

TMX Group Limited

MANAGEMENT'S DISCUSSION AND ANALYSIS

February 10, 2020

This Management's Discussion and Analysis (MD&A) of TMX Group Limited's (TMX Group) financial condition and financial performance is provided to enable a reader to assess our financial condition, material changes in our financial condition and our financial performance, including our liquidity and capital resources, for the year ended December 31, 2019 (2019) compared with the year ended December 31, 2018 (2018). This MD&A should be read together with our audited annual consolidated financial statements for the year ended December 31, 2019 (financial statements).

Our financial statements and this MD&A for 2019 are filed with Canadian securities regulators and can be accessed at www.tmx.com and www.sedar.com. The financial measures included in this MD&A are based on financial statements prepared in accordance with International Financial Reporting Standards (IFRS), as issued by the International Accounting Standards Board (IASB), unless otherwise specified. All amounts are in Canadian dollars unless otherwise indicated.

Certain comparative figures have been reclassified in order to conform with the financial presentation adopted in the current year.

Additional information about TMX Group, including the Annual Information Form, is available at www.tmx.com and www.sedar.com. We are not incorporating information contained on our website in this MD&A.

MD&A Structure

Our MD&A is organized into the following key sections:

- Mission, Client First Vision and Corporate Strategy;
- Initiatives and Accomplishments - 2019 initiatives and accomplishments;
- Organizational Changes - an update on senior management changes;
- Regulatory Changes - an update on the regulatory environment;
- Market Conditions - a discussion of our current business environment;
- Our Business - a detailed description of our operations and our products and services;
- Results of Operations - a year-over-year comparison of results;
- Liquidity and Capital Resources - a discussion of changes in our cash flow, our outstanding debt and the resources available to finance existing and future commitments;
- Managing Capital - an outline of objectives for managing our cash and cash equivalents, marketable securities, share capital, Commercial Paper, Debentures, and credit and liquidity facilities;
- Financial Instruments;
- Critical Accounting Estimates - a review of our goodwill and intangible assets - valuation and impairment;
- Select Annual and Quarterly Financial Information - a discussion of select annual information from 2017-2019, the fourth quarter of 2019 compared with the corresponding period in 2018 and the results over the previous eight quarters;

- Enterprise Risk Management - a discussion of the risks to our business as identified through our risk management process as well as Financial Risk Management;
- Accounting and Control Matters - a discussion of changes in accounting policies adopted in 2019 and future changes in accounting policies, an evaluation of our disclosure controls and procedures and internal control over financial reporting and changes to internal control over financial reporting; and
- Caution Regarding Forward-Looking Information.

MISSION, CLIENT FIRST VISION AND CORPORATE STRATEGY

Mission

Powering capital and commodity markets, investment, and economic growth for clients in Canada, across North America, and around the world.

Client First Vision

To be an indispensable solution for companies around the world to raise capital and the preferred destination for traders and investors to prosper.

Corporate Strategy¹

The last five years and looking forward

In 2015, we engaged in a comprehensive review of our portfolio of assets and an in-depth strategic review of the organization to establish our strategy going forward. We developed a strategic direction and execution plans to transform the organization from a regional infrastructure provider to a global technology solutions provider.

In 2016, we created leverage in our organizational structure by advancing beyond a group of companies to an integrated organization. We identified businesses that were core to our strategy, and sold certain non-core businesses in 2016 and 2017. We also announced a realignment of the organization that helped us achieve operational and cost efficiencies.

In 2017, we completed the acquisition of Trayport Holdings Limited and its subsidiaries, and its U.S.-based affiliate, Trayport Inc. (collectively, Trayport) which transformed our revenue mix, and accelerated our global growth. Since the acquisition, our recurring revenues increased from approximately 40% in 2016 to approximately 52%² in 2019; while our revenue from outside of Canada grew from less than 30% in 2016 to approximately 33% in 2019³.

In 2018 and 2019, we continued integrating Trayport assets and talent, as well as capturing global growth opportunities in all key business areas. We also added leading short-term and algorithmic trading capabilities to Trayport through the acquisition of Vienna-based VisoTech.

We have the following long term financial objectives that are based on certain assumptions and expected performance over time. While we believe these aspirational goals are reasonable, we may not be able to achieve these financial objectives as our assumptions may prove to be inaccurate and therefore our actual results could differ materially from

¹ The "Corporate Strategy" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainties related to such statements.

² Recurring revenue streams include substantially all of Global Solutions, Insights & Analytics, as well as sustaining listing fees, custody fees, transfer agency fees, and other access/subscription based revenues.

³ Based on full year 2019 revenue from customers with an address outside of Canada.

our long term objectives. Our long term objectives do not constitute guidance. Our current profitability and our ability to attain these goals in a given period must be weighed against our need to invest in our business in order to execute on our strategy. Some examples of these assumptions include successful execution of our strategic growth initiatives and business objectives; continued investment in growth businesses; and continued re-prioritization of investment towards enterprise solutions.



*Organic cumulative average annual growth rate (CAGR). See discussion under the heading *Caution Regarding Forward Looking Information*.

**Adjusted EPS is a Non-IFRS measure. See discussion under the headings *Caution Regarding Forward Looking Information* and *Non-IFRS Financial measures*.

Our business is organized into the following areas:

Capital formation: Energize and expand the capital markets community to better facilitate capital raising for issuers of all types at all stages of their development, and provide access to alternative sources of capital.

Lines of business include Toronto Stock Exchange (TSX) and TSX Venture Exchange (TSXV) listing and issuer services, and TSX Trust (TMX Group's transfer agency and corporate trust services business).

Equities and fixed income trading and clearing: Operate innovative, efficient, reliable, fast, easy to use platforms for equities and fixed income trading and clearing.

Lines of business include TSX, TSXV and TSX Alpha Exchange (Alpha) equities trading, Shorcan Brokers Limited (Shorcan) fixed income trading and Canadian Depository for Securities Limited and its subsidiaries including CDS Clearing and Depository Services Inc (CDS Clearing) and CDS Innovations (collectively, CDS).

Derivatives trading and clearing: Intensify new product creation and leverage our unique market position to benefit from increasing demand for derivatives products both in Canada and globally.

Lines of business include Montréal Exchange (MX) and Canadian Derivatives Clearing Corporation (CDCC).

Global solutions, insights and analytics: Provide solutions to European and global wholesale energy markets for price discovery, trade execution, post-trade transparency and straight through processing. Deliver integrated data sets to fuel high-value proprietary and third party analytics to help clients make better trading and investment decisions.

Lines of business include TMX Datalinx (information services), Co-location, as well as Trayport (acquired December 14, 2017) and Vienna-based VisoTech (acquired May 15, 2019).

INITIATIVES AND ACCOMPLISHMENTS

Capital Formation

In February 2019, we announced that Toronto Stock Exchange (TSX) and TSX Venture Exchange (TSXV) joined the United Nations Sustainable Stock Exchanges (SSE) initiative to promote sustainability performance and transparency in capital markets. As an SSE partner, we will engage in peer to peer dialogue to explore how exchanges can work together with investors, regulators, and companies, to encourage sustainable investment, while also enhancing corporate transparency and performance in respect to environmental, social and corporate governance issues.

In April 2019, Toronto Stock Exchange launched TSX Sandbox, a program that encourages innovation and provides support for novel financing structures proposed by issuers already listed on TSX. TSX Sandbox is also relevant to new applicants in all sectors, including the innovation space, which have high growth potential but do not meet traditional criteria such as profitability or operating history. In September 2019, we announced the first company to be listed on TSX under the TSX Sandbox program. In November 2019, a second company was listed on TSX under the TSX Sandbox program.

In 2019, TSX and TSXV attracted 250⁴ new listings (excluding 21 graduates), and including 20 new international listings. For the year-ended December 31, 2019, TSX and TSXV were ranked second globally by the World Federation of Exchanges for new international listings.

In 2019, highlights for TSX Trust included winning the largest IPO in Canada, switching over 40 ETFs from our competitors in Q4/19, and increasing Corporate Trust mandates by 14% over 2018. Effective September 2019, TSX Trust successfully became an Acceptable Institution (AI) for Investment Industry Regulatory Organization of Canada (IIROC) purposes. Being an IIROC AI enables TSX Trust to provide custody related services to IIROC dealers.

Equities and Fixed Income Trading and Clearing⁵

In December 2019, CDS filed a proposal to make two changes to the existing fee model. The first and most significant change is the proposal to modify its fee model by eliminating the rebates that are paid annually to participants based on their respective use of CDS services. The second change is the elimination of network connectivity fees currently paid by participants. The elimination of the rebates is being proposed to ensure that we can make the significant investment required to modernize CDS technology, and have adequate funding for ongoing future technology upgrades, while enabling us to earn an appropriate rate of return on our capital investment. (See Update on Modernization of Clearing Platforms - Phase Two).

CDS is proposing to permanently eliminate the 50/50 Rebates on Core CDS Services and to permanently eliminate the Additional Rebate of \$4.0 million annually (see **Equities and Fixed Income Clearing, Settlement, Depository and Other Services - CDS - Revenue Description**). The total rebates of \$10.1 million for 2019 represented 9% of CDS's consolidated (pre-rebate) revenues for 2019.

CDS also proposes to eliminate Port and Network connectivity fees. In 2019, participants paid \$1.5 million in Port fees and \$1.7 million in Network fees.

The above proposals are all subject to regulatory approval.

⁴ Excludes graduates from TSXV to TSX, and companies that moved from TSX to TSXV.

⁵ The "Equities and Fixed Income Trading and Clearing" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainty related to such statements.

Derivatives Trading and Clearing⁶

In October 2018, MX launched extended trading hours from the previously 6:00 a.m. ET open to a 2:00 a.m. ET open. Initially, this included MX's suite of interest rate products⁷. Beginning in February 2019, MX offered clients the ability to also trade its equity index futures⁸ in these extended hours. For 2019, volumes during extended trading hours represented approximately 4% of total volumes in these products. MX is preparing for the next phase of extended hours to align with Asian trading hours. In 2019, MX set a new annual total volume record with 116 million contracts traded. The Ten-Year Government of Canada Bond Futures (CGB) set a new monthly volume record with 4,274,256 contracts, and new annual volume record with 31,684,621 contracts. In 2019, the CGF set a new daily volume record with 61,211 contracts, as well as a new monthly volume record with 513,679 contracts. The CGF also set a new annual volume record of 4,130,134 contracts. The S&P/TSX 60 Index Standard Futures (SXF) has set a new daily volume record with 276,951 contracts, as well as a new annual volume record with 7,805,301 contracts. Share Futures (SSF) set a new monthly volume record with 553,696 contracts in 2019, as well as a new annual volume record with 4,406,202 contracts. Finally, the Three-Month Canadian Bankers' Acceptance Futures (BAX) set a new annual volume record with 29,816,722 contracts.

In May 2019, MX re-launched Options on the U.S. dollar (USX). MX is looking to relaunch the Two-Year Government of Canada Bond Futures as we did for the Five-Year Government of Canada Bond Futures (CGF).

Global Solutions, Insights and Analytics (GSIA)⁹Trayport

Trayport is the primary connectivity network and data and analytics platform for European wholesale energy markets. Trayport's solutions enable price discovery, trade execution, post-trade transparency, and post-trade straight through processing.

Global Gas - Liquid Natural Gas (LNG)

In 2019, volumes remained strong for the European and Asian benchmark gas contracts, the Dutch Title Transfer Facility (TTF) and the Japan Korea Marker (JKM). TTF volumes rose 39% in 2019 vs 2018, and record average daily volumes were reported for JKM in November, 2019, up 267% compared with November, 2018.¹⁰ In both these markets, brokers who utilize Trayport technology execute the majority of deals and use Trayport to connect to their trader customers, and additional brokers and exchanges continue to enter these markets through Trayport. The increase in volumes in these markets results in an expansion in market participants, which drives growth in the number of subscribers connecting with Trayport to trade these products.

⁶ The "Derivatives Trading and Clearing" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainty related to such statements.

⁷ BAX - Three-Month Canadian Bankers' Acceptance Futures, OBX - Options on Three-Month Canadian Bankers' Acceptance Futures, CGZ - Two-Year Government of Canada Bond Futures, CGF - Five-Year Government of Canada Bond Futures, CGB - Ten-Year Government of Canada Bond Futures, LGB - 30-Year Government of Canada Bond Futures and OGB - Options on Ten-Year Government of Canada Bond Futures.

⁸ SXF - S&P/TSX 60 Index Standard Futures, SXM - S&P/TSX 60 Index Mini Futures, SCF - S&P/TSX Composite Index Mini Futures, and SXA, SXB, SXH, SXX, SXU, SXY - Sector Index Futures.

