



ROYAL BANK OF CANADA

(a Canadian chartered bank)

2nd Supplementary Notes Base Prospectus dated December 20, 2022

Pursuant to the Programme for the Issuance of Securities

This 2nd Notes Base Supplementary Prospectus (the “**2nd Supplementary Prospectus**”) to the Notes Base Prospectus dated July 29, 2022, as supplemented by the 1st Supplementary Prospectus dated August 25, 2022 (together, the “**Base Prospectus**”), and Admission Particulars for Royal Bank of Canada (“**RBC**” or the “**Issuer**”) constitutes a supplementary prospectus in respect of the Base Prospectus for the Issuer for the purposes of Article 23.1 of the U.K. Prospectus Regulation and supplementary admission particulars in respect of the Admission Particulars for the purposes of the ISM Rulebook, and is prepared in connection with the programme for the issuance of securities established by RBC (the “**Programme**”). When used in this 2nd Supplementary Prospectus, “**U.K. Prospectus Regulation**” means Regulation (EU) 2017/1129 as it forms part of U.K. domestic law by virtue of the European Union (Withdrawal) Act 2018, as amended.

Terms defined in the Base Prospectus have the same meaning when used in this 2nd Supplementary Prospectus. This 2nd Supplementary Prospectus is supplemental to, and shall be read in conjunction with, the Base Prospectus.

RBC accepts responsibility for the information contained in this 2nd Supplementary Prospectus. To the best of the knowledge of RBC, the information contained in this 2nd Supplementary Prospectus is in accordance with the facts and this 2nd Supplementary Prospectus makes no omission likely to affect its import.

The purpose of this 2nd Supplementary Prospectus is to (a) incorporate by reference in the Base Prospectus the Issuer’s latest audited consolidated financial statements and management’s discussion and analysis thereof and 2022 AIF (as defined below); (b) include a new statement in respect of no significant change and no material adverse change; (c) delete and replace the risk factors, which are incorporated by reference in the Base Prospectus via the Registration Document dated July 27, 2022 in light of the issuance of the 2022 MD&A (as defined below); and (c) update paragraph 3 of the section entitled “General Information” in the Base Prospectus regarding governmental, legal or arbitration proceedings which may have, or have had, a significant effect on the financial position or profitability of the Issuer or of the Issuer and its subsidiaries taken as a whole in the Base Prospectus.

To the extent that there is any inconsistency between (a) any statement in this 2nd Supplementary Prospectus or any statement incorporated by reference into the Base Prospectus by this 2nd Supplementary Prospectus and (b) any other statement in, or incorporated by reference in, the Base Prospectus, the statements in (a) above will prevail.

Save as disclosed in this 2nd Supplementary Prospectus, the 2022 AIF or the 2022 Annual Report (as defined below) incorporated by reference in the Base Prospectus by virtue of this 2nd Supplementary Prospectus, no significant new factor, material mistake or material inaccuracy relating to the information included in the Base Prospectus which may affect the assessment of Notes issued under the Programme has arisen or been noted, as the case may be, since approval by the Financial Conduct Authority (the “**FCA**”) of the 1st Supplementary Prospectus dated August 25, 2022.

DOCUMENTS INCORPORATED BY REFERENCE

The following documents (or the specified sections thereof) are, by virtue of this 2nd Supplementary Prospectus, incorporated in, and form part of, the Base Prospectus:

- (a) RBC's Annual Information Form dated November 29, 2022 (the "**2022 AIF**");
- (b) the following sections of RBC's 2022 Annual Report (the "**2022 Annual Report**") for the year ended October 31, 2022:
 - (i) the Management's Discussion and Analysis on pages 20 through 127 (the "**2022 MD&A**");
 - (ii) the audited annual consolidated financial statements, which comprise the consolidated balance sheets as of October 31, 2022 and 2021, and the related consolidated statements of income, comprehensive income, changes in equity, and cash flows for the years then ended, including the related notes, (the "**2022 Audited Consolidated Financial Statements**"), prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board on pages 138 through 229, together with Management's Report on Internal Control over Financial Reporting as of October 31, 2022 on page 130, the Independent Auditor's Report and the Report of Independent Registered Public Accounting Firm, each dated November 29, 2022, on pages 131 through 134 and 135 through 137, respectively; and
 - (iii) the information about tax examinations and assessments and legal and regulatory matters to which the Issuer and its consolidated subsidiaries are or have been subject in Note 22 on page 216 and Note 25 on pages 219 and 220, respectively.

The remainder of the 2022 Annual Report is either covered elsewhere in the Base Prospectus or is not relevant for investors.

The 2022 AIF and the 2022 Annual Report, which includes the 2022 Audited Consolidated Financial Statements and the 2022 MD&A, are available for viewing at:

2022 AIF

<https://www.rbc.com/investor-relations/assets-custom/pdf/aif2022.pdf>

2022 Annual Report

https://www.rbc.com/investor-relations/assets-custom/pdf/ar_2022_e.pdf

The 2022 AIF and the 2022 Annual Report, which includes the 2022 Audited Consolidated Financial Statements and the 2022 MD&A, have been filed with the National Storage Mechanism and are available for viewing at <https://data.fca.org.uk/#/nsm/nationalstoragemechanism> and have been announced via the Regulatory News Service operated by the London Stock Exchange.

For the avoidance of doubt, any document incorporated by reference in the 2022 AIF, the 2022 Audited Consolidated Financial Statements or the 2022 MD&A shall not form part of this 2nd Supplementary Prospectus for the purposes of the U.K. Prospectus Regulation or the ISM Rulebook except where such information or other documents are specifically incorporated by reference in or attached to this 2nd Supplementary Prospectus.

Copies of this 2nd Supplementary Prospectus, the Base Prospectus and the documents incorporated by reference in either of these can be (1) viewed on the Issuer's website maintained in respect of the Programme at <https://www.rbc.com/investor-relations/european-senior-notes-program.html> (2) obtained on written request

and without charge from the Issuer at 20th Floor, 200 Bay Street, Toronto, Ontario, Canada M5J 2J5, Attention Senior Vice President, Wholesale Finance and Investor Relations and from the office of the Issuing and Paying Agent, The Bank of New York Mellon, London Branch, One Canada Square, London E14 5AL, England, Attention: Manager, EMEA Corporate & Sovereign Department and (3) viewed on the website of the Regulatory News Service operated by the London Stock Exchange at <http://www.londonstockexchange.com/exchange/news/market-news/market-news-home.html> under the name of the Issuer and the headline "Publication of Prospectus". Copies of the Issuer's periodic financial reporting can also be viewed by accessing the Issuer's disclosure documents through the Internet on the Canadian System for Electronic Document Analysis and Retrieval at <http://www.SEDAR.com> (an internet based securities regulatory filing system). Any websites included in this 2nd Supplementary Prospectus other than in respect of the information incorporated by reference are for information purposes only and do not form part of this 2nd Supplementary Prospectus or the Base Prospectus and the FCA has neither scrutinised or approved the information contained therein.

STATEMENT OF NO SIGNIFICANT CHANGE

Since October 31, 2022, the last day of the financial period in respect of which the most recent audited consolidated financial statements of the Issuer have been published, there has been no significant change in the financial position or financial performance of the Issuer and its subsidiaries taken as a whole.

STATEMENT OF NO MATERIAL ADVERSE CHANGE

Since October 31, 2022, the date of its last published audited consolidated financial statements, there has been no material adverse change in the prospects of the Issuer and its subsidiaries taken as a whole.

