	—	—%	65	65
Shareholder's equity	—	—	500	4.0%	600	5.1%	—	—%	5,009	6,109
Total liabilities and shareholder's equity	**32,294**	**17,144**	**13,058**		**12,413**		**122**		**31,540**	**106,571**
On-balance sheet gap	(2,463)	9,898	(6,946)		15,151		5,640		(21,280)	—
Off-balance sheet positions	—	(145)	5,338		201		(5,394)		—	—
Total interest rate gap	**(2,463)**	**9,753**	**(1,608)**		**15,352**		**246**		**(21,280)**	**—**

	2018									
	Floating rate	Within 3 months	3 - 12 months	Average interest rate	1 - 5 years	Average interest rate	Greater than 5 years	Average interest rate	Non-interest sensitive	Total
	$m	$m	$m	%	$m	%	$m	%	$m	$m
Cash and balances at central bank	—	—	—	—%	—	—%	—	—%	78	78
Items in the course of collection from other banks	—	—	—	—%	—	—%	—	—%	8	8
Trading assets	3,875	—	—	1.8%	—	—%	—	—%	—	3,875
Other financial assets mandatorily measured at fair value through profit or loss	—	—	—	—%	—	—%	—	—%	4	4
Derivatives	—	—	—	—%	—	—%	—	—%	4,469	4,469
Loans and advances to banks	—	134	—	1.8%	—	—%	—	—%	1,087	1,221
Loans and advances to customers	26,467	14,410	3,261	3.6%	12,675	2.9%	310	3.6%	—	57,123
Reverse repurchase agreements – non-trading	—	5,860	—	1.8%	—	—%	—	—%	—	5,860
Financial investments	—	1,725	1,922	1.8%	14,351	1.9%	6,035	2.6%	21	24,054
Customers' liability under acceptances	—	—	—	—%	—	—%	—	—%	3,932	3,932
Other assets	—	—	—	—%	—	—%	—	—%	2,656	2,656
Current tax assets	—	—	—	—%	—	—%	—	—%	51	51
Deferred tax assets	—	—	—	—%	—	—%	—	—%	75	75
Total assets	30,342	22,129	5,183		27,026		6,345		12,381	103,406
Deposits by banks	—	—	—	—%	—	—%	—	—%	1,148	1,148
Customer accounts	27,074	7,980	8,637	1.6%	1,523	2.4%	—	2.3%	14,598	59,812
Repurchase agreements – non-trading	—	8,224	—	1.9%	—	—%	—	—%	—	8,224
Items in the course of transmission to other banks	—	—	—	—%	—	—%	—	—%	252	252
Trading liabilities	2,164	—	—	1.8%	—	—%	—	—%	—	2,164
Derivatives	—	—	—	—%	—	—%	—	—%	4,565	4,565
Debt securities in issue	—	2,330	1,159	2.6%	10,237	2.7%	137	3.6%	—	13,863
Other liabilities	—	—	—	—%	—	—%	—	—%	2,776	2,776
Acceptances	—	—	—	—%	—	—%	—	—%	3,937	3,937
Subordinated liabilities	—	1,039	—	4.1%	—	—%	—	—%	—	1,039
Current tax liabilities	—	—	—	—%	—	—%	—	—%	43	43
Shareholder's equity	—	—	—	—%	850	4.2%	—	—%	4,733	5,583
Total liabilities and shareholder's equity	29,238	19,573	9,796		12,610		137		32,052	103,406
On-balance sheet gap	1,104	2,556	(4,613)		14,416		6,208		(19,671)	—
Off-balance sheet positions	—	4,050	1,179		586		(5,815)		—	—
Total interest rate gap	1,104	6,606	(3,434)		15,002		393		(19,671)	—

15 Property, plant and equipment

Owned property, plant and equipment

	Freehold land and buildings	Leasehold improvements	Equipment, fixtures and fittings	Total
	$m	$m	$m	$m
Cost				
At 1 Jan 2019	**1**	**159**	**59**	**219**
Additions at cost	**—**	**18**	**3**	**21**
Disposals and write-offs	**(1)**	**(14)**	**(11)**	**(26)**
At 31 Dec 2019	**—**	**163**	**51**	**214**
Accumulated depreciation and impairment				
At 1 Jan 2019	**—**	**(92)**	**(26)**	**(118)**
Depreciation charge for the year	**—**	**(21)**	**(10)**	**(31)**
Disposals and write-offs	**—**	**14**	**11**	**25**
At 31 Dec 2019	**—**	**(99)**	**(25)**	**(124)**
Net carrying amount at 31 Dec 2019	**—**	**64**	**26**	**90**

	Freehold land and buildings	Leasehold improvements	Equipment, fixtures and fittings	Total
	$m	$m	$m	$m
Cost				
At 1 Jan 2018	2	151	62	215
Additions at cost	—	16	11	27
Disposals and write-offs	(1)	(8)	(14)	(23)
At 31 Dec 2018	1	159	59	219
Accumulated depreciation and impairment				
At 1 Jan 2018	(1)	(79)	(29)	(109)
Depreciation charge for the year	—	(21)	(11)	(32)
Disposals and write-offs	1	8	14	23
At 31 Dec 2018	—	(92)	(26)	(118)
Net carrying amount at 31 Dec 2018	1	67	33	101

Right-of-use assets

The net carrying amount of right-of-use assets at 31 December 2019 was $249m (1 January 2019: $269m), depreciation charge for the year was $40m and additions to the right-of-use assets during 2019 were $20m.

The recognized right-of-use assets relate to the lease of properties for our branches and offices.