⁹ The "Global Solutions Insights and Analytics" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainty related to such statements.

¹⁰ Source: Intercontinental Exchange press release, December 4, 2019.

Digitalization

Trayport's updated broker screen, Joule, was recently released to brokers, and is intended to give brokers better visibility and customizability for the markets in which they operate.

VisoTech Acquisition¹¹

In May 2019, Trayport Limited completed the acquisition of Vienna-based VisoTech, a leading provider of European short-term energy trading solutions. VisoTech provides advanced algorithmic trading solutions to customers in the European spot power and natural gas markets, enabling clients to use VisoTech's pre-defined algorithms to develop their own customized trading strategies.

These capabilities have been integrated with Trayport's core trading screen, Joule, allowing traders to view and control algorithms within the trading screen and enabling Trayport to address the increasing market demand for intraday trading of energy products as the shift to renewable generation continues.

The trend of algorithmic power trading in European intraday markets continues to grow. In 2019, intraday volumes on EPEX Spot grew 13% over the same period in 2018.¹² In July 2019, 52% of the electricity traded on the leading power market in the Nordics and Baltics, Nord Pool power exchange's intraday market was executed by algorithms, up from 13% in July 2018.¹³

Geographic Expansion

In October 2019, we announced that Trayport and Nodal Exchange, a Washington D.C.-based derivatives exchange serving North American commodities markets, announced an agreement to offer Trayport's core trading screen, Joule, to trading participants of Nodal Exchange. This will be rolled out to participants in early 2020.

In December 2019, the Balkan Gas Hub (Bulgarian Exchange) went live on the Trayport Exchange System, allowing them to connect to the Trayport network of gas traders. At the first auction, 550,000 MWh were traded. Balkan Gas Hub will initially introduce over the counter (OTC) and exchange contracts that best fit the needs of Bulgarian market participants.

TMX Datalinx

In November 2019, three new indices were announced¹⁴:

S&P/TSX Cannabis Index

The S&P/TSX Cannabis Index measures the performance of companies trading on either TSX (Toronto Stock Exchange) or TSXV (TSX Venture Exchange) that are significantly involved in the cannabis market. This index was released and the methodology was made available on January 20, 2020.

¹¹ The "VisoTech Acquisition" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainty related to such statements.

¹² Sourced from collection of monthly EPEX volume reports

¹³ Source: Reuters article 'Algorithm trades hit record on Nord Pool intraday power market' (published August 2019).

¹⁴ The S&P/TSX Cannabis Index and S&P/TSX Small Cap Select Index are products of S&P Dow Jones Indices LLC and TSX Inc. All rights reserved. S&P® is a registered trademark of Standard & Poor's Financial Services LLC ("S&P"). Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"). TSX® is a registered trademark of TSX Inc. The S&P/MX International Cannabis Index is a product of S&P Dow Jones Indices LLC and Bourse de Montreal Inc. and has been licensed for use. All rights reserved. MX® is a registered trademark of Bourse de Montreal Inc., used under license. Neither S&P Dow Jones Indices LLC, S&P, Dow Jones, TSX Inc., Bourse de Montreal Inc., their affiliates nor their third party licensors make any representation or warranty, express or implied, as to the ability of any index to accurately represent the asset class or market sector that it purports to represent and none such entities shall have any liability for any errors, omissions, or interruptions of any index or any data related thereto.

The S&P/MX International Cannabis Index

The S&P/MX International Cannabis Index measures the performance of companies trading on TSX or TSXV, NYSE (New York Stock Exchange) or NASDAQ that are significantly involved in the cannabis market. MX has announced that futures contracts on this index will be made available early 2020.

S&P/TSX Small Cap Select Index

The S&P/TSX SmallCap Select Index seeks to measure constituents of the S&P/TSX SmallCap Index that have a demonstrated track record of generating positive earnings. Key benefits relative to traditional small-cap indices are improved long-term total returns, lower risk, lower tracking error and enhanced liquidity.

New Pricing and Packaging Programs

Throughout 2019, we received regulatory approval and launched two new data pricing and packaging programs.

Enterprise non-professional (non-pro) fee discount program

Under this program we introduced tiered discounts for clients based on the total amount spent on all non-pro TSX and TSXV products and a fee cap after a specific spend limit has been reached. As of December 31, 2019, we had entered into enterprise non pro data fee discount agreements with six customers for a three year period.

Canadian Exchange Group (CEG) locked-in pricing

The CEG product includes a feed of real-time data to customers outside of Canada. Effective October 1, 2019, the price for the Level 1 subscription was increased by approximately 3% from \$56.50 to \$58.30. Clients have the option of locking in for a two year period at the \$56.50 price if they make a commitment for a minimum number of subscriptions based on the average usage over the previous twelve months. Those clients not exercising the option are charged the new price of \$58.30 per subscription.

Update on Modernization of Clearing Platforms¹⁵

In 2017, we commenced work on an initiative to modernize the technology platforms for our CDS and CDCC clearing and settlement businesses as well as for our entitlement systems. We have separated the modernization of our clearing houses into two phases:

Phase One

During phase one, we focused on the CDCC risk management element of the project, and went live with this phase in Q2/19. We spent \$6.3 million up to the end of 2018 and \$4.9 million in 2019 on capital expenditures related to this phase. While it was contemplated initially to integrate the clearing and settlement platforms, CDCC will continue to run on the SOLA platform. As previously anticipated, there will be no cost savings in this phase.

Phase Two

Phase two of this project involves the replacement of other legacy systems at CDS including those related to clearing and settlement, as well as an expanded scope to address entitlement payment systems. In March 2017, we implemented an Issuer Services Program that included a number of fee changes in anticipation of the investment that would be required to modernize the entitlement payments system. We spent \$22.5 million up to the end of 2018 and \$21.3 million in 2019

¹⁵ The "Update on Modernization of Clearing Platforms" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainties related to such statements.

on capital expenditures related to phase two. Overall, we expect to incur between approximately \$95 and \$105 million in capital expenditures over the entire project. We expect to complete this project by the end of 2021. We will continue to provide updates on estimates for capital expenditures and timing as this complex project progresses.

Strategic Re-alignment¹⁶

In Q1/19, we took the following measures to position TMX Group for ongoing success, and incurred strategic re-alignment expenses of approximately \$3.3 million:

- We made changes in our post-trade business with the retirement of Glenn Goucher, President, CDCC and CDS. Jay Rajarathinam, Chief Technology and Operations Officer, TMX Group, assumed leadership of our post-trade business as President, CDCC and CDS.
- We eliminated the centralized innovation product development unit and moved this function to TMX Group's business areas in order to increase our focus on delivering client-centric solutions.
- We made changes to our enterprise risk approach with an objective-centric focus, enhancing the way we manage risk.

In Q2/19, we incurred non-recurring charges related to onerous contracts of approximately \$1.3 million related to our initiative on modernizing our clearing platforms. In Q4/19, we recovered approximately \$0.9 million of these charges (see **RESULTS OF OPERATIONS - Strategic re-alignment expenses**)

In aggregate, the organizational changes generated an annual savings of approximately \$1.8 million starting in Q2/19. These efforts are intended to bring increased focus to modernizing our clearinghouses and enhancing client service, which should lead to a more efficient cost structure.

ORGANIZATIONAL CHANGES

In January 2020, we announced the retirement of Chief Executive Officer, Lou Eccleston. We announced the appointment of John McKenzie as interim Chief Executive Officer of TMX Group, also effective January 10, 2020. Mr. McKenzie has been with TMX Group for over 19 years, and assumed the responsibilities of interim CEO in addition to his current role as Chief Financial Officer.

REGULATORY CHANGES

Equities Trading

On January 23, 2020, the Canadian Securities Administrators (CSA) published a notice confirming that it has approved a Trading Fee Rebate Pilot Study that applies temporary pricing restrictions on marketplace transaction fees, to examine the effects of a prohibition of rebate payments by Canadian Marketplaces (Pilot Study). The implementation of the Pilot Study will be conditional on the implementation of a similar study by the United States Securities and Exchange Commission (SEC). If the SEC fee pilot study does not proceed, the CSA will not implement the Pilot Study. While TMX Group is supportive of the reduction of maker-taker fees in Canada, we are concerned that should the Pilot Study proceed, the reduction in rates will negatively impact liquidity in our markets, execution quality, and Canada's competitiveness for global capital. TMX Group provided comments to the CSA's Pilot Study proposal expressing significant concerns related to the proposal and the potential negative impacts and risks it would impose on the market, in addition to suggesting alternative approaches.

¹⁶The "Strategic re-alignment" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainty related to such statements.

MARKET CONDITIONS AND OUTLOOK¹⁷

Overall, Canadian equities trading volumes were down 11% in 2019 compared with 2018.¹⁸ The average CBOE Volatility Index (VIX) was 15.4 in 2019 down slightly from 16.6 in 2018. Trading volumes on TSX and TSX Alpha Exchange (Alpha) decreased by 4% and 10%, respectively, in 2019 compared with 2018; volumes traded on TSXV (including NEX) were down 28% over the same period reflecting lower demand for trading TSXV-listed issues this year. Derivative trading in Canada increased by 4% based on the volume of contracts traded on MX in 2019 over 2018. The increase was lower than the growth rate seen in previous years reflecting more certainty around the interest rate environment in Canada.

The uncertain market environment at the end of 2018 continued to contribute to less favourable conditions for capital raising in 2019. On TSX, the total amount of financing dollars raised increased by 2% and the total number of financings decreased by 3% in 2019 compared with 2018. On TSXV (including NEX) there was a 40% decrease in the total amount of financing dollars raised and a 14% decrease in the total number of financings in 2019 over 2018.

On January 22, 2020, the Bank of Canada announced that it was maintaining its target for the overnight rate at 1 ¾ percent. The Bank said that the global economy is showing signs of stabilization, and some recent trade developments have been positive. However, it added that there remains a high degree of uncertainty and geopolitical tensions have re-emerged. The Canadian economy has been resilient but indicators since the October Monetary Policy Report (MPR) have been mixed. The Bank noted that data for Canada indicates that growth in the near term will be weaker, and the output gap wider, than the Bank projected in October. The Bank now estimates growth of 0.3 percent in the fourth quarter of 2019 and 1.3 percent in the first quarter of 2020. Some of the slowdown in growth in late 2019 was related to special factors that include strikes, poor weather, and inventory adjustments. The weaker data could also signal that global economic conditions have been affecting Canada's economy to a greater extent than was predicted. Looking ahead, the Bank said, Canadian business investment and exports are expected to contribute modestly to growth, supported by stronger global activity and demand. The Bank is also projecting a pickup in household spending, supported by population and income growth, as well as by the recent federal income tax cut. In its January MPR, the Bank projects the global economy will grow by just over 3 percent in 2020 and 3 ¼ percent in 2021. For Canada, the Bank now forecasts real GDP will grow by 1.6 percent in 2020 and 2 percent in 2021, following 1.6 percent growth in 2019.¹⁹

¹⁷ The "Markets Conditions and Outlook" section contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainty related to such statements.

¹⁸ Source: IIROC (excluding intentional crosses).

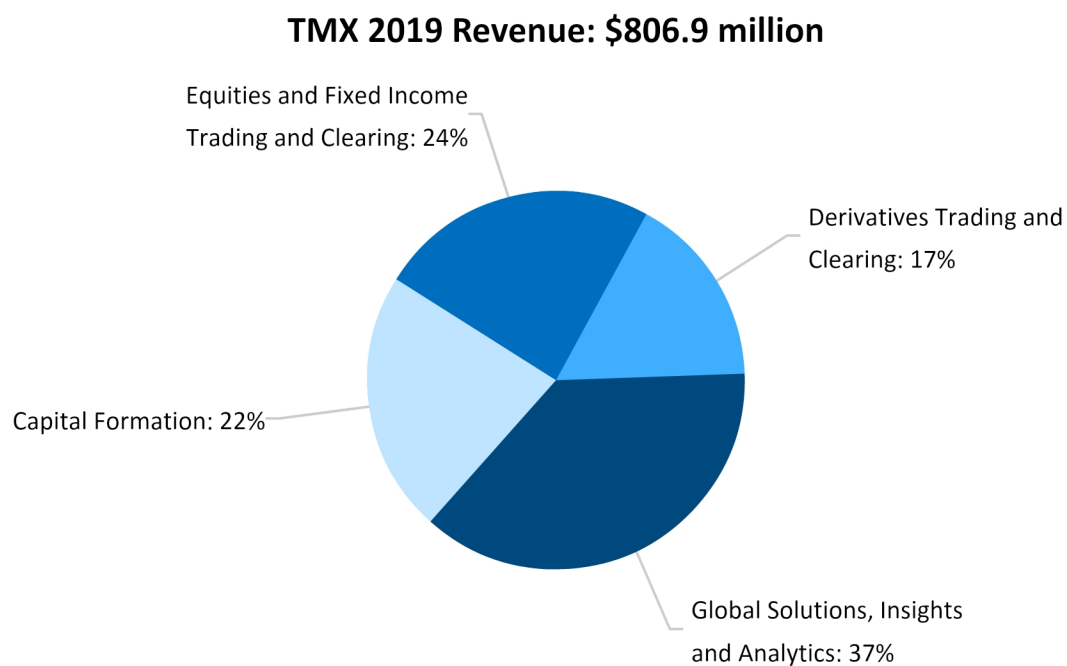
¹⁹ Source: Extracted from Bank of Canada press release, January 22, 2020.