RISK FACTORS

The current risk factors under the section entitled "Risks relating to the Issuer" in the Registration Document which Registration Document is incorporated by reference in the Base Prospectus, are deleted and replaced by the risks relating to the Issuer set out below. For the avoidance of doubt, all revisions to the risk factors noted herein are only for the purposes of the Base Prospectus and do not constitute a supplement to the Registration Document itself.

1. Top and emerging risks

An important component of the Issuer's risk management approach is to ensure that top and emerging risks, as they evolve, are identified, managed, and incorporated into the Issuer's existing risk management assessment, measurement, monitoring and escalation processes and addressed in the Issuer's risk frameworks and policies. These practices are intended to ensure a forward-looking risk assessment is maintained by management in the course of business development and as part of the execution of ongoing risk oversight responsibilities. Top and emerging risks are discussed by the Issuer's senior management and the Board on a regular basis. The Issuer has developed supplementary internal guidance to support enterprise-wide identification and assessment of all material risks, including those that are not readily apparent.

Top and emerging risks encompass those that could materially impact the Issuer's financial results, financial and operational resilience, reputation, business model, or strategy, as well as those that could potentially impact the Issuer as the risks evolve.

The table below sets out the risk factors that the Issuer currently considers its top and emerging risks, but it should be highlighted that the risks set out in these tables are not exhaustive and investors should consider all the risk factors disclosed in this Risk Factors section.

Top & emerging risks	Description
<p>1.1 Business and economic conditions</p>	<p>The Issuer’s financial results are affected to varying degrees by the general business and economic conditions in the geographic regions in which the Issuer operates. These conditions may include factors such as consumer saving and spending habits, consumer borrowing and repayment patterns, unemployment rates, the differing economic trajectories among nations across the globe, global tensions and geopolitical uncertainty; the level of business investment and overall business sentiment; trade; the direction of the COVID-19 pandemic and the emergence of new pathogens; the level of government spending as well as fiscal and monetary policy; the level of activity and volatility of the financial markets; disruptions to energy and other commodity markets; competitiveness; supply chain challenges and labour shortages affecting certain sectors; the evolution of elevated inflationary pressures; possible stagflation or deflation ,monetary policies that are adopted by the Bank of Canada (BoC), the Federal Reserve in the U.S., the European Central Bank in the European Union and monetary authorities in other jurisdictions in which the Issuer operates, and the fiscal policies of the governments of Canada, the U.S., Europe and such other jurisdictions. Such policies can also adversely affect the Issuer’s clients and counterparties in Canada, the U.S. and internationally, which may increase the risk of default by such clients and counterparties.</p> <p>Moreover, interest rate changes and actions taken by central banks to manage inflation or the broader economy have implications for the Issuer. The Issuer’s financial results are sensitive to changes in interest rates, as described in the “Systemic Risk” section below.</p> <p>For example, a slowdown in economic growth or an economic downturn could adversely impact employment rates and household incomes, consumer spending, housing prices, corporate earnings and business investment and could adversely affect the Issuer’s business, including but not limited to the demand for its loan and other products, and result in lower earnings, including higher credit losses. In addition to risks arising from monetary policy tightening, risks are also emerging around how governments will seek to recoup pandemic-related support, or any new support provided to deal with emerging economic challenges. This may include, for example, changes to tax policy to address fiscal capacity concerns and to balance budgets in the future.</p> <p>There are also emerging risks related to wealth and income inequality, as well as changing demographics and immigration, which could impact the labour market, inflation, demand and consumer trends, and potentially have broader societal and governmental policy implications.</p>
<p>1.2 Canadian housing and household indebtedness</p>	<p>Notwithstanding currently low unemployment rates, Canadian housing and household indebtedness risks remain heightened in the current rising interest rate environment. Concerns related to elevated levels of mortgage-related Canadian household debt, which accelerated during the COVID-19 pandemic,</p>

	<p>could escalate if the Bank of Canada continues to increase interest rates, if the current period of elevated inflation is prolonged or if unemployment increases, potentially resulting in, among other things, higher credit losses. Moreover, continued interest rate increases or slowing economic growth could adversely impact housing market activity and housing prices, which could push loan-to-value ratios higher and further increase credit losses.</p> <p>While real estate rental activity has rebounded in certain markets, changing consumer preferences and work arrangements, and the impact from elevated borrowing costs, may continue to have an adverse impact on future real estate investment and demand. As at October 31, 2022, the Issuer's retail credit risk exposure, which includes residential mortgages, home equity lines of credit, credit cards, unsecured lines of credit and overdraft protection products, was C\$746,572 million reflecting exposure at default.</p> <p>If this risk is not properly managed, it may have a negative impact on the Issuer's financial performance, condition and prospects.</p>
<p>1.3 Information technology and cyber risks</p>	<p>Information technology (IT) and cyber risks remain top risks, not only for the financial services sector, but for other industries worldwide. Geopolitical tensions have increased the risk of nation state actors attacking critical infrastructure, including banks and critical third party suppliers (e.g. utilities, telecom providers, etc.). The Issuer continues to be subject to heightened inherent risk of cyber-attacks, data breaches, cyber extortion and similar compromises, due to: (i) the size, scale, and global nature of its operations; (ii) its heavy reliance on the internet to conduct day-to-day business activities; (iii) its intricate technological infrastructure; and (iv) its reliance on third-party service providers. Ransomware threats are growing in sophistication and being used to launch major supply chain attacks. Additionally, clients' use of personal devices can create further avenues for potential cyber-related incidents, as the Issuer has little or no control over the safety of these devices. Resulting implications could include business interruptions, client service disruptions, financial loss, theft of intellectual property and confidential information, litigation, enhanced regulatory attention and penalties, as well as reputational damage. Furthermore, the adoption of emerging technologies, such as cloud computing, Artificial Intelligence (AI) and robotics, call for continued focus and investment to manage risks effectively. Cyber risks are the risks to the business associated with cyber-attacks initiated to disrupt or disable the Issuer's operations or to expose or damage data. Not managing these risks may have an adverse impact on the Issuer's financial performance and condition.</p>
<p>1.4 Geopolitical uncertainty</p>	<p>In 2022, the Russia-Ukraine conflict upended the geopolitical landscape, with wide-ranging impacts to the global economy and markets. The duration and path of the conflict remains uncertain, and could continue to fuel, or exacerbate global tensions, energy and other commodity shortages, supply chain disruptions, inflationary pressures, weakening sentiment and growth prospects, market volatility, cyberattacks, and the proliferation of sanctions and trade measures. Europe, in particular, faces significant uncertainty given its dependence on Russia for energy imports and its weakening economic prospects. Furthermore, the Canadian economy is vulnerable to continued trade tensions given the country's trading relationships with the U.S. and China. Tensions remain elevated between China and the U.S. and its allies</p>