16 Investments in subsidiaries

At 31 December 2019, HSBC Bank Canada wholly-owned the following principal subsidiaries:

Subsidiary	Place of incorporation	Carrying value of voting shares[1]
		$m
HSBC Finance Mortgages Inc.	Toronto, Ontario, Canada	**410**
HSBC Trust Company (Canada)	Vancouver, British Columbia, Canada	**201**
HSBC Securities (Canada) Inc.	Toronto, Ontario, Canada	**187**
HSBC Mortgage Corporation (Canada)	Vancouver, British Columbia, Canada	**25**
HSBC Global Asset Management (Canada) Limited	Vancouver, British Columbia, Canada	**19**
HSBC Private Wealth Services (Canada) Inc.	Toronto, Ontario, Canada	**14**

1. *The carrying value of voting shares is the bank's equity in such investments.*

17 Structured entity and other arrangements

Mortgage Backed Securities

The bank periodically creates National Housing Act Mortgage Backed Securities with certain of the bank's mortgages identified as collateral for such securities and issues these legally created securities to Canada Housing Trust, a structured entity sponsored by Canada Mortgage and Housing Corporation, which issues Canada Mortgage Bonds. The bank does not have any decision-making power over Canada Housing Trust. The bank's only exposure to the Trust is derived from the contractual arrangements arising from the legal transfer of the mortgage backed securities and related collateral. Additional information can be found on note 25 in respect to assets securitized.

HSBC Investment funds

The bank establishes and manages investment funds such as mutual funds and pooled funds, acts as an investment manager and earns market-based management fees. The bank does not consolidate those mutual and pooled funds in which our interests indicated that we are exercising our decision making power as an agent of the other unit holder. Seed capital is provided from time to time to HSBC managed investment funds for initial launch. The bank consolidates those investment funds in which it has power to direct the relevant activities of the funds and in which the seed capital, or the units held by the bank, are significant relative to the total variability of returns of the funds such that the bank is deemed to be a principal rather than an agent.

HSBC Mortgage Fund

The bank periodically transfers mortgages to the HSBC Mortgage Fund (the 'fund') in accordance with the investment parameters of the fund and recognizes a liability for mortgages sold with recourse for the initial proceeds received. The bank provides an undertaking to repurchase mortgages which are in arrears for a period that is greater than 90 days and repurchases mortgages in certain circumstances when an individual mortgage is prepaid in full. In addition to these obligations the bank provides a liquidity arrangement to the HSBC Mortgage Fund whereby if the level of redemption requests by unitholders cannot be met by the fund the bank will either repurchase such funds as are deemed necessary by the HSBC Mortgage Fund to satisfy the liquidity requirements arising from unitholder requests or facilitate the purchase of such mortgages by a third party at the bank's discretion. The bank has not received any such liquidity requests from the fund in respect of unitholder redemptions. The fund is not consolidated as the bank does not have control over the fund as it has insufficient absolute returns or variability of returns to consolidate the fund. Information on mortgages sold with recourse can be found in note 25.

HSBC Canadian Covered Bond (Legislative) Guarantor Limited Partnership

HSBC Canadian Covered Bond (Legislative) Guarantor Limited Partnership ('the Guarantor LP') was established by the bank to support our covered bond program by providing a direct, unconditional and irrevocable guarantee for the payment of interest and principal due under the covered bond program. The Guarantor LP holds residential mortgages acquired from the bank for the purpose of meeting its obligations under the covered bond guarantee. The entity is consolidated as the bank has the decision-making power over its activities and remains exposed to the performance of the underlying mortgages.

See note 21 for further details on the covered bond program.

HSBC Canadian Covered Bond (Legislative) GP Inc.

The HSBC Canadian Covered Bond (Legislative) GP Inc. ('the Managing General Partner') is wholly-owned by the bank that is responsible for the day-to-day operations of the Guarantor LP. The directors and officers of the Managing General Partner are the bank's employees.

18 Other assets

	2019	2018
	$m	$m
Accounts receivable	**346**	434
Investments in associates	**1**	2
Due from clients, dealers and clearing corporations	**3**	98
Settlement accounts	**710**	464
Cash collateral	**510**	1,195
Other	**10**	7
At 31 Dec	**1,580**	2,200

19 Goodwill and intangible assets

	2019	2018
	$m	$m
Goodwill	**23**	23
Computer software	**132**	98
At 31 Dec	**155**	121

Impairment testing

The bank's impairment test in respect of goodwill allocated to a cash-generating unit ('CGU') is performed in early January each year. As at 31 December 2019, the net recoverable amount exceeds the carry value of the cash-generating unit including goodwill. Therefore, no goodwill impairment was recognized in 2019 (2018: nil).

Basis of the recoverable amount

The recoverable amount of CGU to which goodwill has been allocated is based on value in use ('VIU'). The VIU is calculated by discounting management's cash flow projections for the CGU.

20 Trading liabilities

	2019	2018
	$m	$m
Net short positions in securities	**2,296**	2,164
At 31 Dec	**2,296**	2,164

21 Debt securities in issue

	2019	2018
	$m	$m
Bonds and medium term notes	**11,091**	12,196
Covered bonds	**2,266**	1,018
Money market instruments	**1,237**	649
At 31 Dec	**14,594**	13,863

Term to maturity

	Footnote	2019 $m	2018 $m
Less than 1 year		**4,018**	2,749
1-5 years	1	**10,452**	10,795
5-10 years		**124**	319
At 31 Dec		**14,594**	13,863

1. *Includes covered bonds.*

The Canadian registered covered bonds which are debt securities in issue and are secured by a segregated pool of uninsured residential mortgages on properties in Canada that is held by a separate guarantor entity i.e. HSBC Canadian Covered Bond (Legislative) Guarantor Limited Partnership, established by the bank exclusively for the Covered Bond Program (the 'Program'). Under the terms of the Program, the bank issued covered bonds that are direct, unsecured and unconditional obligations of the bank. The covered bonds are treated equivalent to deposits that are ranked *pari passu* with all customer accounts of the bank without any preference among themselves and at least *pari passu* with all other unsubordinated and unsecured obligations of the bank, present and future.

The legal title on the residential mortgages that is secured by a segregated pool is held by the Guarantor LP.

At 31 December 2019, the total amount of the mortgages transferred and outstanding was $6,349m (2018: $2,646m) and $2,266m of covered bonds were recorded as debt securities in issue on our consolidated balance sheet (2018: $1,018m).