OUR BUSINESS

On the following pages, we provide an overview and description of products and services, strategy and revenue description for each of our segments as outlined below:

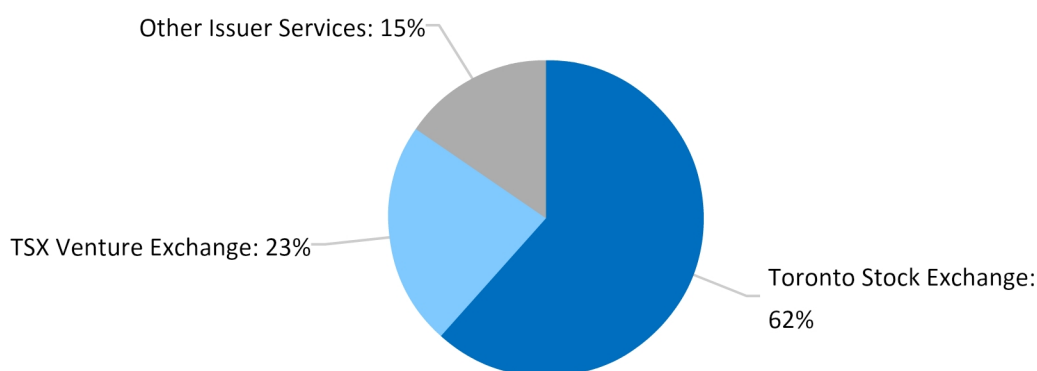
1. Capital Formation
2. Equities and Fixed Income Trading and Clearing
3. Derivatives Trading and Clearing
3. Global Solutions, Insights and Analytics
 - i. TMX Datalinx
 - ii. Co-location Services
 - iii. Trayport

For key statistics related to each business above, please see **Results of Operations**.



Capital Formation

Year Ended December 31, 2019 Capital Formation revenue of \$180.7 million



Overview and Description of Products and Services

Our goal is to provide solutions for corporate clients in need of growth capital and liquidity, and provide investors with a broad range of investment opportunities.

TMX operates a unique two-tiered ecosystem, comprised of Toronto Stock Exchange (TSX) and TSX Venture Exchange (TSXV) to help companies access the public markets, raise capital and provide liquidity to shareholders. TSX is a leading listings venue for established domestic and international issuers. TSXV is the pre-eminent global platform for facilitating venture stage capital formation.

In general, issuers initially list on TSX through an Initial Public Offering (IPO), by graduating from TSXV, or by seeking a secondary listing (to complement an existing listing on another listing venue). Venture stage companies generally list on TSXV either in connection with an IPO, or through alternative methods such as TSXV's Capital Pool Company program or a reverse takeover. We also operate NEX, a market for issuers that have fallen below the listing standards of TSXV.

Issuers list a number of different types of securities including conventional securities such as common shares, preferred shares, rights and warrants; and a variety of alternative types of structures such as exchangeable shares, debt or convertible debt instruments, limited partnership units, ETFs, and structured products such as investment funds.

We are a global leader in listing global growth capital marketplaces²⁰ with concentration in resource sector listings and a growing number of innovation companies (including those in the technology, clean technology, renewable energy and life science sectors). As of December 31, 2019, we had 20 new international (non-Canadian) listings, of which 11 are innovation companies. Issuers listed on TSX and TSXV raised a combined \$39.0 billion in 2019 (\$34.8 billion on TSX and \$4.2 billion on TSXV).

In addition to our listing facilities, we offer other services to our listed issuers. TSX Company Services is focused on enhancing and expanding our service offering to support the funding, growth, and success of our listed companies.

²⁰ Global growth capital marketplace is defined as small and medium-sized enterprises.

Together with industry leading service providers, we offer solutions and resources designed to help our clients reach their corporate objectives.

Within Capital Formation is TSX Trust, second by market share, servicing approximately 23% of listed issuers when measured by clients on the TSX and TSXV. The business supports over 1,100 equity and debt issuers and private companies with corporate trust, transfer agent and registrar services.

Strategy

- Our business development and sales efforts focus on:
 - Expanding our geographic focus to attract international listings across all sectors
 - Accelerating growth in targeted sectors (including the innovation sector) where we are uniquely positioned, while maintaining our resource sector franchise
 - Activating new pools of capital in Canada and globally
- Streamlining and digitizing issuer on-boarding processes to improve issuer engagement, lower costs for issuers, and accelerate revenue capture
- Driving policy innovation
- Adapting to the evolving needs of public and private growth companies (across their business lifecycle) and their capital providers by offering new platforms and solutions.
- For TSX Trust, the strategy focuses on three main pillars of growth:
 - Growing from the core - accelerating growth through expanding product line-up and selling more to existing clients
 - Private markets - expand service offering to meet unique needs of the client base
 - Corporate, government and infrastructure debt - leveraging the trust license to expand into adjacent markets with recurring revenue and cash balances

Revenue Description

We generate Capital Formation revenue from several fees and services, including:

Initial Listing Fees

TSX and TSXV issuers pay initial listing fees based on the value of the securities to be listed or reserved, subject to minimum and maximum fees. Initial listing fees fluctuate with the value of securities being listed or reserved at the time of listing. Revenues from initial listing fees are deferred over a 12-month period from the date of listing.

Additional Listing Fees

Issuers already listed on one of our equity exchanges pay fees in connection with subsequent capital market transactions, such as the raising of new capital through the sale of additional securities and reserving additional shares to be issued under stock option plans. Additional listing fees are based on the value of the securities to be listed or reserved, subject to minimum and maximum fees and are recognized in the period the transaction occurred.

Sustaining Listing Fees²¹

Issuers listed on one of our equity exchanges pay annual fees to maintain their listing, based on their market capitalization at the end of the prior calendar year, subject to minimum and maximum fees. Sustaining listing fees for existing issuers are billed during the first quarter of the year, recorded as deferred revenue and amortized over the year on a straight-line basis. Sustaining listing fees for new issuers are billed in the quarter after the new listing takes place and are amortized over the remainder of the year on a straight-line basis.

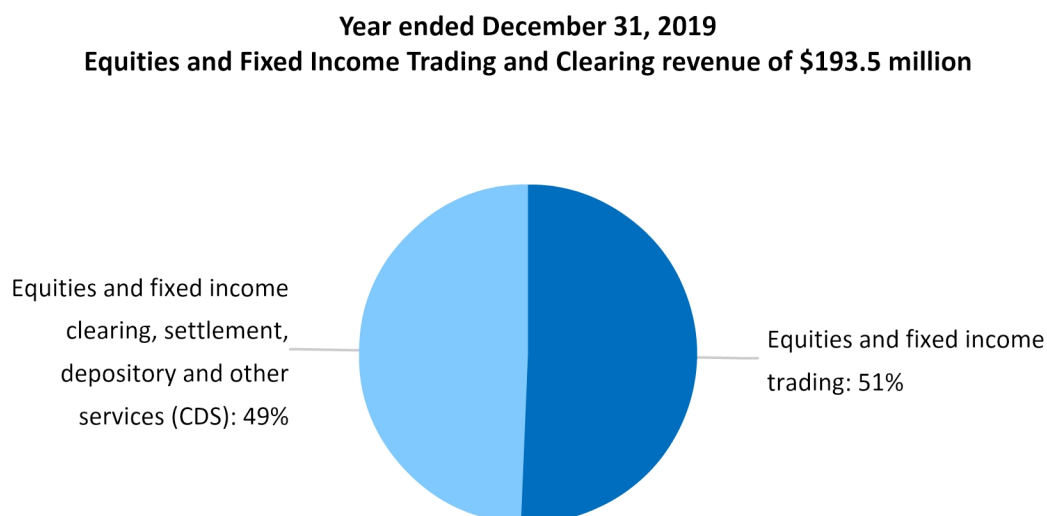
Fees charged to issuers vary based on the type of issuer (corporate, structured product or ETF).

The aggregate market capitalization of issuers listed on TSX increased from \$2.65 trillion at the end of 2018 to \$3.20 trillion at the end of 2019. The market capitalization of issuers listed on TSXV including NEX was essentially unchanged from \$45.4 billion at the end of 2018 and 2019. We estimate that the increase in the total market capitalization on TSX should result in an increase in sustaining fee revenue of less than \$1.0 million in 2020. We do not anticipate any change in TSXV sustaining fee revenue for 2020.

Other Services

TSX Trust has over 1,100 unique clients, and revenue is primarily derived from recurring monthly fees and net interest income on cash balances. Corporate trust fees relate to services that include acting as trustee for debt instruments, depository for takeover bid offers, warrant agent, subscription receipt agent, and agent for voluntary escrow arrangements. TSX Trust also benefits from periodic and large cash balances that are held in its trust account, which results in net interest income.

Equities and Fixed Income Trading & Clearing



²¹ The "Sustaining Listing" section above contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainties related to such statements.

Equities and Fixed Income Trading – TSX, TSXV, Alpha and Shorcan

Overview and Description of Products and Services

We operate innovative, efficient, reliable, high performance platforms for trading and clearing.

Equities Trading

TSX, TSXV and Alpha operate fully electronic exchanges that facilitate secondary trading in TSX and TSXV-listed securities on a continuous auction basis throughout the trading day.

Retail, institutional and other proprietary investors and traders place orders to buy or sell securities through Participating Organizations (POs)/Members of the exchanges. In addition to continuous trading throughout the day, TSX and TSXV also operate opening and closing auctions, which are central sources of liquidity for trading in Canada during those times. The closing auctions also establish the industry benchmark closing price for our listed securities. A post-closing trading session on TSX and TSXV allows for further opportunity to trade at the closing price. Additional trading features and functionalities are offered to accommodate a range of trading strategies and provide flexibility and optionality to clients. Each of TSX, TSXV and Alpha also allow POs to report their internally matched orders, by printing these as crosses on the exchanges at no cost.

Fixed Income Trading

Shorcan acts as an inter-dealer bond broker (IDB) that specializes in the Canadian fixed income marketplace, brokering products that include Government of Canada, provincial, corporate, strip, and mortgage bonds, repurchase agreements (repos) and swaps. Shorcan serves financial institutions that are broker-dealers registered with IIROC and that are CDCC members; the buy-side does not participate. Interdealer brokers can be accessed via broker screens that run on desktop computers at a trader's desk or via voice lines.

Strategy

- Continue to deploy innovative trading features and functionalities aimed at enhancing market efficiency and trading liquidity
- Continue to maintain leading market share

Revenue Description

Equities Trading

Most of the fees on TSX, TSXV and Alpha are volume-based. These fees are applied to traded shares, and in most cases, involve one side of the trade being charged a per share fee and the other side being provided with a per share rebate. The excess of the fee over the rebate represents the exchanges' net fee per share traded. These types of models are intended to incent different types of customers and behaviors. The primary fee structure on TSX and TSXV is a maker-taker model that pays a rebate to the liquidity providing side of the trade so that market participants have an incentive to enter passive orders into the central limit order book, while the liquidity taking side of the trade pays a fee. Alpha supports an inverted pricing model which is intended to provide incentives to take liquidity by providing a rebate, with the liquidity providing side of the trade paying the fee. Regardless of the fee structure applied, trading revenue is recognized in the month in which the trade is executed. **(also see REGULATORY CHANGES - Equity Trading** for details regarding a proposed Trading Fee Rebate Pilot Study to examine the effects of a prohibition of rebate payments).

Fixed Income Trading

Shorcan charges broker commissions on both sides of the trade upon execution. Shorcan broker commission varies by different types of instruments and by execution method, voice vs. electronic.

Equities and Fixed Income Clearing, Settlement, Depository and Other Services - CDS

Overview and Description of Products and Services

The Canadian Depository for Securities Limited (CDS) is Canada's national securities depository, clearing and settlement hub for domestic and cross-border depository-eligible securities. CDS supports Canada's equities, fixed income and money markets and is accountable for the safe custody and movement of securities, the processing of post-trade transactions, and the collection and distribution of entitlements relating to securities deposited by participants.