	<p>over a number of issues, including trade, technology, human rights, Taiwan, Hong Kong, and Macau. Tensions between China and its neighbours over territorial claims, and the prospect of closer relations between China and Russia, add further global and economic uncertainty. Other geopolitical tensions could also add to economic and market uncertainties. In addition, an uncertain geopolitical or economic environment could lead to increases in polarization, social unrest, or terrorism, each of which could have direct or indirect impacts to the Issuer.</p> <p>More broadly, the future of global trade remains uncertain, as countries look to decrease reliance on the global supply chain and nations with differing values. Increased protectionism and economic nationalism could reshape global alliances as the supply of critical goods of economic and national importance (e.g., energy, semiconductors) remains one of the top priorities of governments. The Issuer will continue to monitor these developments and others, and will assess the implications they have on it. Failure to properly manage this risk may adversely impact the Issuer’s financial performance, position and prospects.</p>
<p>1.5 Environmental and social risk (including climate change)</p>	<p>Environmental and Social (“E&S”) risk is the potential for an E&S issue associated with the Issuer, a client, transaction, product, supplier or activity, to have a negative impact on the Issuer’s financial position, operations, legal and regulatory compliance, or reputation. E&S issues include, but are not limited to, site contamination, waste management, land and resource use, biodiversity, water quality and availability, climate change, environmental regulation, human rights (including, but not limited to, Indigenous Peoples’ rights), and community engagement.</p> <p>The Issuer, like other organizations, is increasingly under scrutiny to address social and racial inequality and other human rights issues, and failure to do so may result in strategic, regulatory and reputation risks.</p> <p>Risks associated with climate change are evolving as it relates to the global transition to a net-zero economy and physical climate risks (e.g., extreme weather events).</p> <p>Environmental and social risks, including climate change, are each unique and transverse risks impacting the Issuer’s principal risk types in different ways and to varying degrees. While E&S risk manifests itself through credit, reputation, and regulatory compliance risks, the impact of E&S risk also extends to the Issuer’s other principal risks, including systemic, competitive, strategic, legal and regulatory environment, operational, market, liquidity and insurance risks. If not managed effectively, these risks could lead to negative reputational and financial impacts.</p>
<p>1.6 Digital disruption and innovation</p>	<p>The COVID-19 pandemic changed the way consumers interact with financial services providers, including increasing demand for digital banking services. While this represents an opportunity for the Issuer to leverage its use of technology, the need to meet the rapidly evolving needs of clients and compete with non-traditional competitors has increased its strategic and reputation risks. Additional risks continue to emerge, as demographic trends, evolving client expectations, the increased power to analyze data and the emergence of</p>

	<p>disruptors are creating competitive pressures across a number of sectors. Moreover, established technology companies, newer competitors, and regulatory changes continue to foster new business models that are challenging or could challenge traditional banks and financial products. Finally, while the adoption of new technologies, such as AI and machine learning, presents opportunities for the Issuer, it is resulting or could result in new and complex strategic, operational, regulatory, compliance and reputation risks that would need to be managed effectively and , if not, may adversely impact its financial performance and condition.</p>
<p>1.7 Privacy, data and third-party related risks</p>	<p>The protection and responsible use of personal information are critical to maintaining the Issuer’s clients’ trust. Privacy risk is the risk of improper creation or collection, use, disclosure, retention or destruction of information. In addition, the management and governance of the Issuer’s data also remains a top risk given the high value attributed to its data for the insights it can generate for clients and communities. Data management risk is the risk of failing to manage information appropriately throughout its lifecycle due to inadequate processes and controls, resulting in legal or regulatory consequences, reputational damage or financial loss.</p> <p>Resulting implications from failing to manage data and privacy risks could include financial loss, theft of intellectual property and/or confidential information, litigation, enhanced regulatory attention and penalties, as well as reputational damage. Effective privacy and information management practices continue to grow in importance, as demonstrated by the continued development of complex regulations in the jurisdictions in which the Issuer operates.</p> <p>The Issuer’s potential exposure to these risks increases as it continues to partner with third-party service providers and adopt new business models and technologies (e.g., cloud computing, AI and machine learning). Threat actors gravitate towards vulnerabilities in an ecosystem, and the weakest link in the supply chain can be a supplier or third-party service provider, that may not have sufficiently robust controls. Third-party risk is the risk of failure to effectively manage third parties which may expose the Issuer to service disruptions, regulatory action, financial loss, litigation or reputational damage.</p> <p>Privacy, data and third-party related risks have been heightened as the use of work from home arrangements remains common practice. Third-party providers critical to the Issuer’s operations are monitored for any impact on their ability to deliver services, including vendors of the Issuer’s third-party providers. Failure to properly onboard and manage service providers may expose the Issuer to service disruption, financial loss and other risks that may negatively impact its financial performance and condition.</p>
<p>1.8 Regulatory changes</p>	<p>The ongoing introduction of new or revised regulations requires enhanced focus across the organization on meeting additional regulatory requirements across the multiple jurisdictions in which the Issuer operates. See business segment results on pages 29 to 51 of the 2022 MD&A incorporated by reference in the Base Prospectus for information on the Issuer’s business segments and the jurisdictions in which it operates. Financial and other reforms that have been implemented or are being implemented, across</p>

	multiple jurisdictions, such as digital, data and technology reforms, cyber security and anti-money laundering regulations, interest rate benchmark reform, as well as privacy, climate and consumer protection, continue to impact the Issuer's operations and strategies and may negatively impact its financial performance, condition and prospects.
1.9 Culture and conduct risks	<p>The Issuer's purpose, values and risk principles are key dimensions of its culture. The Issuer demonstrates its culture through its conduct – the behaviours, decisions, and actions of the organization and its employees. Culture and conduct risks are considered top risks for the financial services industry due to the impact the Issuer's choices, behaviours, and overall risk governance can have on outcomes for its stakeholders. The Issuer embeds client considerations into its decision-making processes and aims to ensure focus on the fair treatment of clients, and continues to implement regulatory changes that align with this objective. The Issuer is responsive to evolving employee needs while expecting employees to always act with integrity.</p> <p>Regulators continue to focus on conduct matters and risks, and heightened expectations generally from regulators could lead to investigations, remediation requirements, higher compliance costs and enforcement actions and fines, and potential criminal prosecutions or imposition of sanctions, including restrictions on the Issuer's activities. While the Issuer takes steps to continue to strengthen its conduct practices, and prevent and detect outcomes which could potentially harm clients, employees or the integrity of the markets, such outcomes may not always be prevented or detected and if not, may negatively impact its financial position and performance as well as its prospects.</p>

2. Transactional/Positional risks

2.1 Credit risk

Credit risk is the risk of loss associated with an obligor's potential inability or unwillingness to fulfil its contractual obligations on a timely basis and may arise directly from the risk of default of a primary obligor of the Issuer (e.g., issuer, debtor, counterparty, borrower or policyholder), indirectly from a secondary obligor of the Issuer (e.g., guarantor or reinsurer), through off-balance sheet exposures, contingent credit risk, associated credit risk and/or transactional risk. Credit risk includes counterparty credit risk arising from both trading and non-trading activities.

Credit risk is inherent in a wide range of the Issuer's businesses. This includes lending to businesses, sovereigns, public sector entities, banks and other financial institutions, as well as certain high net worth individuals, which comprise the Issuer's wholesale portfolio and residential mortgages, personal loans, credit cards, and small business loans, which comprise the Issuer's retail portfolio.

The Issuer's gross credit exposure includes lending-related and other credit risk and trading-related credit risk. Lending-related and other credit risk includes: loans and acceptances outstanding, undrawn commitments, and other exposures, including contingent liabilities such as letters of credit and guarantees, debt securities carried at fair value through other comprehensive income ("FVOCI") or amortized cost and deposits with financial institutions. Trading-related credit risk includes: Repo-style transactions, which include repurchase and reverse repurchase agreements and securities lending and borrowing transactions, and derivative amounts. The Issuer's gross credit risk exposure as at October 31, 2022 was C\$1,911,948 million. See the table "Credit Risk exposure by portfolio, sector and geography" on page 71 of the 2022 MD&A incorporated by reference in the Base Prospectus for further information.