22 Other liabilities

	2019 $m	2018 $m
Mortgages sold with recourse	**1,715**	1,572
Lease liabilities	**258**	n/a
Accounts payable	**256**	60
Settlement accounts	**915**	33
Cash collateral	**211**	159
Other	**18**	50
Share based payment related liability	**11**	17
At 31 Dec	**3,384**	1,891

23 Subordinated liabilities

Subordinated debt and debentures, which are unsecured and subordinated in right of payment to the claims of depositors and certain other creditors, comprise:

		Year of Maturity	Carrying amount	
	Footnote		**2019 $m**	**2018 $m**
Interest rate (%)				
Issued to Group				
– 3 month Canadian Dollar Offered Rate plus 1.92%	1	2028	**1,000**	1,000
Issued to third parties				
– 30 day bankers' acceptance rate plus 0.50%		2083	**33**	39
Debt and debentures at amortized cost			**1,033**	1,039

1. *The subordinated debt issued to Group includes non-viability contingency capital ('NVCC') provisions, necessary for the instrument to qualify as Tier 2 regulatory capital under Basel III. In the event that OSFI determines that a regulatory defined non-viability trigger event has occurred, NVCC provisions require the full and permanent write off of the subordinated debt.*

24 Fair values of financial instruments

Control framework

Fair values are subject to a control framework designed to ensure that they are either determined, or validated, by a function independent of the risk-taker. To this end, ultimate responsibility for the determination of fair values lies with the bank's finance department ('Finance'). Finance establishes the accounting policies and procedures governing valuation, and is responsible for ensuring that they comply with all relevant accounting standards.

Where fair values are determined by reference to externally quoted prices or observable pricing inputs to models, independent price determination or validation is used. For inactive markets, the bank sources alternative market information, with greater weight given to information that is considered to be more relevant and reliable. Examples of the factors considered are price observability, instrument comparability, consistency of data sources, underlying data accuracy and timing of prices.

For fair values determined using valuation models, the control framework includes development or validation by independent support functions of the model logic, inputs, model outputs and adjustments. Valuation models are subject to a process of due diligence before becoming operational and are calibrated against external market data on an ongoing basis.

Changes in fair value are generally subject to a profit and loss analysis process and are disaggregated into high-level categories including portfolio changes, market movements and other fair value adjustments.

Fair value hierarchy

Fair values of financial assets and liabilities are determined according to the following hierarchy:

- Level 1 – valuation technique using quoted market price: financial instruments with quoted prices for identical instruments in active markets that the bank can access at the measurement date.
- Level 2 – valuation technique using observable inputs: financial instruments with quoted prices for similar instruments in active markets or quoted prices for identical or similar instruments in inactive markets and financial instruments valued using models where all significant inputs are observable.
- Level 3 – valuation technique with significant unobservable inputs: financial instruments valued using valuation techniques where one or more significant inputs are unobservable.

The best evidence of fair value is a quoted price in an actively traded market. In the event that the market for a financial instrument is not active, a valuation technique is used. The judgment as to whether a market is active may include, but is not restricted to, the consideration of factors such as the magnitude and frequency of trading activity, the availability of prices and the size of bid/offer spreads. In inactive markets, obtaining assurance that the transaction price provides evidence of fair value or determining the adjustments to transaction prices that are necessary to measure the fair value of the instrument requires additional work during the valuation process.

Valuation techniques incorporate assumptions about factors that other market participants would use in their valuations. A range of valuation techniques is employed, dependent upon the instrument type and available market data. Most valuation techniques are based upon discounted cash flow analysis, in which expected future cash flows are calculated and discounted to present value using a discounting curve. Prior to consideration of credit risk, the expected future cash flows may be known, as would be the case for the fixed leg of an interest rate swap, or may be uncertain and require projection, as would be the case for the floating leg of an interest rate swap. The valuation techniques the bank applies utilize market forward curves, if available. In option models, the probability of different potential future outcomes must be considered. In addition, the value of some products are dependent upon more than one market factor, and in these cases it will typically be necessary to consider how movements in one market factor may impact the other market factors. The model inputs necessary to perform such calculations include interest rate yield curves, exchange rates, volatilities, correlations, prepayment and default rates.

The majority of valuation techniques employ only observable market data and so the reliability of the fair value measurement is high. However, certain financial instruments are valued on the basis of valuation techniques that feature one or more significant market inputs that are unobservable, and for them, the derivation of fair value is more judgmental. An instrument in its entirety is classified as valued using significant unobservable inputs if, in the opinion of management, a significant proportion of the instrument's carrying amount and/or inception profit ('day 1 gain and loss') is driven by unobservable inputs. 'Unobservable' in this context means that there is little or no current market data available from which to determine the level at which an arm's length transaction would be likely to occur. It generally does not mean that there is no market data available at all upon which to base a determination of fair value (consensus pricing data may, for example, be used). Furthermore, in some cases the majority of the fair value derived from a valuation technique with significant unobservable inputs may be attributable to the observable inputs. Consequently, the effect of uncertainty in the determining unobservable inputs will generally be restricted to uncertainty about the overall fair value of the financial instrument being measured.

In certain circumstances, primarily where debt is hedged with interest rate derivatives or structured notes issued, the bank uses fair value to measure the carrying value of its own debt in issue. The bank records its own debt in issue at fair value, based on quoted prices in an active market for the specific instrument concerned, if available. When quoted market prices are unavailable, the own debt in issue is valued using valuation techniques, the inputs for which are either based upon quoted prices in an inactive market for the instrument, or are estimated by comparison with quoted prices in an active market for similar instruments. In both cases, the fair value includes the effect of applying the credit spread which is appropriate to the bank's liabilities. For all issued debt securities, discounted cash flow modeling is used to separate the change in fair value that may be attributed to the bank's credit spread movements from movements in other market factors such as benchmark interest rates or foreign exchange rates. Specifically, the change in fair value of issued debt securities attributable to the bank's own credit spread is computed as follows: for each security at each reporting date, an externally verifiable price is obtained or a price is derived using credit spreads for similar securities for the same issuer. Then, using discounted cash flow, each security is valued using a risk-free discount curve. The difference in the valuations is attributable to the bank's own credit spread. This methodology is applied consistently across all securities.