CDS's domestic clearing and settlement services enable participants to report, confirm or match, reconcile, net and settle exchange and OTC traded equity, debt and money market transactions, as well as derivative transactions in depository-eligible securities (e.g., the processing of rights and warrants and the settlement of exercised options). CDS also offers related services such as buy-ins, risk controls and reporting, and facilitates trading in CDSX (CDS's multilateral clearing and settlement system) eligible securities before they are publicly distributed (trades in these securities settle after public distribution). CDSX is designated by the Bank of Canada as being systemically important, under the Payment Clearing and Settlement Act (Canada).

CDS Depository is accountable for the safe custody and movement of depository-eligible domestic and international securities, accurate record-keeping, processing post-trade transactions, and collecting and distributing entitlements arising from securities deposited by participants.

Other CDS services include, the issuance of International Security Identification Numbers (ISINs), depository eligibility, securities registration as well as entitlement and corporate action (E&CA) event management.

Strategy

TMX Group is implementing a post-trade services strategy that covers CDS and CDCC. Under this strategy, TMX Group will invest in modernizing core technology and developing growth opportunities for each of the two businesses under these main focuses:

- Clearing and Depository: Develop and migrate to an advanced clearing, settlement, and risk management solution, to deliver enhanced client experiences at higher efficiency (see **INITIATIVES AND ACCOMPLISHMENTS - Update on Modernization of Clearing Platforms**)
- Global Liquidity Solutions: Provide streamlined access to funding and margining, and continue growth in Repo central-counterparties offering
- Global Connectivity Solutions: Create access gateways that connect global clients within an increasingly global marketplace such as the CDS-DTCC (The Depository Trust & Clearing Corporation) link

Revenue Description

For reported trades, both exchange traded and OTC trades, CDS charges clearing fees to participants on a per trade basis. Clearing fees are recognized as follows:

- Reporting fees are recognized when the trades are delivered to CDS.
- Netting/novation fees are recognized when the trades are netted and novated.

Other clearing-related fees are recognized when services are performed.

For those trades that are netted in Continuous Net Settlement (CNS), settlement fees are charged on the basis of the number of netted trades settled. Settlement fees for those trades that are not netted (i.e., trades that are settled individually on a trade-for-trade (TFT) basis) are charged on a per transaction basis. Settlement-related fees are recognized when the trades are settled.

Depository fees are charged per transaction and custody fees are charged based on a daily average of volume (i.e., number of shares held for equity securities and nominal value held for fixed income securities) and positions held. Depository fees are charged for custody of securities, depository related activities, and processing of entitlement and corporate actions, and are recognized when the services are performed.

International revenue consists of revenue generated through offering links as channels to participants to affect cross-border transactions and custodial relationships with other international organizations. The related fees are recognized as follows:

- Fees are charged to participants based on participant usage of National Securities Clearing Corporation (NSCC) and Depository Trust Company (DTC) services. Participants are sponsored into NSCC and DTC services via the New York Link service and the DTC Direct Link service respectively.
- Custodial fees and other international services related revenues are recognized when the services are performed.

Issuer services fees are fees levied to issuers and/or their agents for ISIN, and entitlements and corporate actions management services for which they benefit. The transition period for the discount on entitlement and corporate action event management fees ended on December 31, 2018. Full fees are applicable effective January 1, 2019.

50:50 Rebates on Core CDS Services

For the period starting November 1, 2012 and subsequent fiscal years starting on January 1, 2013, CDS shares with participants, on a 50:50 basis, any annual increases in revenue on clearing and other core CDS Clearing services, as compared with revenues in fiscal year 2012 (the 12-month period ending October 31, 2012). Beginning January 1, 2015 and subsequent years, CDS also shares with Participants, on a 50:50 basis, any annual increases in revenue applicable to the New York Link/Depository Trust Company Direct Link Liquidity Premium. Rebates are paid on a pro rata basis to participants in accordance with the fees paid by such participants for these services.

Additional Rebates

In addition, CDS must rebate an additional \$4.0 million annually to participants in respect of exchange clearing services for trades conducted on an exchange or alternative trading systems (ATS).

In December 2019, CDS filed a proposal to eliminate the rebates described above (see **INITIATIVES AND ACCOMPLISHMENTS - Equities and Fixed Income Trading and Clearing**).

Derivatives Trading and Clearing

Derivatives Trading & Clearing – MX, CDCC and BOX

Overview and Description of Products and Services

Our domestic financial derivatives trading is conducted through MX, Canada's standardized financial derivatives exchange. Headquartered in Montréal, MX offers trading in interest rate, index, equity and exchange-rate derivatives. BOX is an equity options market located in the U.S for which MX provided transitional technology services in 2019. As at December 31, 2019, MX held approximately 41% ownership interest in BOX.

Derivatives - Trading

MX

MX offers interest rate, index, equity and exchange-rate derivatives to Canadian and international market participants. MX connects participants to its derivatives markets, builds business relationships with them and works with them to ensure that the derivatives offerings meet investor needs. In 2019, approximately 60% of MX's volume was represented by four futures contracts – the Three-Month Canadian Bankers' Acceptance Futures contract (BAX), the 5-Year Government of Canada Bond Futures contract (CGF), the 10-Year Government of Canada Bond Futures contract (CGB) and the S&P/TSX 60 Standard Futures contract (SXF) – with the balance largely represented by our equity and ETF options market.

BOX

BOX (BOX Options Market LLC and BOX Exchange LLC) is an all-electronic equity derivatives market and is one of a number of equity options markets in the U.S. All BOX trade volume is cleared through the Options Clearing Corporation. BOX runs on our SOLA technology. Effective December 31, 2018, the term of such service offerings ended, and we are currently providing transitional services to BOX as it becomes more self sufficient in managing its technology needs. We expect this transition period to end in Q2/20. In 2019, derivatives trading and clearing revenue included approximately \$5.5 million of revenue from providing transitional services to BOX.

Derivatives – Clearing

CDCC acts as the central clearing counterparty for exchange-traded derivative products in Canada and for a growing range of customized financial instruments. CDCC's role is to ensure the integrity and stability of the markets that it supports. CDCC provides central clearing counterparty (CCP) clearing and settlement services for all MX transactions and certain over-the-counter (OTC) derivatives, including fixed income repurchase and reverse repurchase agreement (REPO) transactions. In addition, CDCC is the issuer of options traded on MX markets.

CDCC is an integrated central clearing counterparty in North America that clears and settles futures, options and options on futures. The Canadian Derivatives Clearing Service (CDCS) operated by CDCC has been designated by the Bank of Canada as being a systemically important financial market infrastructure under the Payment Clearing and Settlement Act (Canada).

CDCC generates revenue from clearing and settlement, as well as from options and futures exercise activities (see **Revenue Description** section below).

Derivatives – Regulatory Division

MX is recognized by the Autorité des marchés financiers (AMF) as a Self-Regulatory Organization (SRO) that has responsibility for maintaining the transparency, credibility and integrity of the exchange-traded derivatives market in Canada. MX's Regulatory Division oversees the regulatory functions. It is responsible for the regulation of its markets and its trading participants.

The Regulatory Division operates as a separate and independent unit of MX. It is subject to the oversight of MX's Special Committee – Regulatory Division. The Special Committee – Regulatory Division, which is appointed by the Board of Directors of MX, is composed of a majority of independent members, none of whom is a member of the Board of Directors of MX or CDCC. The Regulatory Division operations are self-funded and are carried out on a not-for-profit basis.

The Regulatory Division generates revenue from regulatory fees principally comprised of market surveillance fees collected by MX on behalf of its Regulatory Division. Market regulation fees are recognized in the month in which the services are provided.

Any surplus in the Regulatory Division must be, subject to the approval of the Special Committee – Regulatory Division, redistributed to MX's approved participants and any shortfall must be made up by a special assessment by MX's participants or by MX upon recommendation of the Special Committee – Regulatory Division. Regulatory fines are accounted for separately from regulatory fees revenues. The regulatory fines can be used only for specifically approved purposes, such as educational initiatives.

Strategy

MX sales and business development efforts will focus on:

- Continuation of global expansion through trading hours and access expansion
- Introduction of new client focused products and services with new offerings to unlock the yield curve and further build out the equities derivatives complex

CDCC strengthens and supports Derivatives markets growth with trusted, deep post-trade capabilities. Enhancements of CDCC's products and services will focus on:

- Supporting a vertically-integrated introduction of new derivatives products and services
- Providing efficient international access to a global pool of traders and asset owners
- Upgrading operational, risk and regulatory compliance capabilities
- Complementing the Derivatives ecosystem with an expanded REPO facility

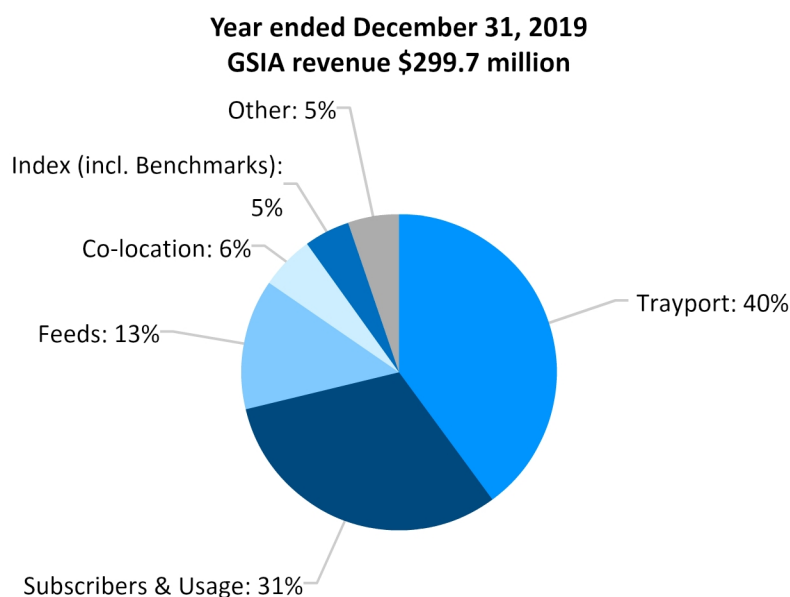
Revenue Description

Those who trade on MX are charged fees for buying and selling derivatives products on a per transaction basis, determined by factors that include contract type and volume of contracts traded. Since MX trading fee rates are charged on each transaction based on the number of contracts included in each transaction, MX trading revenue is correlated to the volume of contracts traded on the derivatives market. Derivatives trading revenue is recognized in the month in which the trade is executed.

CDCC clearing members (Clearing Members) pay fees for clearing and settlement, including OTC fixed income and REPO transactions, on a per transaction basis. Fees for fixed income transactions are based on the size and term of the original

agreement. Clearing Members are also eligible for a revenue sharing arrangement based on annual cleared volumes of REPO transactions. Clearing and settlement revenues other than for REPO transactions are correlated to the trading volume of such products and therefore fluctuate based on the same factors that affect our derivatives trading volume. Revenue is recognized as performance obligations are satisfied; this occurs within a short period of time. Clearing revenue for fixed income REPO agreements is recognized on the novation date of the related transaction.

Global Solutions, Insights, and Analytics (GSIA)



Overview and Description of Products and Services

We deliver data to fuel high-value proprietary and third party analytics to help clients make better trading and investment decisions, and provide solutions to European wholesale energy markets for price discovery, trade execution, post-trade transparency, and post-trade straight through processing.

TMX Datalinx

Real-Time Equity Market Data Products – TSX and TSXV Level 1 and Level 2 and Alpha Feeds

Trading activity on TSX, TSXV and Alpha produces a stream of real-time data reflecting orders and executed transactions. This stream of data is supplemented with value-added content (e.g. dividends, earnings) and packaged by TMX Datalinx, our information services division, into real-time market data products and delivered to end users directly or via Canadian and global redistributors that sell data as feeds and for desktop product use. Our market data is available globally through a large number of network carriers and extranets.

We offer our subscribers Level 1, and Level 2 real-time services for TSX, TSXV and Alpha. Level 1 provides trades, quotes, corporate actions and index level information. Level 2 provides a more in-depth look at the order book and allows distributors to obtain Market Book for TSX, TSXV and Alpha. Market Book is an end-user display service that includes Market-by-Price, Market-by-Order and Market Depth by Broker for all committed orders and trades.