Credit risk also includes (i) counterparty credit risk; and (ii) wrong-way risk. Counterparty credit risk is the risk that a party with whom the Issuer has entered into a financial or non-financial contract will fail to fulfil its contractual agreement and default on its obligation. It incorporates not only the contract's current value, but also considers how that value can move as market conditions change. Counterparty credit risk usually arises from trading-related derivative and repo-style transactions. Derivative transactions include forwards, futures, swaps and options, and can have underlying references that are either financial (e.g., interest rate, foreign exchange, credit or equity) or non-financial (e.g., precious metal and commodities). For more information on derivatives instruments and credit risk mitigation, see page 69 and Note 9 of the 2022 Audited Consolidated Financial Statements incorporated by reference into the Base Prospectus.

Wrong-way risk is the risk that exposure to a counterparty is adversely correlated with the credit quality of that counterparty. There are two types of wrong-way risk: (i) specific wrong-way risk, which exists when the Issuer's exposure to a particular counterparty is positively correlated with the probability of default of the counterparty due to the nature of the Issuer's transactions with them (e.g., loans collateralized by shares or debt issued by the counterparty or a related party); and (ii) general wrong-way risk, which exists when there is a positive correlation between the probability of default of counterparties and general macroeconomic or market factors. This typically occurs with derivatives (e.g., the size of the exposure increases) or with collateralized transactions (e.g., the value of the collateral declines).

Geographically, as at October 31, 2022, Canada represented approximately 58% of the Issuer's credit risk exposure while the U.S. represented 27%, Europe 10% and the other international regions 6%. Accordingly, deterioration in general business and economic conditions in Canada and the U.S. could adversely affect the credit quality of the Issuer's borrowers and counterparties and could thus affect the value of the Issuer's assets and result in an increase in credit losses.

The Issuer has put in place specific frameworks to manage credit risk. See pages 66 to 75 of the 2022 MD&A incorporated by reference in the Base Prospectus for more information. Notwithstanding such frameworks, the Issuer recorded provisions for credit losses ("**PCL**") to recognise estimated credit losses on all financial assets, except for financial assets classified or designated as fair value through profit or loss ("**FVTPL**") and equity securities designated as FVOCI, which are not subject to impairment assessment. For the year ended October 31, 2022, the Issuer's total PCL was C\$(484) million. See the Credit quality performance section on page 75 of the 2022 MD&A incorporated by reference in the Base Prospectus.

Failure to effectively manage credit risk may have an adverse impact on the Issuer's financial condition and performance.

2.2 Market risk

Market risk is defined to be the impact of market prices upon the financial condition of the Issuer. This includes potential gains or losses due to changes in market determined variables such as interest rates, credit spreads, equity prices, commodity prices, foreign exchange rates and implied volatilities.

The Issuer has adopted specific frameworks to manage market risk as described on pages 76 to 81 of the 2022 MD&A incorporated by reference in the Base Prospectus. Despite these frameworks, the Issuer remains exposed to the risk of loss as a result of market risk which may negatively impact its financial performance and condition.

The measures of financial condition impacted by market risk are as follows:

1. Positions whose revaluation gains and losses are reported in revenue, which includes:
 - a) Changes in the fair value of instruments classified or designated as FVTPL, and

- b) Hedge ineffectiveness.
2. Common Equity Tier 1 (“**CET1**”) capital, which includes:
- a) All of the above, plus
 - b) Changes in the fair value of FVOCI securities where revaluation gains and losses are reported as other comprehensive income (“**OCI**”),
 - c) Changes in the Canadian dollar value of investments in foreign subsidiaries, net of hedges, due to foreign exchange translation, and
 - d) Changes in the fair value of employee benefit plan deficits.
3. CET1 ratio, which includes:
- a) All of the above, plus
 - b) Changes in Risk-weighted assets (“**RWA**”) resulting from changes in traded market risk factors, and
 - c) Changes in the Canadian dollar value of RWA due to foreign exchange translation.
4. The economic value of the Issuer, which includes:
- a) Points 1 and 2 above, plus
 - b) Changes in the economic value of other non-trading positions, net interest income, and fee based income, as a result of changes in market risk factors.

2.2.1 The key measures of market risk are as follows:

(a) *FVTPL positions*

FVTPL is an accounting concept which indicates that the assets and liabilities are measured at fair value on the balance sheet. The measurement is generally used for financial instruments that are part of the Issuer’s trading activities (purchased with intent to sell or repurchase) and are classified as FVTPL, but can be elected for financial assets if it eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise from measuring assets or liabilities, or recognising related gains and losses on a different basis (an accounting mismatch).

The fair value option can be elected for financial liabilities if: (i) the election eliminates an accounting mismatch; (ii) the financial liability is part of a portfolio that is managed on a fair value basis, in accordance with a documented risk management or investment strategy; or (iii) there is an embedded derivative in the financial or non-financial host contract and the derivative is not closely related to the host contract. These instruments cannot be reclassified out of the FVTPL category while they are held or issued (i.e. designated as FVTPL). Any loss or gain in the fair value of these instruments between quarterly balance sheet dates due to changes in market prices and rates are accounted for as losses or gains, and so directly impact the Issuer’s financial performance and condition. Financial liabilities designated as FVTPL are recorded at fair value and fair value changes attributable to changes in the Issuer’s own credit risk are recorded in OCI. See “Fair value of financial instruments” on pages 114 to 115 and “Securities” on page 145 of the 2022 Annual Report incorporated by reference in the Base Prospectus for more information on how fair value is determined.

As an element of the Enterprise Risk Appetite Framework, the Board approves the Issuer's overall market risk constraints. Group Risk Management ("**GRM**") creates and manages the control structure for FVTPL positions which ensures that business is conducted on a basis consistent with Board requirements. The Market and Counterparty Credit Risk function within GRM is responsible for creating and managing the controls and governance procedures that ensure that risk taken is consistent with risk appetite constraints set by the Board. These controls include limits on probabilistic measures of potential loss such as Value-at-Risk (VaR), Stressed Value-at-Risk (SVaR) and Incremental Risk Charge (IRC) as defined below:

"**VaR**" is a statistical measure of potential loss for a financial portfolio computed at a given level of confidence and over a defined holding period. The Issuer measures VaR at the 99th percentile confidence level for price movements over a one-day holding period using historic simulation of the last two years of equally weighted historic market data. These calculations are updated daily with current risk positions, with the exception of certain less material positions that are not actively traded and are updated on at least a monthly basis.

"**SVaR**" is calculated in an identical manner as VaR with the exception that it is computed using a fixed historical one-year period of extreme volatility and its inverse rather than the most recent two-year history. The stress period used is a one-year period covering the market volatility observed during Q2 2020. SVaR is calculated daily for all portfolios, with the exception of certain less material positions that are not actively traded and are updated on at least a monthly basis.

"**IRC**" captures the risk of losses under default or rating changes for issuers of certain traded fixed income instruments. IRC is measured over a one year horizon at a 99.9% confidence level, and captures different liquidity horizons for instruments and concentrations in issuers under a constant level of risk assumption. Changes in measured risk levels are primarily associated with changes in inventory from the applicable fixed income trading portfolios.

Average market risk VaR and SVaR for the year ended October 31, 2022 was C\$53 million (up from C\$44 million for the year ended October 31, 2021) and C\$103 million (up from C\$53 million for the year ended October 31, 2021), respectively. See the table under "Market risk measures — FVTPL positions" on page 77 of the 2022 MD&A, incorporated by reference in the Base Prospectus, for more information on the quantitative impact of market risk on FVTPL positions for the year ended October 31, 2022.