Structured notes issued and certain other hybrid instrument liabilities are included within trading liabilities and are measured at fair value. The credit spread applied to these instruments is derived from the spreads at which the bank would issue structured notes.

Gains and losses arising from changes in the credit spread of liabilities issued by the bank reverse over the contractual life of the debt, provided that the debt is not repaid early. All positions in non-derivative financial instruments, and all derivative portfolios, are valued at bid or offer prices as appropriate. Long positions are marked at bid prices; short positions are marked at offer prices.

The fair value of a portfolio of financial instruments quoted in an active market is calculated as the product of the number of units and its quoted price and no block discounts are made.

Transaction costs are not included in the fair value calculation, nor are the future costs of administering the over the counter derivative portfolio. These, along with trade origination costs such as brokerage fees and post-trade costs, are included either in 'Fee expense' or in 'Total operating expenses'.

A detailed description of the valuation techniques applied to instruments of particular interest follows:

Private equity

The bank's private equity portfolios are classified as investments in associates held at fair value and are not traded in active markets. In the absence of an active market, an investment's fair value is estimated on the basis of an analysis of the investee's financial position and results, risk profile, prospects and other factors, as well as by reference to market valuations for similar entities quoted in an active market, or the price at which similar companies have changed ownership. The exercise of judgment is required because of uncertainties inherent in estimating fair value for private equity investments.

Debt securities, treasury and other eligible bills, and equities

The fair value of these instruments is based on quoted market prices from an exchange, dealer, broker, industry group or pricing service, when available. When unavailable, the fair value is determined by reference to quoted market prices for similar instruments, adjusted as appropriate for the specific circumstances of the instruments.

In the absence of quoted market prices, fair value is determined using valuation techniques based on the calculation of the present value of expected future cash flows of the assets. The inputs to these valuation techniques are derived from observable market data and, where relevant, assumptions in respect of unobservable inputs.

Derivatives

Over-the-counter (i.e. non-exchange traded) derivatives are valued using valuation models. Valuation models calculate the present value of expected future cash flows, based upon 'no-arbitrage' principles. For many vanilla derivative products, such as interest rate swaps and European options, the modeling approaches used are standard across the industry. For more complex derivative products, there may be some differences in market practice. Inputs to valuation models are determined from observable market data wherever possible, including prices available from exchanges, dealers, brokers or providers of consensus pricing. Certain inputs may not be observable in the market directly, but can be determined from observable prices via model calibration procedures. Finally, some inputs are not observable, but can generally be estimated from historical data or other sources. Examples of inputs that are generally observable include foreign exchange spot and forward rates, benchmark interest rate curves and volatility surfaces for commonly traded option products. Examples of inputs that may be unobservable include volatility spreads, in whole or in part, for less commonly traded option products, and correlations between market factors such as foreign exchange rates, interest rates and equity prices.

HSBC views the Overnight Indexed Swap ('OIS') curve as the base discounting curve for all derivatives, both collateralized and uncollateralized, and utilizes a 'funding fair value adjustment' to reflect the funding of uncollateralized derivative exposure at rates other than OIS.

Derivative products valued using valuation techniques with significant unobservable inputs comprise certain long-dated foreign exchange options.

Structured notes

The fair value of structured notes is derived from the fair value of the underlying debt security as described above, and the fair value of the embedded derivative is determined as described in the paragraph above on derivatives.

Trading liabilities valued using a valuation technique with significant unobservable inputs comprised equity-linked structured notes, which are issued by the bank and provide the counterparty with a return that is linked to the performance of certain equity securities. The notes are classified as Level 3 due to the unobservability of parameters such as long-dated equity volatilities, correlations between equity prices and interest rates and between interest rates and foreign exchange rates.

Bases of valuing financial assets and liabilities measured at fair value

The table below provides an analysis of the various bases described above which have been deployed for valuing financial assets and financial liabilities measured at fair value in the consolidated financial statements.

	Valuation techniques			
	Level 1 quoted market price	Level 2 using observable inputs	Level 3 with significant unobservable inputs	Total
	$m	$m	$m	$m
At 31 Dec 2019				
Assets				
Trading assets	**4,257**	**65**	**–**	**4,322**
Other financial assets mandatorily measured at fair value through profit or loss	**–**	**5**	**–**	**5**
Derivatives	**–**	**3,267**	**–**	**3,267**
Financial investments	**23,612**	**33**	**–**	**23,645**
Liabilities				
Trading liabilities	**2,286**	**10**	**–**	**2,296**
Derivatives	**–**	**3,431**	**–**	**3,431**
At 31 Dec 2018				
Assets				
Trading assets	3,719	156	–	3,875
Other financial assets mandatorily measured at fair value through profit or loss	–	4	–	4
Derivatives	–	4,464	5	4,469
Financial investments	23,726	328	–	24,054
Liabilities				
Trading liabilities	2,152	12	–	2,164
Derivatives	–	4,560	5	4,565

Transfers between Level 1 and Level 2 fair values

	Assets		Liabilities
	Trading assets	Financial investments	Trading liabilities
	$m	$m	$m
At 31 Dec 2019			
Transfer from Level 1 to Level 2	**–**	**–**	**–**
Transfer from Level 2 to Level 1	**2**	**278**	**2**
At 31 Dec 2018			
Transfer from Level 1 to Level 2	1	14	1
Transfer from Level 2 to Level 1	1	155	–

Transfers between levels of the fair value hierarchy are deemed to occur at the end of each reporting period. Transfers into and out of levels of the fair value hierarchy are primarily attributable to observability of valuation inputs and price transparency.

Fair values of financial instruments not carried at fair value

Fair values at the balance sheet date of the assets and liabilities set out below are estimated for the purpose of disclosure as follows:

(a) Loans and advances to banks and customers

The fair value of loans and advances is based on observable market transactions, where available. In the absence of observable market transactions, fair value is estimated using discounted cash flow models. Performing loans are grouped, as far as possible, into homogeneous pools segregated by maturity and coupon rates. In general, contractual cash flows are discounted using the bank's estimate of the discount rate that a market participant would use in valuing instruments with similar maturity, repricing and credit risk characteristics.