We also provide market participants with low-latency access to real-time Level 1 and Level 2 market data consolidated to include all domestic equities marketplaces, by way of our TMX Information Processor Consolidated Data Feed (CDF), Canadian Best Bid and Offer (CBBO), Consolidated Last Sale (CLS), and Consolidated Depth of Book (CDB) services. Our Information Processor mandate from securities regulators was approved in June 2018 for an additional four year period.

Real-Time Derivative Market Data Products

We also derive data revenue from MX. Similarly to equities markets, we distribute MX real-time Level 1, and Level 2 trading data to market participants on a global basis directly and through data distributors.

Historical, Online, and Other Market Data Products

Historical market data products include market information such as historical tick data, official market statistics and close prices and corporate information such as dividends and corporate actions used in research, analysis and trade clearing, including via TMX Analytics product suites to enable increased usability for clients.

Equities and Derivatives - Index Products

We have an arrangement with S&P Dow Jones Indices (S&P DJI) under which we share license fees received from organizations that create products, such as mutual funds and ETFs, based on the S&P/TSX indices. In general, these license fees are based on a percentage of funds under management in respect of these proprietary products. In January 2016 we announced the renewal of the multi-year Index Operation and License Agreement between TSX Inc. and S&P DJI which further extended our long-standing partnership. The agreement between S&P DJI and TSX covers the creation and publication of all S&P/TSX indices, while also providing MX with the rights to list futures and options on the S&P/TSX indices²².

Co-location Services

We provide co-location services to a broad range of domestic and international market participants. Our co-location services clients, benefit from stable, low-latency access to TSX, TSXV, Alpha, and MX trading engines and market data feeds, as well as access to other capital market clients, financial content providers, and technology providers.

Strategy

- Go to market with new innovations in product pricing and packaging
- Provide new platforms for TMX Group proprietary content
- Expand our suite of multi-asset class, real time and historical analytics using proprietary and third party data
- Capture the global addressable market for TMX Group content
- Shift to a more client centric model for managing data entitlements and administration

²² The S&P/TSX indices are a product of S&P Dow Jones Indices LLC ("SPDJI") and TSX Inc. ("TSX"). Standard & Poor's® and S&P® are registered trademarks of Standard & Poor's Financial Services LLC ("S&P"); Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC and TSX® is a registered trademark of TSX.

Trayport

Trayport is the primary connectivity network and data and analytics platform for the European wholesale energy markets. Trayport's solutions provide price discovery, trade execution, post-trade transparency, and post-trade straight through processing.

Strategy

Trayport intends to focus on capitalizing on four macro themes in the global energy markets that present growth opportunities in both new markets and in new services to existing clients:

- Leverage increasing demand for data and analytics, and provide a new analytic interface and new applications giving clients the ability to mine critical data sets
- Provide enhanced execution, data and analytics to both new and existing clients globally who need to access developing gas markets. Trayport clients will have one of the most complete views and trading access to the rapidly growing global gas market
- Leverage new technologies to drive automation and efficiency as business processes become digitized. This will enable Trayport to deliver increased value along the full trade lifecycle by increasing data and analytics tools available for OTC markets and facilitating broker expansion into new asset classes and geographies
- The rise of renewable energy sources is having an increasing impact on energy generation and trading. Trayport will help clients meet the increasing demand in spot power and gas markets with new trading tools

Revenue Description

TMX Datalinx

Subscribers generally pay fixed monthly rates for access to real-time streaming data, which differ depending on the depth of information accessed. In addition to streaming data, many individual investors consume real-time quote data, for which we charge on a per quote basis. We charge market data vendors and direct feed clients a fixed monthly fee for access to data feeds.

Real-time market data revenue is recognized based on usage as reported by customers and vendors, less a provision for sales allowances from the same customers. Other Global Solutions, Insights and Analytics revenue is recognized when the services are provided.

Generally, we sell historical data products for a fixed amount per product accessed. Fees vary depending on the type of end use.

Co-location Services

Subscribers to TMX Group's co-location services, pay a fixed monthly fee depending on the number of cabinets and other related services they receive. Co-location services are normally contracted for a period of one to five years.

Trayport

Trayport subscribers pay a monthly rate for access to the platform. While some customers are on multi-year contracts, the average term is about one year.

In 2019, approximately 49% of our GSIA (excluding Trayport) revenue was billed in U.S. dollars, and approximately 93% of our Trayport revenue was billed in British Pound Sterling. We do not currently hedge this revenue and therefore it is subject to foreign exchange fluctuations. (For details, see **Financial Risk Management - Market Risk - Foreign Currency Risk.**)

RESULTS OF OPERATIONS

Non-IFRS Financial Measures

Adjusted earnings per share, adjusted diluted earnings per share and adjusted net income are non-IFRS measures and do not have standardized meanings prescribed by IFRS and are, therefore, unlikely to be comparable to similar measures presented by other companies. We present adjusted earnings per share, adjusted diluted earnings per share, and adjusted net income to indicate ongoing financial performance from period to period, exclusive of a number of adjustments. These adjustments include amortization of intangibles related to acquisitions, strategic re-alignment expenses, transaction related costs, net income tax recovery on gain on sale of Natural Gas Exchange Inc. (NGX), gain on sale of interest in Bermuda Stock Exchange, gain on sale of interest in FTSE TMX Global Debt Capital Markets Limited (TMX FTSE), gain on sale of Contigo, gain on reduction in our shareholding in CanDeal, commodity tax provision, and change in net deferred income tax liabilities resulting from decrease in Alberta corporate income tax rate and non-cash impairment charge on Shorcan. Management uses these measures, and excludes certain items, because it believes doing so results in a more effective analysis of underlying operating and financial performance, including, in some cases, our ability to generate cash. Excluding these items also enables comparability across periods. The exclusion of certain items does not imply that they are non-recurring or not useful to investors.

Year ended December 31, 2019 (2019) Compared with Year ended December 31, 2018 (2018)

The information below reflects the financial statements of TMX Group for 2019 compared with 2018. Certain comparative information has been reclassified in order to conform with the financial presentation adopted in the current year.

(in millions of dollars, except per share amounts)	2019	2018	\$ increase/ (decrease)	% increase/ (decrease)
Revenue	\$806.9	\$820.7	\$(13.8)	(2)%
Operating expenses	424.5	451.7	(27.2)	(6)%
Income from operations	382.4	369.0	13.4	4%
Net income	247.6	286.0	(38.4)	(13)%
Adjusted net income ²³	300.2	289.5	10.7	4%
Earnings per share				
Basic	4.42	5.14	(0.72)	(14)%
Diluted	4.38	5.10	(0.72)	(14)%
Adjusted Earnings per share ²⁴				
Basic	5.36	5.20	0.16	3%
Diluted	5.31	5.16	0.15	3%
Cash flows from operating activities	344.0	347.1	(3.1)	(1)%

²³ See discussion under the heading "Non-IFRS Financial Measures".

²⁴ See discussion under the heading "Non-IFRS Financial Measures".

Net Income and Earnings per Share

Net income in 2019 was \$247.6 million, or \$4.42 per common share on a basic and \$4.38 per common share on a diluted basis, compared with a net income of \$286.0 million, or \$5.14 per common share on a basic and \$5.10 on a diluted basis, for 2018. The decrease in net income and earnings per share was largely driven by lower gains on the sale of investments in 2019 compared with 2018 and higher income tax expense:

- In 2018, we recognized a gain on the sale of our interest in TMX FTSE of \$26.8 million before and after income tax (48 cents per basic and diluted share). In 2019, we recognized a gain of \$2.3 million before income tax (\$2.0 million after income tax, or 4 cents per basic and diluted share) on the sale of our interest in the Bermuda Stock Exchange.
- In 2018, the income tax expense was lower because we carried back a capital loss to reduce prior year income tax paid by approximately \$10.0 million.
- In 2019, the Alberta general corporate income tax rate decreased. This change resulted in a decrease in net deferred income tax liabilities and a corresponding decrease in income tax expense of \$4.3 million.

In addition, during 2019, we determined that the fair value of Shorcan was below its carrying value, resulting in a non-cash impairment charge of \$18.0 million, which reduced net income.

Offsetting the declines in net income, income from operations increased by \$13.4 million. The increase in income from operations from 2018 to 2019 was largely driven by a decrease in operating expenses of \$27.2 million from 2018 to 2019. In 2018, we recorded a commodity tax provision of \$7.6 million (10 cents per basic and diluted share) and a lease termination payment of \$4.5 million (6 cents per basic and diluted share). There was also a decrease in severance costs of approximately \$7.8 million and a reduction in short term employee performance incentive plan costs of approximately \$6.8 million from 2018 to 2019. The decreases in expenses were somewhat offset by higher long term employee performance incentive plan costs of approximately \$0.5 million. Revenue declined by \$13.8 million from 2018 to 2019. There was a decrease in *Capital Formation* revenue driven by lower *additional listings fees*, a reduction in *Other* revenue as well as lower *Equities and Fixed Income Trading* revenue. These decreases were partially offset by an increase in *Global Solutions, Insights and Analytics* revenue, including higher revenue from Trayport and VisoTech (acquired May 15, 2019), as well as higher *Derivatives Trading and Clearing* and CDS revenue. In addition, net finance costs declined by \$4.8 million from 2018 to 2019.

Adjusted Earnings per Share²⁵ Reconciliation for 2019 and 2018

The following is a reconciliation of earnings per share to adjusted earnings per share:

(unaudited)	2019		2018	
	Basic	Diluted	Basic	Diluted
Earnings per share	\$4.42	\$4.38	\$5.14	\$5.10
Adjustments related to:				
Amortization of intangibles related to acquisitions	0.68	0.67	0.68	0.68
Impairment charges	0.32	0.32	—	—
Strategic re-alignment expenses ²⁶	0.05	0.05	—	—
Net income tax recovery on gain on sale of NGX	—	—	(0.18)	(0.18)
Gain on sale of Contigo	—	—	(0.04)	(0.04)
Gain on sale of interest in TMX FTSE	—	—	(0.48)	(0.48)
Gain on reduction in our shareholding in CanDeal	—	—	(0.02)	(0.02)
Gain on sale of interest in Bermuda Stock Exchange	(0.04)	(0.04)	—	—
Commodity tax provision	—	—	0.10	0.10
Transaction related costs ²⁷	0.01	0.01	—	—
Change in net deferred income tax liabilities resulting from decrease in Alberta corporate income tax rate	(0.08)	(0.08)	—	—
Adjusted earnings per share ²⁸	\$5.36	\$5.31	\$5.20	\$5.16
Weighted average number of common shares outstanding	56,045,211	56,570,669	55,635,123	56,093,543

Adjusted diluted earnings per share increased by 3% from \$5.16 in 2018 to \$5.31 in 2019. The increase in adjusted diluted earnings per share from 2018 to 2019 was largely driven by lower operating expenses related to lease termination, a decrease in severance costs, a reduction in short term employee performance incentive plan costs as well as lower net finance costs. The decreases in expenses were slightly offset by higher long term employee performance incentive plan costs. There was also an increase in revenue from *Global Solutions, Insights and Analytics* revenue, including higher revenue from Trayport and VisoTech (acquired May 15, 2019), as well as higher *Derivatives Trading and Clearing* and CDS revenue. The increases in revenue were more than offset by decreases in *Capital Formation* revenue driven by lower *additional listings fees*, a reduction in *Other* revenue as well as lower *Equities and Fixed Income Trading* revenue. The increase in adjusted diluted earnings per share was also somewhat reduced by an increase in the number of weighted-average common shares outstanding in 2019 compared with 2018.

²⁵ See discussion under the heading "Non-IFRS Financial Measures".

²⁶ Please refer to "Initiatives and Accomplishments - Strategic re-alignment" for more details.

²⁷ Includes costs related to the integration of Trayport in 2018, and costs related to an acquisition in 2019.

²⁸ See discussion under the heading "Non-IFRS Financial Measures".