(b) Interest Rate Risk in the Banking Book (IRRBB) positions

IRRBB activity arises primarily from traditional customer-originated banking products such as deposits and loans, and includes related hedges as well as the interest rate risk from securities held for liquidity management purposes. Factors contributing to IRRBB include mismatches between asset and liability repricing dates, relative changes in asset and liability rates in response to market rate scenarios, and other product features affecting the expected timing of cash flows, such as options to pre-pay loans or redeem term deposits prior to contractual maturity. IRRBB sensitivities are regularly measured and reported, and subject to limits and controls with independent oversight from GRM.

To monitor and control IRRBB, the Issuer assesses two primary metrics, Net Interest Income ("**NII**") risk and Economic Value of Equity ("**EVE**") risk, under a range of market shocks, scenarios, and time horizons. Market scenarios include currency-specific parallel and non-parallel yield curve changes, interest rate volatility shocks, and interest rate shock scenarios prescribed by regulators. The table on page 79 of the 2022 MD&A shows the potential before-tax impact of an immediate and sustained 100 basis points increase or decrease in interest rates on projected 12-month NII and EVE assuming no subsequent hedging. Rate floors are applied within the declining rates scenarios which prevent EVE valuation and NII simulation rate levels from falling below a minimum average level of negative 25 bps across major currencies. Interest rate risk measures are based on current on and off-balance sheet positions which can change over time in response to business activity and management actions.

As at October 31, 2022, an immediate and sustained -100 bps shock would have had a negative impact to the Issuer's NII of C\$839 million. An immediate and sustained +100 bps shock at the end of October 31, 2022 would have had a negative impact to the Issuer's EVE of C\$1900million.

(c) Investment securities carried at FVOCI

The Issuer held \$93 billion of investment securities carried at FVOCI as at October 31, 2022, compared to \$78 billion at the end of the prior year. The Issuer holds debt securities carried at FVOCI primarily as investments, as well as to manage liquidity risk and hedge interest rate risk in its non-trading banking balance sheet. As at October 31, 2022, the Issuer's portfolio of investment securities carried at FVOCI is interest rate sensitive and would impact OCI by a pre-tax change in value of \$6 million as measured by the change in the value of the securities for a one basis point parallel increase in yields. The portfolio also exposes the Issuer to credit spread risk of a pre-tax change in value of \$16 million, as measured by the change in value for a one basis point widening of credit spreads. The value of the investment securities carried at FVOCI included in the Issuer's IRRBB measures as at October 31, 2022 was \$90 billion. The Issuer's investment securities carried at FVOCI also include equity exposures of \$1 billion as at October 31, 2022, compared to \$1 billion at the end of the prior year.

(d) Non-trading foreign exchange rate risk

Foreign exchange rate risk is the potential adverse impact on earnings and economic value due to changes in foreign currency rates. The Issuer's revenue, expenses and income denominated in currencies other than the Canadian dollar are subject to fluctuations as a result of changes in the value of the average Canadian dollar relative to the average value of those currencies. The Issuer's most significant exposure is to the U.S. dollar, due to the Issuer's operations in the U.S. and other activities conducted in U.S. dollars. Other significant exposures are to the British pound and the euro, due to the Issuer's activities conducted internationally in these currencies. A strengthening or weakening of the Canadian dollar compared to the U.S. dollar, British pound and the euro could reduce or increase, as applicable, the translated value of the Issuer's foreign currency denominated revenue, expenses and earnings and could have a significant effect on the results of the Issuer's operations. The Issuer is also exposed to foreign exchange rate risk arising from its investments in foreign operations.

For unhedged equity investments, when the Canadian dollar appreciates against other currencies, the unrealized translation losses on net foreign investments decreases the Issuer's shareholder equity through the other components of equity and decreases the translated value of the RWA of the foreign currency-denominated asset. The reverse is true when the Canadian dollar depreciates against other currencies. Consequently, the Issuer considers these impacts in selecting an appropriate level of its investments in foreign operations to be hedged.

2.3 Liquidity and funding risk

Liquidity and funding risk ("**liquidity risk**") is the risk that the Issuer may be unable to generate sufficient cash or its equivalents in a timely and cost-effective manner to meet its commitments. Liquidity risk arises from mismatches in the timing and value of on-balance sheet and off-balance sheet cash flows.

Core funding, comprising capital, longer-term wholesale liabilities and a diversified pool of personal and, to a lesser extent, commercial and institutional deposits, is the foundation of the Issuer's structural liquidity position. The Issuer's ability to access unsecured funding markets and to engage in certain collateralized business activities on a cost-effective basis are primarily dependent upon maintaining competitive credit ratings. Credit ratings and outlooks provided by rating agencies reflect their views and methodologies. Ratings are subject to change, based on a number of factors including, but not limited to, the Issuer's financial strength, competitive position, liquidity and other factors not completely within the Issuer's control. A lowering of the Issuer's credit ratings may have potentially adverse consequences for the Issuer's funding capacity or access to the capital markets, may affect the Issuer's ability, and the cost, to enter into normal course derivative or hedging

transactions and may require the Issuer to post additional collateral under certain contracts, any of which may have an adverse effect on its results of operations and financial condition.

The Liquidity Coverage Ratio (“**LCR**”) is a Basel III metric that measures the sufficiency of high-quality liquid assets (“**HQLA**”) available to meet liquidity needs over a 30-day period in an acute stress scenario. The Basel Committee on Banking Supervision (“**BCBS**”) and Office of the Superintendent of Financial Institutions (“**OSFI**”) regulatory minimum coverage level for LCR is 100%. The Issuer’s average LCR for the year ended October 31, 2022 was 125%, which translates into a surplus of approximately C\$73 billion. Net Stable Funding Ratio (“**NSFR**”) is a Basel III metric that measures the sufficiency of available stable funding relative to the amount of required stable funding. The BCBS and OSFI regulatory minimum coverage level for NSFR is 100%. The Issuer’s NSFR as at October 31, 2022 was 112%, which translates into a surplus of approximately C\$95 billion. Despite the Issuer’s liquidity risk management policy described on pages 81 through 93 of the 2022 MD&A incorporated by reference into the Base Prospectus, any significant deterioration in its liquidity position may lead to an increase in funding costs or constrain the volume of new lending. These factors may adversely impact the Issuer’s financial performance and position.

2.4 Insurance risk

Insurance risk refers to the potential financial loss to the Issuer that may arise where the amount, timing and/or frequency of benefit and/or premium payments under insurance or reinsurance contracts are different than expected. Insurance risk is distinct from those risks covered by other parts of the Issuer’s risk management framework (e.g., credit, market and operational risk) where those risks are ancillary to, or accompany, the risk transfer. The Issuer’s five insurance sub-risks are: morbidity, mortality, longevity, policyholder behavior (lapse), and travel risk. Insurance risk may negatively impact the Issuer’s financial performance and condition. See a description of the Issuer’s insurance business on pages 43 to 46 of the 2022 MD&A incorporated by reference into the Base Prospectus.

3. Operational risk

Operational risk is the risk of loss or harm resulting from people, inadequate or failed internal processes, controls and systems or from external events. Operational risk is inherent in all of the Issuer’s activities and third-party activities and failure to manage operational risk can result in direct or indirect financial loss, reputational impact or regulatory scrutiny and proceedings in the various jurisdictions where the Issuer operates.

Notwithstanding anything in this risk factor, this risk factor should not be taken as implying that the Issuer will be unable to comply with its obligations as a company with securities admitted to the Official List of the UK Financial Conduct Authority (the “**FCA**”) or as a supervised firm regulated by the FCA or the UK Prudential Regulation Authority (the “**PRA**”).

The Issuer’s operations expose it to many different operational risks, which may adversely affect its businesses and financial results. In addition to cybersecurity, data management and privacy, and third-party risk, which are also discussed above in “**1. Top and emerging risks**”, the Issuer’s results could also be adversely affected by risks associated with money laundering and terrorist financing and business continuity.