The fair value of a loan portfolio reflects both loan impairments at the reporting date and estimates of market participants' expectations of credit losses over the life of the loans. For impaired loans, fair value is estimated by discounting the future cash flows over the time period in which they are expected to be recovered.

(b) Deposits by banks and customer accounts

For the purposes of estimating fair value, deposits by banks and customer accounts are grouped by residual maturity. Fair values are estimated using discounted cash flows, applying current rates offered for deposits of similar remaining maturities. The fair value of a deposit repayable on demand approximates its book value.

(c) Debt securities in issue and subordinated liabilities

Fair values are determined using quoted market prices at the reporting date where available, or by reference to quoted market prices for similar instruments.

The fair values in this note are stated at a specific date and may be significantly different from the amounts which will actually be paid on the maturity or settlement dates of the instruments. In many cases, it would not be possible to realize immediately the estimated fair values given the size of the portfolios measured. Accordingly, these fair values do not represent the value of these financial instruments to the bank as a going concern.

For all classes of financial instruments, fair value represents the product of the value of a single instrument, multiplied by the number of instruments held.

The following table lists financial instruments whose carrying amount is a reasonable approximation of fair value because, for example, they are short-term in nature or reprice to current market rates frequently:

Assets	Liabilities
Cash and balances at central bank	Items in the course of transmission to other banks
Items in the course of collection from other banks	Deposits by banks
Loans and advances to banks	Acceptances
Customers' liability under acceptances	Short-term payables within 'Other liabilities'
Short-term receivables within 'Other assets'	Accruals
Reverse repurchase agreements – non-trading	Repurchase agreements – non-trading
Accrued income	

Fair values of financial instruments not carried at fair value

		2019					2018	
		Carrying amount	**Fair value**	**Level 1 quoted market price**	**Level 2 using observable inputs**	**Level 3 with significant unobservable inputs**	Carrying amount	Fair value
	Footnote	**$m**	**$m**	**$m**	**$m**	**$m**	$m	$m
At 31 Dec								
Assets								
Loans and advances to customers	1	**61,922**	**61,917**	**–**	**174**	**61,743**	57,123	56,891
Liabilities								
Customer accounts		**62,889**	**63,166**	**–**	**63,166**	**–**	59,812	60,119
Debt securities in issue		**14,594**	**14,722**	**–**	**14,722**	**–**	13,863	13,829
Subordinated liabilities		**1,033**	**1,030**	**–**	**1,030**	**–**	1,039	1,016

1. Loans and advances to customers specifically relating to Canada: carrying amount $57,768m and fair value $57,763m.

25 Assets pledged, collateral received and assets transferred

Assets charged as security for liabilities and contingent obligations

In the ordinary course of business, we pledge assets recorded on our consolidated balance sheet in relation to securitization activity, covered bonds, mortgages sold with recourse, securities lending and securities sold under repurchase agreements. These transactions are conducted under terms that are usual and customary to standard securitization, covered bonds, mortgages sold with recourse, securities lending and repurchase agreements. In addition, we also pledge assets to secure our obligations within payment and depository clearing systems.

		2019	2018
	Footnote	**$m**	$m
Cash		**510**	1,255
Residential mortgages	1	**6,317**	4,320
Debt securities		**7,460**	8,924
At 31 Dec		**14,287**	14,499

1. Includes the mortgages pledged for the covered bond program.

The bank is required to pledge assets to secure its obligations in the Large Value Transfer System ('LVTS'), which processes electronically in real-time large value and time-critical payments in Canada. In the normal course of business, pledged assets are released upon settlement of the bank's obligations at the end of each business day. Only in very rare circumstances we are required to borrow from the Bank of Canada to cover any settlement obligations. Under those circumstances, the pledged assets would be used to secure the borrowing. No amounts were outstanding under this arrangement at 31 December 2019 or 2018. Consequently, the assets pledged with respect to the bank's LVTS obligations have not been included in the table above.

Collateral accepted as security for assets

The fair value of financial assets accepted as collateral that the bank is permitted to sell or repledge in the absence of default is $8,050m (2018: $7,369m). The fair value of financial assets accepted as collateral that have been sold or repledged is $5,428m (2018: $5,633m). The bank is obliged to return equivalent assets.

These transactions are conducted under terms that are usual and customary to standard securities borrowing and reverse repurchase agreements.

Assets transferred

The following table analyzes the carrying amount of financial assets as at 31 December that did not qualify for derecognition during the year as the bank did not transfer substantially all of the variability of the risks and rewards of ownership and their associated financial liabilities recognized for the proceeds received.

Transferred financial assets not qualifying for full derecognition and associated financial liabilities

		Carrying amount of:		Fair value of:		
		Transferred assets	Associated liabilities	Transferred assets	Associated liabilities	Net position
	Footnote	$m	$m	$m	$m	$m
At 31 Dec 2019						
– assets securitized		**2,029**	**2,009**	**2,026**	**2,038**	**(12)**
– mortgages sold with recourse		**1,715**	**1,715**	**1,722**	**1,722**	**—**
– repurchase agreements	1	**5,537**	**5,537**	**5,537**	**5,537**	**—**
At 31 Dec 2018						
– assets securitized		2,032	2,009	2,018	2,025	(7)
– mortgages sold with recourse		1,572	1,572	1,556	1,556	—
– repurchase agreements	1	5,574	5,574	5,574	5,574	—

1. *Transfers of financial assets subject to repurchase agreements are presented prior to any offsetting adjustments.*

In addition to assets securitized as noted above which did not result in derecognition of the transferred financial instruments, the bank has also created $57m (2018: $102m) of securitized assets which are collateralized by certain bank's mortgage receivables which remain on the bank's balance sheet. A liability has not been recognized as the securitized assets have not been transferred to third parties. The retained mortgage-backed securities are available as collateral for secured funding liabilities.