Adjusted Net Income²⁹ Reconciliation for 2019 and 2018

The following is a reconciliation of net income to adjusted net income:

(in millions of dollars) (unaudited)	2019	2018	\$ increase / (decrease)	% increase / (decrease)
Net income	\$247.6	\$286.0	\$(38.4)	(13)%
Adjustments related to:				
Amortization of intangibles related to acquisitions	37.5	37.7	(0.2)	(1)%
Impairment charges	18.0	—	18.0	n/a
Strategic re-alignment expenses ³⁰	2.8	—	2.8	n/a
Net income tax recovery on gain on sale of NGX	—	(10.0)	10.0	(100)%
Gain on sale of Contigo	—	(2.3)	2.3	(100)%
Gain on sale of interest in TMX FTSE	—	(26.8)	26.8	(100)%
Gain on reduction in our shareholding in CanDeal	—	(0.9)	0.9	(100)%
Gain on sale of interest in Bermuda Stock Exchange	(2.0)	—	(2.0)	n/a
Commodity tax provision	—	5.6	(5.6)	(100)%
Transaction related costs ³¹	0.6	0.2	0.4	200%
Change in net deferred income tax liabilities resulting from decrease in Alberta corporate income tax rate	(4.3)	—	(4.3)	n/a
Adjusted net income ³²	\$300.2	\$289.5	\$10.7	4%

Adjusted net income increased by 4% from \$289.5 million in 2018 to \$300.2 million in 2019. The increase in adjusted net income from 2018 to 2019 was largely driven by lower operating expenses related to lease termination, a decrease in severance costs, a reduction in short term employee performance incentive plan costs as well as lower net finance costs. The decreases in expenses were slightly offset by higher long term employee performance incentive plan costs. There was also an increase in revenue from *Global Solutions, Insights and Analytics* revenue, including higher revenue from Trayport and VisoTech (acquired May 15, 2019), as well as higher *Derivatives Trading and Clearing* and CDS revenue. The increases in revenue were more than offset by decreases in *Capital Formation* revenue driven by lower *additional listings fees*, a reduction in *Other* revenue as well as lower *Equities and Fixed Income Trading* revenue.

²⁹ See discussion under the heading "Non-IFRS Financial Measures".

³⁰ Please refer to "Initiatives and Accomplishments - Strategic re-alignment" for more details.

³¹ Includes costs related to the integration of Trayport in 2018, and costs related to an acquisition in 2019.

³² See discussion under the heading "Non-IFRS Financial Measures".

Revenue

(in millions of dollars)	2019	2018	\$ increase / (decrease)	% increase / (decrease)
Capital Formation	\$180.7	\$198.7	\$(18.0)	(9)%
Equities and Fixed Income Trading and Clearing	193.5	198.2	(4.7)	(2)%
Derivatives Trading and Clearing	133.2	129.9	3.3	3%
Global Solutions, Insights and Analytics	299.7	289.3	10.4	4%
Other	(0.2)	4.6	(4.8)	(104)%
	\$806.9	\$820.7	\$(13.8)	(2)%

Revenue was \$806.9 million in 2019, down \$13.8 million or 2% compared with \$820.7 million in 2018. There was a decrease in *Capital Formation* revenue driven by lower *additional listings fees*, a reduction in *Other* revenue as well as lower *Equities and Fixed Income Trading* revenue. These decreases were partially offset by an increase in *Global Solutions, Insights and Analytics* revenue, including higher revenue from Trayport and VisoTech (acquired May 15, 2019), as well as higher *Derivatives Trading and Clearing* and CDS revenue.

Capital Formation

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
Initial listing fees	\$11.0	\$13.4	\$(2.4)	(18)%
Additional listing fees	72.7	84.6	(11.9)	(14)%
Sustaining listing fees	68.9	71.0	(2.1)	(3)%
Other issuer services	28.1	29.7	(1.6)	(5)%
	\$180.7	\$198.7	\$(18.0)	(9)%

- *Initial listing fees* in 2019 decreased from 2018 primarily due to a decline in the amount of deferred *initial listing fees* recognized in 2019 compared with 2018. We recognized *initial listing fees* received in 2018 and 2019 of \$10.0 million in 2019 compared with *initial listing fees* received in 2017 and 2018 of \$12.4 million in 2018.
- Based on *initial listing fees* billed in 2019, the following amounts have been deferred to be recognized in Q1/20, Q2/20, Q3/20, and Q4/20: \$2.0 million, \$1.4 million, \$0.8 million and \$0.2 million respectively. Total *initial listing fees* revenue for future quarters will also depend on listing activity in those quarters.
- *Additional listing fees* in 2019 decreased from 2018 reflecting the impact of an 11% decrease in the number of transactions billed on TSX, including a 24% decline in the number of transactions billed on TSX at the maximum fee, and a decrease in *additional listing fees* on TSXV where there was a decrease in the number of financings and total financing dollars raised.

- Issuers listed on TSX and TSXV pay annual sustaining listing fees primarily based on their market capitalization at the end of the prior calendar year, subject to minimum and maximum fees. There was a decrease in *sustaining listing fees* on both TSX and TSXV due to the decrease in the market capitalization of issuers at December 31, 2018 compared with December 31, 2017; however, the decrease was partially offset by the impact from an increase in the maximum annual *sustaining listing fee* for corporate issuers on TSX from \$110,000 to \$125,000 effective January 1, 2019.
- *Other issuer services* revenue in 2019 was lower compared to 2018 reflecting decreased revenue from TSX Trust due to lower margin income as well as reduced transfer agent and corporate trust fees. This was largely attributable to lower client balances and reduced capital markets activity.

Equities and Fixed Income Trading and Clearing

(in millions of dollars)	2019	2018	\$ increase / (decrease)	% increase / (decrease)
Equities and fixed income trading	\$98.0	\$108.8	(\$10.8)	(10)%
Equities and fixed Income clearing, settlement, depository and other services (CDS)	95.5	89.4	6.1	7%
	\$193.5	\$198.2	(\$4.7)	(2)%

- There was a 10% decrease in *Equities and Fixed Income Trading* revenue in 2019 compared with 2018 driven by lower overall volumes on all of our exchanges, partially offset by the impact from a favourable product mix. There was also a decrease in *fixed income trading* revenue largely due to decreased activity in Government of Canada Bonds.
- The overall volume of securities traded on our equities marketplaces decreased by 12% (131.4 billion securities in 2019 versus 150.0 billion securities in 2018). There was a decrease in volumes of 4% on TSX, 28% on TSXV and 10% on Alpha in 2019 compared with 2018.
- Excluding intentional crosses, in all listed issues in Canada, our combined domestic equities trading market share was 57% in 2019, down 1% from 58% in 2018³³. We only trade securities that are listed on TSX or TSXV.
- Excluding intentional crosses, for TSX and TSXV listed issues, our combined domestic equities trading market share was approximately 65% in 2019, down 2% from approximately 67% in 2018.³⁴
- CDS revenue increased by 7% from 2018 to 2019 reflecting revisions to the fee schedule for issuer services as well as higher international revenue. In addition, certain recoverable costs related to CDS's clearing operation, previously netted, are now included in both CDS revenue and *Selling, general and administration* expenses. The amounts reclassified to CDS revenue were \$5.3 million for 2019 and \$3.6 million for 2018.

Derivatives Trading and Clearing

(in millions of dollars)	2019	2018	\$ increase	% increase
	\$133.2	\$129.9	\$3.3	3%

³³ Source: IIROC.

³⁴ Source: IIROC.

- The increase in *Derivatives Trading and Clearing* revenue was driven by a 3% increase in revenue from MX and CDCC. There was a 4% increase in volumes on MX (116.2 million contracts traded in 2019 versus 112.2 million contracts traded in 2018). There was also an increase in revenue from REPO (repurchase agreements) clearing in 2019 compared with 2018.
- The increases were also somewhat offset by a decrease in revenue from BOX following the expiry of our agreement at the end of 2018 to provide SOLA technology and services to BOX. We are currently providing transitional services to BOX.

Global Solutions, Insights and Analytics

(in millions of dollars)	2019	2018	\$ increase	% increase
Trayport	\$119.6	\$111.7	\$7.9	7%
GSIA (excluding Trayport)	\$180.1	\$177.6	\$2.5	1%
	\$299.7	\$289.3	\$10.4	4%

- The increase in *GSIA* revenue in 2019 compared with 2018 reflected an increase in revenue from Trayport, including VisoTech (acquired May 15, 2019). The increase in *GSIA* revenue was also driven by higher revenue from recoveries related to under-reported usage of real-time quotes in prior periods, co-location, benchmarks and indices as well as price changes implemented in 2H/19. The increases were somewhat offset by lower revenue from subscriptions and usage based quotes in 2019 compared with 2018.
- These increases were partially offset by revenue from Contigo (sold November 30, 2018) of approximately \$5.3 million, and from TMX FTSE (sold April 12, 2018) of approximately \$1.1 million in 2018.
- There was also an unfavourable impact of a stronger Canadian dollar relative to GBP, which more than offset the favourable impact from a weaker Canadian dollar relative to the U.S. dollar in 2019 compared with 2018.
- Revenue from *GSIA*, excluding VisoTech, Contigo and TMX FTSE, increased by 5% from 2018 to 2019.

Trayport

Revenue from Trayport's core subscriber business, including VisoTech (acquired May 15, 2019), was £70.8 million in 2019, up 15% over 2018. Revenue from Contigo (sold on November 30, 2018); the ancillary non-subscriber based risk application business of Trayport; was £3.1 million in 2018.

The following table summarizes the average number of Trayport subscribers (excluding VisoTech) over the last eight quarters:

	Q4/19	Q3/19	Q2/19	Q1/19	Q4/18	Q3/18	Q2/18	Q1/18
Trader Subscribers	5,116	4,900	4,850	4,727	4,665	4,356	4,321	4,207
Total Subscribers	23,003	22,128	21,946	21,683	21,465	20,602	20,310	20,171
Revenue (in millions of GBP)	£18.0	£18.2	£17.8	£16.7	£16.8	£16.5	£16.0	£15.4

Total Subscribers means all chargeable licenses of core Trayport products in core customer segments including Traders, Brokers and Exchanges. Trader Subscribers are a subset of Total Subscribers. Trader Subscribers revenue represents over 50% of total Trayport revenue.

GSIA (excluding Trayport)

- The average number of professional market data subscriptions for TSX and TSXV products decreased by 1% from 2018 to 2019 (100,792 professional market data subscriptions in 2019 compared with 101,668 in 2018.)
- The average number of MX professional market data subscriptions was essentially unchanged from 2018 to 2019 (18,820 MX professional market data subscriptions in 2019 compared with 18,779 in 2018).

Other

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
	\$ (0.2)	\$4.6	\$ (4.8)	(104)%

- The decrease in *Other* revenue was primarily due to recognizing net foreign exchange gains on net monetary assets in 2018 compared with net foreign exchange losses in 2019.

Operating expenses

(in millions of dollars)	2019	2018	\$ increase / (decrease)	% increase / (decrease)
Compensation and benefits	\$207.9	\$220.1	\$(12.2)	(6)%
Information and trading systems	51.9	52.4	(0.5)	(1)%
Selling, general and administration	81.4	108.9	(27.5)	(25)%
Depreciation and amortization	79.6	70.3	9.3	13%
Strategic re-alignment expenses	3.7	—	3.7	n/a
	\$424.5	\$451.7	\$(27.2)	(6)%

Operating expenses in 2019 were \$424.5 million, down \$27.2 million or 6%, from \$451.7 million in 2018. The decrease in costs was largely related to a commodity tax provision of \$7.6 million (10 cents per basic and diluted share) and a lease termination payment of \$4.5 million (6 cents per basic and diluted share) in 2018. There was also a decrease in severance costs of approximately \$7.8 million and a reduction in short term employee performance incentive plan costs of approximately \$6.8 million from 2018 to 2019. The decreases in expenses were somewhat offset by higher long term employee performance incentive plan costs of approximately \$0.5 million. In addition, certain recoverable costs related to CDS's clearing operation, previously netted, are now included in both CDS revenue and *Selling, general and administration* expenses. The amounts reclassified to *Selling, general and administration* expenses were \$5.3 million for 2019 and \$3.6 million for 2018.

Compensation and benefits

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
	\$207.9	\$220.1	\$(12.2)	(6)%

- *Compensation and benefits* costs decreased in 2019 compared with 2018 reflecting lower severance costs of approximately \$7.8 million, lower short term employee performance incentive plan costs of approximately \$6.8 million and an increase in the capitalization of labour costs. In addition, the decrease in expenses related to Contigo (sold November 30, 2018) exceeded the increase in costs related to VisoTech (acquired May 15, 2019) by approximately \$0.9 million. These decreases were partially offset by increased costs related to higher headcount, merit increases and payroll taxes. In addition, there was a net increase in long term employee performance incentive plan costs of approximately \$0.5 million. These costs increased by approximately \$4.5 million due to the appreciation in our share price, but were largely offset by the reversal of an accrual of approximately \$4.0 million relating to long term employee performance incentives that were forfeited upon the execution of an agreement on January 10, 2020 in respect of the CEO's retirement.
- There were 1,287 TMX Group employees at December 31, 2019 versus 1,208 employees at December 31, 2018 reflecting a higher headcount related to the acquisition of VisoTech (acquired May 15, 2019) which employs approximately 45 people. There was also an increase in headcount attributable to investing in the various growth areas of our business, including *Capital Formation* and *Trayport*.