Money laundering and terrorist financing risk is the risk that the Issuer’s products and services are used to facilitate the laundering of proceeds of crime or the financing of terrorist activity. The Issuer maintains an enterprise-wide program designed to deter, detect and report suspected money laundering and terrorist financing activities across its organization, while seeking to ensure compliance with the laws and regulations of the various jurisdictions in which the Issuer operates. Despite the Issuer’s compliance programmes, non-compliance may still occur, leading to enforcement action, criminal prosecutions and reputational damage which could negatively impact its financial performance and condition.

Business continuity risk is the risk of being unable to maintain, continue or restore essential business operations during and/or after an event that prevents the Issuer from conducting business in the normal course. Exposure to disruptive operational events interrupts the continuity of the Issuer's business operations and could negatively impact the Issuer's financial results, reputation, client outcomes and/or result in harm to the Issuer's employees. These operational events could result from the impact of severe weather, pandemics, failed processes, technology failures or cyber threats.

4. *Regulatory compliance risk and legal and regulatory environment*

4.1 Regulatory compliance risk

Regulatory compliance risk is the risk of potential non-conformance with laws, rules, regulations and prescribed practices in any jurisdiction in which the Issuer operates. Issues regarding compliance with laws and regulations can arise in a number of areas in large complex financial institutions, such as the Issuer, and are often the result of inadequate or failed internal processes, controls, people or systems. The Issuer currently is, and may be at any given time, subject to a number of legal and regulatory proceedings and subject to numerous governmental and regulatory examinations, investigations and other inquiries.

Laws and regulations are in place to protect the financial and other interests of the Issuer's clients, investors and the public. As a large-scale global financial institution, the Issuer is subject to numerous laws and extensive and evolving regulation by governmental agencies, supervisory authorities and self-regulatory organizations in Canada, the U.S., the U.K., Europe and other jurisdictions in which it operates. Such regulation continues to become increasingly extensive and complex. In addition, regulatory scrutiny and expectations in Canada, the U.S., the U.K., Europe and other jurisdictions for large financial institutions with respect to, among other things, governance, risk management practices and controls, and conduct, as well as the enforcement of regulatory compliance matters, has intensified. Failure to comply with these regulatory requirements and expectations or to resolve any identified deficiencies could result in increased regulatory oversight and restrictions. Resolution of such matters can also result in the payment of substantial penalties, agreements with respect to future operation of their business, actions with respect to relevant personnel, admission of wrongdoing, and guilty pleas with respect to criminal charges, which may in turn prohibit the Issuer from conducting certain types of business absent regulatory relief.

Operating in this increasingly complex regulatory environment and intense regulatory enforcement environment, the Issuer is and has been subject to a variety of legal proceedings, including civil claims and lawsuits, criminal charges, regulatory scrutiny, examinations and proceedings, investigations, audits and requests for information by various governmental regulatory agencies and law enforcement authorities in various jurisdictions (see Notes 22 and 25 of the 2022 Audited Consolidated Financial Statements, which is incorporated by reference in the Base Prospectus, for information on current legal and regulatory matters as well as tax examinations and assessments), and the Issuer anticipates that its ongoing business activities will give rise to such matters in the future. The global scope of the Issuer's operations also means that a single issue may give rise to overlapping regulatory investigations, regulatory proceedings and or civil litigation claims in different jurisdictions. The Issuer can be subject to such proceedings due to alleged violations of law or, if determined by regulators, allegedly inadequate policies, procedures, controls or remediation of deficiencies. Changes to laws, including tax laws, regulations or regulatory policies, as well as the changes in how they are interpreted, implemented or enforced, could adversely affect the Issuer, for example, by lowering barriers to entry in the businesses in which it operates, increasing its costs of compliance, or limiting its activities and ability to execute its strategic plans. In addition, the severity of the remedies sought in legal and regulatory proceedings to which the Issuer is subject have increased. Further, there is no assurance that the Issuer always will be, or be deemed to be, in compliance with laws, regulations or regulatory policies or expectations. Accordingly, it is possible that the Issuer could receive a judicial or regulatory enforcement judgment or decision that results in significant fines, damages, penalties, and other costs or injunctions, criminal convictions, or loss of licenses or registrations that would damage its

reputation, and negatively impact its earnings and ability to conduct some of its businesses. The Issuer is also subject to litigation arising in the ordinary course of its business and the adverse resolution of any litigation could have a significant adverse effect on its results or could give rise to significant reputational damage, which in turn could impact its future business prospects.

The Issuer's Regulatory Compliance Management Framework outlines how it manages and mitigates the regulatory compliance risks associated with failing to comply with, or adapt to, current and changing laws and regulations in the jurisdictions in which it operates. Regulatory compliance risk includes the regulatory risks associated with financial crimes (which include, but are not limited to, money laundering, bribery, and sanctions), privacy, market conduct, consumer protection, business conduct, as well as prudential and other generally applicable non-financial requirements. Specific compliance policies, procedures and supporting frameworks have been developed to seek to manage regulatory compliance risk.

4.2 Legal and regulatory environment

Legal and regulatory environment risk is the risk that new or modified laws and regulations, and the interpretation or application of laws and regulations, will negatively impact the way in which the Issuer operates, both in Canada and in the other jurisdictions in which it conducts business. The full impact of some of these changes on the Issuer's business will not be known until final rules are implemented and market practices have developed in response. The Issuer continues to respond to these and other developments and is working to minimize any potential adverse business or economic impact. The following provides a high-level summary of some of the key regulatory changes that have the potential to increase or decrease the Issuer's costs, impact its profitability and increase the complexity of its operations.

(i) Global uncertainty

Significant uncertainty about inflationary and trade pressures, geopolitical tensions and supply chain disruptions all pose risks to the global economic outlook. In October 2022, the International Monetary Fund ("**IMF**") projected global growth of 3.2% in calendar 2022 which remains unchanged from its July forecast. The October 2022 forecast is down from 4.9% in October 2021 and reflects the ongoing economic effects of inflationary pressures and tightening monetary policy, a worse-than-anticipated slowdown in China resulting from COVID-19 containment measures, and the ongoing conflict between Russia and Ukraine. While the outcome of the conflict between Russia and Ukraine remains uncertain, the Issuer's exposure to Russia and Ukraine is extremely limited, as it does not have operations in these countries, consistent with its strategy and risk appetite. While the Issuer's diversified business model, as well as its product and geographic diversification, continue to help mitigate the risk posed by global uncertainty and in particular its effect on the Canadian and U.S. economies, it may still have an adverse impact on the Issuer's financial performance and condition.

(ii) Government of Canada Budget 2022

On April 7, 2022, the Government of Canada presented its 2022 Budget, which included measures focused on ensuring banking and life insurers' groups help pay a portion of the costs of the Canadian federal government's COVID-19 pandemic response. On November 4, 2022, the Government of Canada passed Bill C-32, Fall Economic Statement Implementation Act, 2022 (the Bill) through first reading in the House of Commons. The Bill includes a Canada Recovery Dividend ("**CRD**") and a permanent increase in the corporate income tax rate. The CRD is a one-time 15% tax for 2022 determined based on the average taxable income above \$1 billion for taxation years 2020 and 2021 and payable in equal installments over five years. The permanent increase in the corporate income tax rate is 1.5% on taxable income above \$100 million and would apply to taxation years that end after April 7, 2022.