26 Share capital

Authorized

Preferred – Unlimited number of Class 1 preferred shares in one or more series and unlimited number of Class 2 preferred shares in one or more series. We may, from time to time, divide any unissued Class 1 preferred shares into separate series and fix the number of shares in each series along with the associated rights, privileges, restrictions and conditions.

Common – Unlimited number of common shares.

Issued and fully paid

		2019		2018	
		Number of shares	Share capital	Number of shares	Share capital
	Footnotes		$m		$m
Preferred shares Class 1		**44,000,000**	**1,100**	34,000,000	850
– Series G	1	**20,000,000**	**500**	20,000,000	500
– Series I	2	**14,000,000**	**350**	14,000,000	350
– Series K	3	**10,000,000**	**250**	—	—
Common shares		**498,668,000**	**1,225**	498,668,000	1,225

1. *The shares are non-voting, non-cumulative and redeemable. Each share yields 4%, payable quarterly, as and when declared. Subject to regulatory approval, the bank may on 30 June 2020 and every 5 years thereafter, redeem a portion or all of the Series G shares at a cash redemption price of $25 per share. The shares include non-viability contingency capital ('NVCC') provisions, necessary for the shares to qualify as Tier 1 regulatory capital under Basel III. In the event that OSFI determines that a regulatory defined non-viability trigger event has occurred, NVCC provisions require the write off and cancellation of the Series G shares against equity.*
2. *The shares are non-voting, non-cumulative and redeemable. The initial dividend was fixed at $0.37 per share and was paid on 31 March 2018. Thereafter, each share yields 4.6%, payable quarterly, as and when declared. Subject to regulatory approval, the bank may on 31 December 2022 and every 5 years thereafter, redeem a portion or all of the Series I shares at a cash redemption price of $25 per share. The shares include non-viability contingency capital ('NVCC') provisions, necessary for the shares to qualify as Tier 1 regulatory capital under Basel III. In the event that OSFI determines that a regulatory defined non-viability trigger event has occurred, NVCC provisions require the write off and cancellation of the Series I shares against equity.*
3. *The shares are non-voting, non-cumulative and redeemable. The initial dividend was fixed at $0.35560 per share and was paid on 31 December 2019. Thereafter, each share yields 5.45%, payable quarterly, as and when declared. Subject to regulatory approval, the bank may on 30 September 2024 and every 5 years thereafter, redeem a portion or all of the Series K shares at a cash redemption price of $25 per share. The shares include non-viability contingency capital ('NVCC') provisions, necessary for the shares to qualify as Tier 1 regulatory capital under Basel III. In the event that OSFI determines that a regulatory defined non-viability trigger event has occurred, NVCC provisions require the write off and cancellation of the Series K shares against equity.*

27 Contingent liabilities, contractual commitments and guarantees

	Footnote	2019 $m	2018 $m
Guarantees:			
– financial guarantees	1	**2,124**	2,182
– performance guarantees	2	**3,345**	3,399
At 31 Dec		**5,469**	5,581
Commitments:			
– standby facilities, credit lines and other commitments to lend		**42,444**	42,892
– documentary credits and short-term trade-related transactions		**277**	486
At 31 Dec		**42,721**	43,378

1. *Financial guarantees require the issuer to make specified payments to reimburse the holder for a loss incurred because a specified debtor fails to make payment when due in accordance with the original or modified terms of a debt instrument. The amounts in the above table are nominal principal amounts.*
2. *Performance bonds, bid bonds, standby letters of credit and other transaction-related guarantees are undertakings by which the obligation on the bank and/or the bank to make payment depends on the outcome of a future event.*

The preceding table discloses the nominal principal amounts of off-balance sheet liabilities and commitments for the bank, which represent the maximum amounts at risk should the contracts be fully drawn upon and the clients default. As a significant portion of guarantees and commitments are expected to expire without being drawn upon, the total of the nominal principal amounts is not indicative of future liquidity requirements.

The bank provides guarantees and similar undertakings on behalf of both third party customers and other entities within the bank. These guarantees are generally provided in the normal course of the bank's banking business. The risks and exposures arising from guarantees are captured and managed in accordance with the bank's overall credit risk management policies and procedures. Guarantees with terms of more than one year are subject to the bank's annual credit review process.

28 Finance lease receivables and lease commitments

Finance lease receivables

The bank leases a variety of assets to third parties under finance leases, including transport assets, property and general plant and machinery. At the end of the lease terms, assets may be sold to third parties or leased for further terms. Rentals are calculated to recover the cost of assets less their residual value, and earn finance income.

	2019			2018		
	Total future minimum payments $m	**Unearned finance income $m**	**Present value $m**	Total future minimum payments[1] $m	Unearned finance income $m	Present value $m
Lease receivables:						
No later than one year	**680**	**(55)**	**625**	576	(47)	529
Later than one year and no later than five years	**n/a**	**n/a**	**n/a**	1,132	(65)	1,067
One to two years	**496**	**(37)**	**459**	n/a	n/a	n/a
Two to three years	**369**	**(22)**	**347**	n/a	n/a	n/a
Three to four years	**232**	**(12)**	**220**	n/a	n/a	n/a
Four to five years	**143**	**(6)**	**137**	n/a	n/a	n/a
Later than five years	**107**	**(7)**	**100**	82	(3)	79
At 31 Dec	**2,027**	**(139)**	**1,888**	1,790	(115)	1,675

1. *Certain prior year amounts have been reclassified to conform to the current year presentation.*

Lease commitments

The amount of lease agreements with a commencement date after 31 December 2019 is $91m (1 January 2019: $95m).

29 Related party transactions

The ultimate parent company of the bank is HSBC Holdings, which is incorporated in England. The bank's related parties include the parent, fellow subsidiaries, and Key Management Personnel.

(a) Transactions with Key Management Personnel

Key Management Personnel are defined as those persons having authority and responsibility for planning, directing and controlling the activities of the bank and includes members of the Board of HSBC Bank Canada.