Information and trading systems

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
	\$51.9	\$52.4	\$(0.5)	(1)%

- The decrease in *Information and trading systems* expenses from 2018 to 2019 reflected lower information technology professional services costs.

Selling, general and administration

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
	\$81.4	\$108.9	\$(27.5)	(25)%

- Selling, general and administration* expenses decreased by \$27.5 million in 2019 compared with 2018 partially due to recording a commodity tax provision of \$7.6 million (10 cents per basic and diluted share) and a lease termination payment of \$4.5 million (6 cents per basic and diluted share) in 2018. The decrease also reflected lower project spending including amounts paid to external consultants. In addition, there were lower *Selling, general and administration* expenses of \$10.3 million related to the implementation of IFRS 16, *Leases* (see **Accounting and Control Matters - Changes in accounting policies - ADOPTION OF IFRS 16**).
- Offsetting these decreases, certain recoverable costs related to CDS's clearing operation, previously netted, are now included in both CDS revenue and *Selling, general and administration* expenses. The amounts reclassified to *Selling, general and administration* expenses were \$5.3 million for 2019 and \$3.6 million for 2018.
- The decreases in *Selling, general and administration* expenses were also partially offset by increased transaction costs related to an acquisition of \$0.6 million (1 cent per basic and diluted share).

Depreciation and amortization

(in millions of dollars)	2019	2018	\$ increase	% increase
	\$79.6	\$70.3	\$9.3	13%

- There were higher *Depreciation and amortization* costs driven by the implementation of IFRS 16 (see **Accounting and Control Matters - Changes in accounting policies - ADOPTION OF IFRS 16**).
- The *Depreciation and amortization* costs in 2019 of \$79.6 million included \$47.1 million related to amortization of intangibles assets related to acquisitions (0.68 cents per basic and 0.67 cents per diluted share).
- The *Depreciation and amortization* costs in 2018 of \$70.3 million included \$47.5 million related to amortization of intangibles assets related to acquisitions (68 cents per basic and diluted share).

Strategic re-alignment expenses

	2019		2018	
(in millions of dollars)	Pre-tax Amount	Basic and Diluted Earnings per Share Impact	Pre-tax Amount	Basic and Diluted Earnings per Share Impact
	\$3.7	\$0.05	\$—	\$—

- *Strategic re-alignment expenses* for 2019 included \$3.3 million related to organizational changes we made in our post-trade business, elimination of centralized innovation product development unit, and changes to our enterprise risk approach. In Q2/19 we incurred non-recurring charges for onerous contracts related to our initiative on modernizing our clearing platforms of \$1.3 million. In Q4/19, we recovered approximately \$0.9 million of these charges (See **INITIATIVES AND ACCOMPLISHMENTS - Strategic Re-alignment**).

Additional Information

Share of income from equity accounted investees

(in millions of dollars)	2019	2018	\$ increase	% increase
	\$3.8	\$3.0	\$0.8	27%

- In 2019 our share of income from equity accounted investees increased by \$0.8 million which is primarily attributable to increases in our share of income from BOX, partially offset by a decrease in our share of income from TMX FTSE (sold on April 12, 2018).

Impairment charge

(in millions of dollars)	2019	2018	\$ increase	% increase
	\$18.0	\$—	\$18.0	100%

- In Q4/19 we determined that the fair value of Shorcan was below its carrying value, resulting in a non-cash impairment charge of \$18.0 million.

Other income

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
	\$2.3	\$30.7	\$(28.4)	(93)%

- In 2018, we completed the sale of our entire 24.2% interest in TMX FTSE. The proceeds of \$70.4 million resulted in a gain on sale of approximately \$26.8 million before and after income taxes (48 cents per basic and diluted share).
- In 2019, we completed the sale of our interest in Bermuda Stock Exchange resulting in a gain on sale of approximately \$2.3 million before tax (\$2.0 million after income tax, or 4 cents per basic and diluted share).

Net finance costs

(in millions of dollars)	2019	2018	\$ (decrease)	% (decrease)
	\$35.6	\$40.4	\$(4.8)	(12)%

- The decrease in net finance costs from 2018 to 2019 reflected lower interest expense due to decreased debt levels. The lower costs were partially offset by the impact from a higher average interest rate in 2019 driven by the interest rate on our Series E Debentures compared with that on our Series A Debentures, which matured at the beginning of Q4/18. The decrease was also partially offset by a charge of \$3.5 million relating to the implementation of IFRS 16, *Leases* (see **Accounting and Control Matters - Changes in accounting policies - ADOPTION OF IFRS 16**).

Income tax expense and effective tax rate

Income Tax Expense (in millions of dollars)		Effective Tax Rate (%)	
2019	2018	2019	2018
\$87.3	\$76.3	26%	21%

Excluding adjustments, primarily related to the items noted below, the effective tax rate would have been approximately 26% for both 2019 and 2018.

2019

- In 2019, the Alberta general corporate income tax rate decreased. This change resulted in a decrease in net deferred income tax liabilities and a corresponding decrease in income tax expense of \$4.3 million. In 2019, we incurred non-cash impairment charges of \$18.0 million related to Shorcan, which is not deductible for income tax purposes. This resulted in an increase in our effective tax rate, which essentially offset the positive impact from the decrease in the Alberta general corporate income tax rate.

2018

- In 2018, we realized a capital loss on the liquidation of a foreign wholly-owned subsidiary. The capital loss was carried back to reduce the income tax on the sale of NGX in 2017, resulting in a tax benefit of approximately \$2.0 million.
- In 2018, we realized a capital loss on the windup of a limited partnership, resulting in a tax benefit of approximately \$11.8 million. A portion of this capital loss was utilized to eliminate the income tax otherwise payable of \$3.8 million on the sale of our interest in TMX FTSE. In addition, we carried back the balance of this net capital loss to reduce the income tax of \$8.0 million on the sale of NGX in 2017. Also, the non-taxable portion of the capital gain on the sale of our interest in TMX FTSE resulted in a tax benefit of approximately \$3.3 million. As a result, there was a decrease in income tax expense, which reduced our effective tax rate for 2018.

Total equity

(in millions of dollars)	As at December 31, 2019	As at December 31, 2018	\$ increase
Total equity	\$3,499.1	\$3,380.8	\$118.3

- At December 31, 2019, there were 56,233,929 common shares issued and outstanding and 1,538,160 options outstanding under the share option plan.
- At February 7, 2020, there were 56,256,637 common shares issued and outstanding and 1,503,198 options outstanding under the share option plan.
- The increase in *Total equity* is primarily attributable to the inclusion of net income of \$247.6 million and proceeds from exercised share options of \$24.4 million, less dividend payments to shareholders of TMX Group of \$141.3 million and foreign currency translation differences of \$12.5 million.

Segments

The following information reflects TMX Group's segment results for 2019 compared with 2018.

2019

(in millions of dollars)	Capital Formation	Equities and Fixed Income Trading & Clearing	Derivatives Trading & Clearing	Global Solutions, Insights & Analytics	Other	Total
Revenue from external customers	\$ 180.7	\$ 193.5	\$ 133.2	\$ 299.7	\$ (0.2)	\$ 806.9
Inter-segment revenue	—	1.6	—	0.3	(1.9)	—
Total revenue	180.7	195.1	133.2	300.0	(2.1)	806.9
Income (loss) from operations	96.8	85.8	59.3	193.0	(52.5)	382.4

2018

(in millions of dollars)	Capital Formation	Equities and Fixed Income Trading & Clearing	Derivatives Trading & Clearing	Global Solutions, Insights & Analytics	Other	Total
Revenue from external customers	\$ 198.7	\$ 198.2	\$ 129.9	\$ 289.3	\$ 4.6	\$ 820.7
Inter-segment revenue	—	1.6	—	0.5	(2.1)	—
Total revenue	198.7	199.8	129.9	289.8	2.5	820.7
Income (loss) from operations	111.3	83.5	57.3	173.4	(56.5)	369.0

Income (loss) from operations

The decrease in *Income from operations* from *Capital Formation* reflected lower revenue from all listing fee types, especially *additional listing fee* revenue, and lower revenue from TSX Trust in 2019 compared with 2018. This was partially offset by lower operating expenses in 2019 compared with 2018.

The increase in *Income from operations* from *Equities and Fixed Income Trading and Clearing* reflected lower operating expenses and an increase in revenue from *CDS* in 2019 compared with 2018. The increases were somewhat offset by a decrease in *Equities and Fixed Income Trading* revenue.

Income from operations from *Derivatives Trading and Clearing* increased reflecting higher revenue from MX and CDCC, driven by a 4% increase in volumes on MX, and an increase in revenue from REPO (repurchase agreements) clearing in 2019 compared with 2018. This increase was partially offset by a decrease in revenue from BOX, and higher operating expenses in 2019 compared with 2018.

The increase in *Income from operations* from *Global Solutions, Insights and Analytics* largely reflects an increase in revenue from Trayport, including VisoTech (acquired May 15, 2019). The increase in *GSIA* revenue was also driven by higher revenue from recoveries related to under-reported usage of real-time quotes in prior periods, co-location, benchmarks and indices as well as price changes implemented in 2H/19. There were also lower operating expenses in 2019 compared with 2018. The increases were somewhat offset by lower revenue from subscriptions and usage based quotes in 2019 compared with 2018. These increases were also partially offset by revenue from Contigo (sold November 30, 2018) of approximately \$5.3 million, and from TMX FTSE (sold April 12, 2018) of approximately \$1.1 million in 2018.

Other includes certain revenue as well as corporate and other costs, not allocated to the operating segments. Revenue related to foreign exchange gains and losses and other services are presented in the *Other* segment. The decrease in *Other* revenue was primarily due to recognizing net foreign exchange gains on net monetary assets in 2018 compared with net foreign exchange losses in 2019. Costs and expenses related to the amortization of purchased intangibles, along with certain consolidation and elimination adjustments, are also presented in *Other*. The *loss from operations* for the *Other* segment in 2019 was somewhat lower than in 2018. In 2019, there was a reversal of an accrual of approximately \$4.0 million relating to long term employee performance incentives that were forfeited upon the execution of an agreement on January 10, 2020 in respect of the CEO's retirement.

LIQUIDITY AND CAPITAL RESOURCES

Summary of Cash Flows

2019 compared with 2018

(in millions of dollars)	2019	2018	\$ increase / (decrease) in cash
Cash flows from operating activities	\$344.0	\$347.1	\$(3.1)
Cash flows from/(used in) financing activities	(234.8)	(425.1)	190.3
Cash flows from/(used in) investing activities	(95.3)	37.4	(132.7)

- In 2019, *Cash flows from operating activities* decreased compared with 2018 reflecting a decrease in cash related to trade and other payables. The decrease was largely offset by higher income from operations (excluding depreciation and amortization), and an increase in cash related to other assets and liabilities.
- In 2019, *Cash flows used in financing activities* were lower than in 2018 largely reflecting the net repayment of \$200.0 million of debentures in 2018. In 2018, we issued \$200.0 million of Series E Debentures, but repaid \$400.0 million of Series A Debentures. The net increase in cash from 2018 to 2019 was partially offset by a \$16.6 million increase in the amount of cash used to pay dividends to equity holders.
- In 2019, *Cash flows used in investing activities* were higher than in 2018 when we generated cash from investing activities. During 2018, we received proceeds from the sale of investments and businesses of \$83.9 million compared with \$3.8 million in 2019. In 2019, we also had a cash outflow of \$23.6 million related to an acquisition. There was also a decrease in cash of \$19.3 million related to the net purchase of marketable securities in 2019.

Summary of Cash Position and Other Matters³⁵

Cash, Cash Equivalents and Marketable Securities

(in millions of dollars)	As at December 31, 2019	As at December 31, 2018	\$ (decrease)
	\$229.4	\$230.7	\$(1.3)

We had \$229.4 million of cash, cash equivalents and marketable securities at December 31, 2019. There was a slight decrease in cash, cash equivalents and marketable securities primarily reflecting cash flows from operating activities of \$344.0 million, proceeds from exercised options of \$24.4 million, proceeds from the sale of our interest in Bermuda Stock Exchange of \$3.1 million and interest received of \$4.1 million. Offsetting these increases in cash and cash equivalents were a cash outflow related to an acquisition of \$23.6 million, the net movement in Commercial Paper of approximately \$79.9 million, a decrease in cash of \$39.8 million related to repayment of a bank overdraft from December 31, 2018, cash outflows for dividends to TMX Group shareholders of \$141.3 million, interest paid of \$38.4 million and additions to premises and equipment and intangible assets of \$57.6 million. Based on our current business operations and model, we believe that we have sufficient cash resources and access to financing to operate our business, make interest payments, as well as meet our covenants under the trust indentures governing our Debentures and the terms of the Credit Agreement (as defined in the 2019 MD&A) and commercial paper program (Commercial Paper Program) (see **LIQUIDITY AND CAPITAL RESOURCES - Commercial Paper, Debentures, Credit and Liquidity Facilities**), and satisfy the capital maintenance requirements imposed by regulators.