The Bill is not yet substantively enacted and the timing of enactment remains uncertain. Based on the draft legislation, which remains subject to amendments prior to enactment, the CRD is expected to reduce the Issuer's

net income by approximately \$1 billion and other comprehensive income by approximately \$0.1 billion when substantively enacted. The CRD is also expected to reduce the Issuer's CET1 ratio by approximately 20 bps.

(iii) Climate-related regulatory activity

Climate change regulations, frameworks, and guidance that apply to banks, insurers and asset managers are rapidly evolving. The Issuer continues to monitor the development of applicable laws in this area and the evolution of disclosure requirements for public issuers. In Canada this includes OSFI's Draft Guideline B-15 Climate Risk Management, which encompasses both climate risk management guidance and disclosure requirements that, if approved, would apply to the Issuer for fiscal 2023 at the earliest, and the Canadian Securities Administrators' proposed National Instrument 51-107 on disclosure of climate-related matters which would introduce climate-related disclosure requirements for Canadian reporting issuers. In the U.S., the SEC has proposed rule changes which would require many registrants to include certain climate-related disclosures in their regulatory filings, including the financial statements. Internationally, the European Parliament recently approved the Corporate Sustainability Reporting Directive which will require disclosure under the European Sustainability Reporting Standards, and the International Sustainability Standards Board has also proposed standards for climate-related disclosures and general sustainability related disclosures.

(iiii) Canadian Housing Market and Consumer Debt

In June 2022, OSFI released a new Advisory - Clarification on the Treatment of Innovative Real Estate Secured Lending Products under Guideline B-20 (the Advisory). The Advisory complements existing expectations under Guideline B-20 – Residential Mortgage Underwriting Practices and Procedures, which articulates OSFI's expectations regarding underwriting practices and procedures for reverse residential mortgages, residential mortgages with shared equity features and combined loan plans (CLPs). The Issuer does not originate reverse residential mortgages or residential mortgages with shared equity features, but the Issuer does originate CLPs through its RBC Homeline Plan® products. The Advisory is not expected to have an effect on how most borrowers with CLPs use their products. The Advisory will come into effect for the Issuer on October 31, 2023. New CLPs originated after this date will need to meet the new requirements. CLPs originated before October 31, 2023 are not subject to the new requirements unless certain contractual changes are made that would trigger application of the requirements. The Issuer has assessed the requirements and initiated a project to meet the requirements by the effective date.

(v) Interest rate benchmark reform

On May 16, 2022, Refinitiv Benchmark Services (UK) Limited ("**RBSL**"), the administrator of the Canadian Dollar Offered Rate ("**CDOR**"), announced that the calculation and publication of all remaining tenors of CDOR will permanently cease after June 28, 2024. Concurrently, OSFI published their expectation that Federally Regulated Financial Institutions transition all new derivatives and securities to an alternative benchmark rate by June 30, 2023, with no new CDOR exposure after that date, with limited exceptions for risk management requirements. Furthermore, OSFI also expects all loan agreements referencing CDOR to be transitioned by June 28, 2024. The cessation of CDOR will be managed within the Issuer's enterprise-wide interest rate benchmark reform program.

For further details, refer to Note 2 of the Issuer's 2022 Annual Consolidated Financial Statements.

(vi) U.S. regulatory initiatives

On September 29, 2022, the U.S. Department of the Treasury's Financial Crimes Enforcement Network ("**FinCEN**") issued a final rule implementing the beneficial ownership information reporting requirements of the Corporate Transparency Act, which was part of the Anti-Money Laundering Act of 2020 (AMLA). The AMLA made significant revisions to the U.S.'s anti-money laundering/anti-terrorist financing compliance framework,

including by requiring FinCEN to issue the final rule. The final rule implements sweeping beneficial ownership disclosure requirements applicable to U.S. companies (excluding trusts) and foreign companies doing business in the U.S., in each case subject to certain exceptions. The final rule goes into effect January 1, 2024. As part of these broad changes to the U.S. AML regulatory regime, FinCEN has stated that it plans to update its Customer Due Diligence rule, which requires covered financial institutions to identify and verify the beneficial owners of legal entity customers. The Issuer is currently assessing the impact of the final rule and does not anticipate any issues in complying with the requirements.

(vii) Technology and cyber risk management

In July 2022, OSFI released final Guideline B-13 – Technology and Cyber Risk Management, which sets out expectations for the sound management of technology and cyber risk for federally regulated financial institutions (“**FRFIs**”).

This guideline will be effective on January 1, 2024. The Issuer has assessed the requirements and does not anticipate any issues in complying with the requirements by the effective date.

(viii) Privacy

In June 2022, the Canadian government released Bill C-27, the Digital Charter Implementation Act, 2022, with principles focused on strengthening consumer privacy protection in Canada. The Bill introduced three new federal Acts: the Consumer Privacy Protection Act, the Personal Information and Data Protection Tribunal Act, and the Artificial Intelligence and Data Act. These new Acts aim to strengthen Canada’s data privacy framework and create new regulations for responsible development and use of artificial intelligence.

The Consumer Privacy Protection Act is a private sector law that will repeal and replace the current Personal Information Protection and Electronic Documents Act (“**PIPEDA**”). The Personal Information and Data Protection Tribunal Act will establish an administrative tribunal to review decisions and impose penalties, and the Artificial Intelligence and Data Act will create a risk-based approach to regulating artificial intelligence systems.

While it remains uncertain when and if Bill C-27 will be enacted, this new legislation could result in significant reforms that may impact the Issuer’s processes and privacy risk management practices. The Issuer’s Global Privacy Program is responsible for overseeing the implementation of these evolving privacy principles in its organization.

For further details on regulatory capital and related requirements, refer to the risk and Capital management sections of this 2022 Annual Report.

All the regulations noted in (i) to (viii) above could increase compliance costs for the Issuer and the interpretation or application of these regulations could negatively impact the way in which the Issuer operates and consequently negatively impact its financial performance and condition and prospects.

5. Strategic risks

5.1 Strategic risk

Strategic risk is the risk that the Issuer or particular business areas of the Issuer will make inappropriate strategic choices, or will be unable to successfully implement selected strategies or achieve the expected benefits. For more information on the Issuer’s strategic goals in each of its business segments, see pages 33, 34, 38, 44, 47 and 50 of the 2022 MD&A incorporated by reference into the Base Prospectus. Business strategy is a major driver of the Issuer’s risk appetite and consequently the strategic choices the Issuer makes in terms of business mix determine how the Issuer’s risk profile changes. The Issuer’s ability to execute on its objectives and strategic

goals will influence its financial performance. If the Issuer is unable to successfully implement selected strategies or related plans and decisions, if the Issuer makes inappropriate strategic choices or if the Issuer makes a change to its strategic goals, its financial performance and condition could be adversely affected.

5.2 Reputation risk

Reputation risk is the risk of an adverse impact on stakeholders' perception of the Issuer due to (i) the actions or inactions of the Issuer, its employees, third-party service providers, or clients, (ii) the perceived misalignment of these actions or inactions with stakeholder expectations of the Issuer, or (iii) negative public sentiment towards a global or industry issue. The Issuer's reputation is rooted in the perception of its stakeholders, and the trust and loyalty they place in the Issuer is core to the Issuer's purpose as a financial services organization. A strong and trustworthy reputation will generally strengthen the Issuer's market position, reduce the cost of capital, increase shareholder value, strengthen its resiliency, and help attract and retain top talent. Conversely, damage to the Issuer's reputation can result in reduced share price and market capitalization, increased cost of capital, loss of strategic flexibility, inability to enter or expand into markets, loss of client loyalty and business, regulatory fines and penalties, restrictive agreements with regulators or prosecutors, or criminal prosecutions. The sources of reputation risk are widespread. Reputation risk is a transverse risk which can manifest as an outcome of other risk types including but not limited to credit, regulatory, legal, operational, and environmental and social risks. The Issuer can also experience reputation risk from a failure to maintain an effective control environment, exhibit good conduct and maintain appropriate culture practices.