Compensation of Key Management Personnel

The following represents the compensation paid to the Key Management Personnel of the bank in exchange for services rendered to the bank.

Compensation of Key Management Personnel

	2019	2018
	$m	$m
Short-term employee benefits	**16**	18
Post-employment benefits	**1**	1
Share-based payments	**3**	3
Year ended 31 Dec	**20**	22

Other transactions, arrangements and agreements involving Key Management Personnel

The disclosure of the year-end balance and the highest balance during the year is considered the most meaningful information to represent transactions during the year. The transactions below were made in the ordinary course of business and on substantially the same terms, including interest rates and security, as for comparable transactions with persons of a similar standing or, where applicable, with other employees. The transactions did not involve more than the normal risk of repayment or present other unfavourable features.

		2019		2018	
		Highest balance during the year	**Balance at 31 December**	Highest balance during the year	Balance at 31 December
	Footnote	**$m**	**$m**	$m	$m
Key Management Personnel	*1*				
– loans		**9.4**	**6.3**	11.3	8.5
– credit cards		**0.3**	**0.2**	0.4	0.2

1. Includes Key Management Personnel, close family members of Key Management Personnel and entities which are controlled, jointly controlled or significantly influenced, or for which significant voting power is held, by Key Management Personnel or their close family member.

(b) Transactions between the bank and HSBC Group

Transactions detailed below include amounts due to/from the bank and HSBC Group. The disclosure of the year-end balance and the highest balance during the year is considered the most meaningful information to represent transactions during the year. The transactions below were made in the ordinary course of business and on substantially the same terms, including interest rates and security, as for comparable transactions with third party counterparties. Certain collateral for derivatives are handled by other HSBC Group affiliate who have agreements with selected clearing houses and exchanges.

	2019		2018	
	Highest balance during the year	**Balance at 31 December**	Highest balance during the year	Balance at 31 December
	$m	**$m**	$m	$m
Assets				
Derivatives	**3,100**	**2,360**	3,513	2,774
Loans and advances to banks	**696**	**696**	660	632
Other assets	**1,677**	**480**	1,193	1,031
Liabilities				
Deposits by banks	**865**	**858**	912	912
Customer accounts	**41**	**41**	32	32
Repurchase agreements – non-trading	**2,284**	**847**	1,936	1,936
Derivatives	**3,584**	**2,309**	3,341	3,341
Other liabilities	**1,200**	**270**	1,113	192
Subordinated liabilities	**1,000**	**1,000**	1,000	1,000

On 27 September 2019, the bank issued Class 1 preferred shares Series K that are non-voting, non-cumulative and redeemable to HSBC Overseas Holdings (UK) Limited. See note 26 for more information.

	2019	2018
	$m	$m
Income Statement		
Interest income	**14**	21
Interest expense	**(91)**	(80)
Fee income	**21**	24
Fee expense	**(17)**	(16)
Other operating income	**26**	94
General and administrative expenses	**(290)**	(209)

30 Offsetting of financial assets and financial liabilities

Financial assets subject to offsetting, enforceable master netting arrangements and similar agreements

	Footnote	Amounts subject to enforceable netting arrangements						
					Amounts not set off in the balance sheet			
		Gross amounts of recognized financial assets	Gross amounts set off in the balance sheet	Amounts presented in the balance sheet	Financial instruments	Non-cash collateral received	Cash collateral received	Net amount
		$m	$m	$m	$m	$m	$m	$m
Derivatives (note 12)	1	**3,267**	**—**	**3,267**	**(446)**	**(2)**	**(22)**	**2,797**
Reverse repurchase agreements:		**8,195**	**(1,926)**	**6,269**	**—**	**(6,269)**	**—**	**—**
– loan and advances to banks at amortized cost		**493**	**(172)**	**321**	**—**	**(321)**	**—**	**—**
– loan and advances to customers at amortized cost		**7,702**	**(1,754)**	**5,948**	**—**	**(5,948)**	**—**	**—**
Loans and advances to customers		**1,014**	**—**	**1,014**	**(788)**	**—**	**—**	**226**
Other assets (note 18)		**—**	**—**	**—**	**—**	**—**	**—**	**—**
At 31 Dec 2019		**12,476**	**(1,926)**	**10,550**	**(1,234)**	**(6,271)**	**(22)**	**3,023**
Derivatives (note 12)	1	4,469	—	4,469	(443)	(47)	(14)	3,965
Reverse repurchase agreements:		7,341	(1,481)	5,860	—	(5,860)	—	—
– loan and advances to banks at amortized cost		271	(44)	227	—	(227)	—	—
– loan and advances to customers at amortized cost		7,070	(1,437)	5,633	—	(5,633)	—	—
Loans and advances to customers		896	—	896	(735)	—	—	161
Other assets (note 18)		798	(334)	464	—	—	—	464
At 31 Dec 2018		13,504	(1,815)	11,689	(1,178)	(5,907)	(14)	4,590

1. *Includes derivative amounts that are both subject to and not subject to enforceable master netting agreements and similar agreements.*

Financial liabilities subject to offsetting, enforceable master netting arrangements and similar agreements

	Footnote	Amounts subject to enforceable netting arrangements						
					Amounts not set off in the balance sheet			
		Gross amounts of recognized financial liabilities	Gross amounts set off in the balance sheet	Amounts presented in the balance sheet	Financial instruments	Non-cash collateral pledged	Cash collateral pledged	Net amount
		$m	$m	$m	$m	$m	$m	$m
Derivatives (note 12)	1	**3,431**	**—**	**3,431**	**(446)**	**(103)**	**(137)**	**2,745**
Repurchase agreements		**9,024**	**(1,926)**	**7,098**	**—**	**(7,098)**	**—**	**—**
– deposits by banks at amortized cost		**3,215**	**(172)**	**3,043**	**—**	**(3,043)**	**—**	**—**
– customer accounts at amortized cost		**5,809**	**(1,754)**	**4,055**	**—**	**(4,055)**	**—**	**—**
Customer accounts excluding repos at amortized cost		**1,422**	**—**	**1,422**	**(788)**	**—**	**—**	**634**
Other liabilities (note 22)		**—**	**—**	**—**	**—**	**—**	**—**	**—**
At 31 Dec 2019		**13,877**	**(1,926)**	**11,951**	**(1,234)**	**(7,201)**	**(137)**	**3,379**
Derivatives (note 12)	1	4,565	—	4,565	(443)	(75)	(293)	3,754
Repurchase agreements		9,704	(1,480)	8,224	—	(8,224)	—	—
– deposits by banks at amortized cost		2,996	(44)	2,952	—	(2,952)	—	—
– customer accounts at amortized cost		6,708	(1,436)	5,272	—	(5,272)	—	—
Customer accounts excluding repos at amortized cost		1,525	—	1,525	(735)	—	—	790
Other liabilities (note 22)		367	(334)	33	—	—	—	33
At 31 Dec 2018		16,161	(1,814)	14,347	(1,178)	(8,299)	(293)	4,577

1. *Includes derivative amounts that are both subject to and not subject to enforceable master netting agreements and similar agreements.*

31 Legal proceedings and regulatory matters

The bank is subject to a number of legal proceedings and regulatory matters arising in the normal course of our business. The bank does not expect the outcome of any of these proceedings, in aggregate, to have a material effect on its consolidated balance sheet or its consolidated income statement.

32 Significant event in 2019

On 1 January 2019 the bank transferred certain shared services to the HSBC Global Services (Canada) Limited ('ServCo') to meet global recovery and resolution requirements that ensure the operational continuity of critical shared services and facilitate recovery action. The transfer of people, systems and other supporting assets have no significant impact on the overall financial results, position or operations of the bank.

The establishment of ServCo was not designed to deliver economic benefits from changes in business activities, but represents a re-arrangement of the organization of business activities across legal entities under the common control of HSBC Holdings plc in its capacity as the ultimate shareholder in order to be compliant with certain regulations.

The consideration received as part of the transaction was an investment of $4m, which was subsequently redeemed for cash on 27 June 2019.

The difference between the net assets removed and the consideration received is recognized in equity as a deemed contribution of $13m from the ultimate shareholder.

33 Events after the reporting period

On 13 February 2020, the bank declared regular quarterly dividends for the first quarter 2020 on all series of HSBC Bank Canada Class 1 preferred shares, to be paid in accordance with their terms in the usual manner on 31 March 2020 or the first business day thereafter to shareholder of record on 15 March 2020.

On 13 February 2020, the bank also declared a final dividend of $160m on HSBC Bank Canada common shares in respect of the financial year ending 31 December 2019, which will be paid on or before 30 March 2020 to the shareholder of record on 13 February 2020.

As the quarterly dividends on preferred shares for the first quarter 2020 and the final dividend on common shares for 2019 were declared after 31 December 2019, the amounts have not been included in the balance sheet of the bank as a liability.

There have been no other material events after the reporting period which would require disclosure or adjustment to the 31 December 2019 consolidated financial statements.

These accounts were approved by the Board of Directors on 13 February 2020 and authorized for issue.

HSBC Group International Network[1]

Services are provided in 64 countries and territories

Europe	Asia-Pacific	Americas	Middle East and Africa
Armenia	Australia	Argentina	Algeria
Austria	Bangladesh	Bermuda	Bahrain
Belgium	China	Brazil	Egypt
Channel Islands	India	British Virgin Islands	Israel
Czech Republic	Indonesia	Canada	Kuwait
France	Japan	Cayman Islands	Lebanon
Germany	Korea, Republic of	Chile	Mauritius
Greece	Malaysia	Colombia	Morocco
Ireland	Maldives	Mexico	Oman
Isle of Man	New Zealand	Peru	Qatar
Italy	Philippines	United States of America	Saudi Arabia
Luxembourg	Singapore	Uruguay	South Africa
Malta	Sri Lanka		Turkey
Netherlands	Taiwan		United Arab Emirates
Poland	Thailand		
Russia	Vietnam		
Spain	Hong Kong Special Administrative Region		
Sweden	Macau Special Administrative Region		
Switzerland			
United Kingdom			

[1]As of 31 December 2019

Executive Committee[1]

Sandra Stuart
Group General Manager, President and Chief Executive Officer
Vancouver

Kimberly Flood
Senior Vice President and Head of Communications
Toronto

Georgia Stavridis
Senior Vice President and Head of Financial Crime Compliance
Vancouver

Larry Tomei
Executive Vice President and Head of Retail Banking and Wealth Management
Toronto

Santokh Birk
Head of Strategy and Planning
Vancouver

Kim Hallwood
Head of Corporate Sustainability
Vancouver

Gerhardt Samwell
Chief Financial Officer
Vancouver

Sophia Tsui
Senior Vice President and Chief Auditor
Vancouver

Lilac Bosma
General Counsel
Vancouver

Stephen L. O'Leary
Chief Risk Officer
Vancouver

Kim Toews
Executive Vice President and Head of Human Resources
Vancouver

Josée Turcotte
Senior Vice President, Corporate Secretary and Head of Governance
Toronto

Lisa Dalton
Chief of Staff, Office of the CEO
Vancouver

Linda Seymour
Executive Vice President and Country Head of Commercial Banking
Toronto

Caroline A Tose
Chief Operating Officer
Vancouver

Board of Directors[1]

Samuel Minzberg
Chair of the Board, HSBC Bank Canada and Senior Counsel, Davies Ward Phillips & Vineberg LLP

Noel Quinn
Director and Group Chief Executive (Interim), HSBC Holdings plc

Robert G. McFarlane
Chair of the Audit, Risk and Conduct Review Committee, HSBC Bank Canada

Beth S. Horowitz
Corporate Director

Judith J. Athaide
Corporate Director, HSBC Bank Canada and President and Chief Executive Officer, Cogent Group Inc.

Sandra Stuart
Group General Manager, President and Chief Executive Officer, HSBC Bank Canada

Michael J. Korenberg
Corporate Director

Karen Gavan
Corporate Director

[1]As of February 2020

Shareholder information

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