5.3 Competitive risk

Competitive risk is the risk of an inability to build or maintain a sustainable competitive advantage in a given market or markets, and includes the potential for loss of market share due to competitors offering superior products and services. Competitive risk can arise within or outside the financial sector, from traditional or non-traditional competitors, domestically or globally. There is intense competition for clients among financial services companies in the markets in which the Issuer operates. Client loyalty and retention can be influenced by a number of factors, including new technology used or services offered by the Issuer's competitors, relative service levels and prices, product and service attributes, its reputation, actions taken by its competitors, and adherence with competition and anti-trust laws. Other companies, such as insurance companies and non-financial companies, as well as new technological applications, are increasingly offering services traditionally provided by banks. This competition could also reduce the Issuer's revenue which could adversely affect its results.

6. Macroeconomic risks

6.1 Systemic Risk

Systemic risk is the risk that the financial system as a whole, or a major part of it – either in an individual country, a region, or globally – is put in real and immediate danger of collapse or serious damage due to an unforeseen event causing a substantive shock to the financial system with the likelihood of material damage to the economy, and which would result in financial, reputation, legal or other risks for the Issuer.

Systemic risk is considered to be the least controllable risk facing the Issuer, leading to increased vulnerabilities as experienced during the 2008 global financial crisis and the COVID-19 pandemic. The Issuer's ability to mitigate systemic risk when undertaking business activities is limited, other than through collaborative mechanisms between key industry participants, and, as appropriate, the public sector and regulators to reduce the frequency and impact of these risks. The two most significant measures in mitigating the impact of systemic risk are diversification and stress testing.

The Issuer's diversified business model, portfolios, products, activities and funding sources help mitigate the potential impacts from systemic risk as well as having established risk limits to ensure its portfolio is diversified, and concentration risk is reduced and remains within its risk appetite.

Stress testing involves consideration of the simultaneous movements in a number of risk factors. It is used to ensure the Issuer's business strategies and capital planning are robust by measuring the potential impacts of credit, market, liquidity, and operational risks on it, under adverse economic conditions. The Issuer's enterprise-wide stress testing program evaluates the potential effects of a set of specified changes in risk factors, corresponding to exceptional but plausible adverse economic and financial market events. These stress scenarios are evaluated across the organization, and results are integrated to develop an enterprise-wide view of the impacts on the Issuer's financial results and capital requirements. For further details on the Issuer's stress testing, refer to the Enterprise risk management section on pages 61 through 65 of the Issuer's 2022 MD&A incorporated by reference into the Base Prospectus.

The Issuer's financial results are affected by the business and economic conditions in the geographic regions in which it operates. These conditions include consumer saving and spending habits as well as consumer borrowing and repayment patterns, business investment, government spending, exchange rates, sovereign debt risks, the level of activity and volatility of the capital markets, strength of the economy and inflation. Given the importance of the Issuer's Canadian and U.S. operations, an economic downturn may largely affect its personal and business lending activities and may result in higher provisions for credit losses. Deterioration and uncertainty in global capital markets could result in continued high volatility that would impact results in its Capital Markets business segment, while in the Wealth Management business segment weaker market conditions could lead to lower average fee-based client assets and transaction volumes. In addition, worsening financial and credit market conditions may adversely affect the Issuer's ability to access capital markets on favourable terms and could negatively affect its liquidity, resulting in increased funding costs and lower transaction volumes in the Issuer's Capital Markets and Investor & Treasury Services business segments.

The Issuer's financial results are also sensitive to changes in interest rates. To address growing inflation pressures, major central banks started to increase benchmark interest rates in early fiscal 2022 and further increases are expected. While the Issuer's net interest margin ("**NIM**") can potentially benefit from rate increases, rising interest rates, coupled with elevated inflation, could increase market volatility and reduce asset values, and could adversely impact household and corporate balance sheets. This could lead to credit deterioration and impact the Issuer's financial results, particularly in its Personal & Commercial Banking, Wealth Management, and Capital Markets businesses.

7. Overview of other risks

In addition to the risks described above, there are other risk factors, described below, which may adversely affect the Issuer's businesses and financial results. The following discussion is not exhaustive as other factors could adversely affect the Issuer's results.

Tax risk and transparency

Tax risk refers to the risk of loss related to unexpected tax liabilities. The tax laws and systems that are applicable to the Issuer are complex and wide ranging. As a result, the Issuer ensures that any decisions or actions related to tax always reflect its assessment of the long-term costs and risks involved, including their impact on the Issuer's reputation and its relationship with clients, shareholders, and regulators.

The Issuer's tax strategy is designed to provide transparency and support its business strategy, and is aligned with the Issuer's corporate vision and values. The Issuer seeks to maximize shareholder value by structuring its businesses in a tax-efficient manner while considering reputational risk by being in compliance with all laws and regulations. The Issuer's policy requires that it:

- Act with integrity and in a straightforward, open and honest manner in all tax matters;
- Ensure tax strategy is aligned with the Issuer's business strategy supporting only bona fide transactions with a business purpose and economic substance;
- Ensure all intercompany transactions are conducted in accordance with applicable transfer pricing requirements;
- Ensure the Issuer's full compliance and full disclosure to tax authorities of its statutory obligations; and
- Endeavour to work with the tax authorities to build positive long-term relationships and where disputes occur, address them constructively.

With respect to assessing the needs of its clients, the Issuer considers a number of factors including the purpose of the transactions. The Issuer seeks to ensure that it only supports bona fide client transactions with a business purpose and economic substance. Should the Issuer become aware of client transactions that are aimed at evading their tax obligations, the Issuer will not proceed with the transactions.

Given that the Issuer operates globally, complex tax legislation and accounting principles have resulted in differing legal interpretations between the respective tax authorities the Issuer deals with and itself, and the Issuer is at risk of tax authorities disagreeing with prior positions the Issuer has taken for tax purposes. When this occurs, the Issuer is committed to an open and transparent dialogue with the tax authorities to ensure a quick assessment and prompt resolution of the issues where possible. Failure to adequately manage tax risk and resolve issues with tax authorities in a satisfactory manner could adversely impact the Issuer's results, potentially to a material extent in a particular period, and/or significantly impact the Issuer's reputation.

AMENDMENT TO STATEMENT REGARDING GOVERNMENTAL, LEGAL OR ARBITRATION PROCEEDINGS

Paragraph 3 of the section entitled "General Information" on page 189 of the Base Prospectus is hereby deleted in its entirety and replaced with the following:

"Other than (i) the matters disclosed under the subsection entitled "Tax examinations and assessments" in Note 22 of the 2022 Audited Consolidated Financial Statements set out on page 216 of the Issuer's 2022 Annual Report and (ii) the legal and regulatory matters disclosed (with the exception of the subsection entitled "Other matters") in Note 25 of the 2022 Audited Consolidated Financial Statements set out on pages 219 to 220 of the Issuer's 2022 Annual Report and in each case incorporated by reference herein, there are no, nor have there been any governmental, legal or arbitration proceedings (including any such proceedings which are pending or threatened of which the Issuer is aware) during the twelve months prior to the date of this document which may have, or have had in the recent past, individually or in the aggregate, a significant effect on the financial position or profitability of the Issuer or of the Issuer and its subsidiaries taken as a whole."