We will also have cash outlays related to the modernization of our clearing platforms (see - **INITIATIVES AND ACCOMPLISHMENTS - Update on Modernization of Clearing Platforms**).

Debt financing of future investment opportunities could be limited by current and future economic conditions, the covenants in the Credit Agreement and the trust indentures governing the Debentures, and by capital maintenance requirements imposed by regulators. At December 31, 2019, there was \$239.6 million of Commercial Paper outstanding, and the authorized limit under the program was \$500.0 million.

Total Assets

(in millions of dollars)	As at December 31, 2019	As at December 31, 2018	\$ increase
	\$32,359.7	\$31,658.3	\$701.4

- Our consolidated balance sheet as at December 31, 2019 includes outstanding balances on open REPO agreements within *Balances with Participants and Clearing Members*. These balances have equal amounts included within *Total Liabilities*. The increase in *Total Assets* of \$701.4 million from December 31, 2018 reflected higher balances in CDCC at December 31, 2019 related to both REPO agreements and increased collateral. There was also an increase in Total Assets relating to the implementation of IFRS 16 (see **Accounting and Control Matters - ADOPTION OF IFRS 16**). On transition to IFRS 16, we recognized \$94.9 million of right-of-use assets. The amount included in Total Assets at December 31, 2019 was \$93.0 million.

Defined Benefits Pension Plan

Based on the most recent actuarial valuations, we estimate a net deficit of approximately \$7.1 million of which \$1.5 million was funded in 2019. The next required tri-annual valuation for the TMX registered pension plan (RPP) will be as at December 31, 2020.

³⁵ The "Summary of Cash Position and Other Matters" section above contains certain forward-looking statements. Please refer to "Caution Regarding Forward-Looking Information" for a discussion of risks and uncertainties related to such statements.

Commercial Paper, Debentures, Credit and Liquidity Facilities

Commercial Paper

(in millions of dollars)	As at December 31, 2019	As at December 31, 2018	\$ (decrease)
	\$239.6	\$319.5	\$(79.9)

TMX Group maintains a Commercial Paper Program to offer potential investors up to \$500.0 million (or the equivalent U.S. dollars) of Commercial Paper to be issued in various maturities of no more than one year from the date of issue. The Commercial Paper bears interest rates based on the prevailing market conditions at the time of issuance. The Commercial Paper Program is fully backstopped by the Credit Agreement (as defined below).

The Commercial Paper issued represents an unsecured obligation and ranks equally with all other senior unsecured obligations of TMX Group. The Commercial Paper has been assigned a rating of "R-1 (low)" with a Stable trend by DBRS Limited (DBRS).

There was \$239.6 million of Commercial Paper outstanding, including accrued interest, under the program at December 31, 2019 reflecting a net reduction of approximately \$79.9 million from December 31, 2018. Commercial paper is short term in nature, and the average term to maturity from the date of issue was 62 days in 2019.

Debentures

As of December 31, 2019, TMX Group had the following Debentures outstanding:

Debenture	Principal Amount (\$ millions)	Coupon	Maturity Date	DBRS Credit Rating
Series B	250.0	4.461% per annum, payable in arrears in equal semi-annual installments (long first coupon)	October 3, 2023	A (high)
Series D	300.0	2.997% per annum, payable in arrears in equal semi-annual installments	December 11, 2024	A (high)
Series E	200.0	3.779% per annum, payable in arrears in equal semi-annual installments	June 5, 2028	A (high)

- On June 5, 2018, TMX Group completed a Canadian private placement offering of \$200.0 million aggregate principal amount of 3.779% senior unsecured debentures due June 5, 2028 ("Series E Debentures") to accredited investors in Canada. The Series E Debentures received a credit rating of A (high) with a Stable trend from DBRS Limited. TMX Group incurred financing costs of \$1.1 million for the initial issuance of the Series E Debentures, and these costs are offset against the initial carrying value of the Series E Debentures.
- The Series B and Series E Debentures may be redeemed, at the option of TMX Group, in whole or in part at the redemption price together with accrued and unpaid interest to the date fixed for redemption. The redemption price is equal to the greater of the applicable Canada Yield Price (as defined in the relevant Trust Indenture (as defined below)) and 100% of the principal amount of the Series B and Series E Debentures being redeemed to the date fixed for redemption. If the Series B and Series E Debentures are redeemed anytime on or after three months prior to the maturity date of the series, the redemption price is equal to 100% of the aggregate principal amount outstanding on the Series B and Series E Debentures together with accrued and unpaid interest to the date of the redemption.
- The Series D Debentures may be redeemed, in whole or in part, at the option of TMX Group, at the redemption price together with accrued and unpaid interest to the date fixed for redemption. The redemption price is equal to the

greater of the Canada Yield Price (as defined in the relevant Trust Indenture) and 100% of the principal amount of the Series D Debentures being redeemed. If the Series D Debentures are redeemed anytime on or after two months prior to the maturity date of the series, the redemption price will be equal to 100% of the aggregate principal amount outstanding on the Series D Debentures together with accrued and unpaid interest to the date of the redemption.

- The trust indenture and the supplements thereto which govern the Debentures (collectively, the Trust Indentures and each a Trust Indenture) include the following covenants:
 - A negative pledge which restricts the ability of TMX Group and each of its material subsidiaries (as defined in the Trust Indentures) to create a lien on these entities' assets unless the Debentures are similarly secured on an equal and rateable basis.
 - A limitation on the ability of material subsidiaries of TMX Group to enter into certain types of indebtedness.
 - In the event of a change of control (as such term is defined in the Trust Indentures) of either TSX Inc. or MX, if the rating of the Debentures is lowered to below investment grade (as defined in the Trust Indentures), TMX Group will be required, at the option of the Debenture holder to repurchase, in whole or in part, the holder's Debentures at a cash price of 101% of the outstanding principal amount of the Debentures plus all accrued and unpaid interest up to the date of repurchase.
 - A requirement for TMX Group to maintain at least one credit rating from a Specified Credit Rating Agency (as defined in the Trust Indentures).

(in millions of dollars)	As at December 31, 2019	As at December 31, 2018	\$ increase/ (decrease)
Series B - Non-Current Debentures	\$249.6	\$249.5	\$0.1
Series D - Non-Current Debentures	\$298.6	\$298.4	\$0.2
Series E - Non-Current Debentures	\$198.9	\$198.9	\$0.0
	\$747.1	\$746.8	\$0.3

On October 1, 2018, TMX Group issued Commercial Paper which was used to repay Series A Debentures on October 3, 2018.

Credit Facility

In 2016, TMX Group entered into an amended and restated credit agreement (as amended on each of December 14, 2017 and September 12, 2018, the Credit Agreement) which replaced our existing 2014 credit agreement. The Credit Agreement provides 100% backstop to the Commercial Paper Program and is also available for general corporate purposes. \$500 million (or the USD equivalent) is available under the Credit Agreement which amount is reduced by the outstanding amount of Commercial Paper and any outstanding inter-company notes payable to CDS and CDCC. The maturity date of the Credit Agreement is May 2, 2021.

Under the terms of the Credit Agreement there is:

- an Interest Coverage Ratio of more than 4.0:1. The Interest Coverage Ratio is the ratio of adjusted EBITDA for the period comprised of the four most recently completed financial quarters to the consolidated interest expense for such four financial quarters. Adjusted EBITDA means earnings on a consolidated basis before interest, taxes, extraordinary, unusual or non-recurring items, depreciation and amortization, as well as non-cash items;
- a Total Leverage Ratio of not more than 3.5:1. Total Leverage Ratio at any time is the ratio of consolidated debt as at such time to adjusted EBITDA for the period comprised of the four most recently completed financial quarters.

As at December 31, 2019, all covenants were met under the Credit Agreement.

The following table summarizes the Applicable Rates and Fee Rates and corresponding Total Leverage Ratios under the Credit Agreement. The Standby Fee is charged on the unutilized portion of the revolving facility. The Applicable Rate represents the corporate spread that is included in the interest rate that is applied to the drawn portion of the facility.

Applicable Margin Pricing Matrix			
Total Leverage Ratio (x)	Standby Fee for undrawn portion of Revolving Facility	Prime Rate Loans and US Base Rate Loans	BA Instruments/ LIBOR Loans / Letters of Credit
≤ 2.0	21.5 bps	7.5 bps	107.5 bps
> 2.0 and ≤ 2.5	24.5 bps	22.5 bps	122.5 bps
> 2.5 and ≤ 3.0	27.5 bps	37.5 bps	137.5 bps
> 3.0 and ≤ 3.5	32.5 bps	62.5 bps	162.5 bps

Effective Interest Rates

The effective interest rates as at December 31, 2019 for the Debentures and Commercial Paper are shown below:

Debentures and Commercial Paper	Principal (\$CAD millions)	Maturity	All-in Rate
Series B Debentures	250.0	Oct. 3, 2023	4.461%
Series D Debentures	300.0	Dec. 11, 2024	2.997%
Series E Debentures	200.0	Jun. 5, 2028	3.779%
Commercial Paper	239.6	Jan. 3, 2020 - Feb. 28, 2020	1.891%

Other Credit and Liquidity Facilities

CDCC maintains daylight liquidity facilities for a total of \$600.0 million to provide liquidity on the basis of collateral in the form of securities that have been received by CDCC. The daylight liquidity facilities must be cleared to zero at the end of each day.

CDCC also maintains a \$20,622.0 million repurchase facility with a syndicate of six Canadian major chartered banks. This facility is in place to provide end-of-day liquidity in the event that CDCC is unable to clear the daylight liquidity facilities to zero or if emergency liquidity is required in the event of a Clearing member default. It will provide liquidity in exchange for securities that have been pledged to or received by CDCC. CDCC has the option to re-size this facility on a quarterly basis in order to stay consistent with its liquidity risk policy. The facility was re-sized from \$18,102.0 million at December 31, 2019 to \$20,622.0 million effective January 10, 2020. On March 1, 2019, this facility was extended from March 1, 2019 to February 28, 2020.

CDCC maintains a \$400.0 million syndicated revolving standby liquidity facility to provide end-of-day liquidity in the event that CDCC is unable to clear the daylight liquidity facilities to zero or if emergency liquidity is required in the event of a Clearing member default. Advances under the facility are secured by collateral in the form of securities that have been pledged to or received by CDCC. As at December 31, 2019, CDCC had drawn \$8.2 million on the syndicated

revolving standby liquidity facility to facilitate a failed REPO settlement. The amount drawn when required, is fully collateralized by liquid securities included in cash and cash equivalents and fully re-paid subsequent to the reporting date. In addition, CDCC has an agreement that would allow the Bank of Canada to provide emergency liquidity to CDCC at the discretion of the Bank of Canada. This facility is intended to provide end-of-day liquidity in the event that CDCC is unable to access liquidity from the revolving standby liquidity facility and the syndicated REPO facility or in the event that the liquidity under such facilities is insufficient. Use of this facility would be on a fully collateralized basis. On February 28, 2019, this facility was extended from March 1, 2019 to February 28, 2020.

CDS maintains unsecured operating demand loans totaling \$5.0 million to support short-term operating requirements. To support processing and settlement activities of Participants, an unsecured overdraft facility of \$5.0 million, demand loan of \$15.0 million and an overnight facility of US\$5.5 million are available. The borrowing rates for these facilities are the Canadian prime rate or the U.S. base rate, depending on the currency drawn.

CDS also has a US\$720.0 million, or Canadian dollar equivalent, secured standby liquidity facility with a syndicate of banks to support processing and settlement activities in the event of a Participant default. This agreement was also amended so the facility is available to support processing and settlement activities in the event of a Participant default in the New York Link Service and The Depository Trust Company Direct Link Service. The terms of the facility permits CDS to increase the amount available by an additional US\$600.0 million or Canadian equivalent, with approval of the lenders. Borrowings under the secured facility are obtained by pledging or providing collateral pledged by Participants primarily in the form of debt instruments issued or guaranteed by federal, provincial and/or municipal governments in Canada or U.S. treasury instruments and equity instruments. The facility can be drawn in either U.S. or Canadian currencies and depending upon the currency drawn, the borrowing rate for the secured standby liquidity facility is the U.S. base rate plus 150 bps or the Canadian prime rate plus 150 bps. On March 25, 2019, CDS extended the maturity date to March 24, 2020.

On March 27, 2018, CDS also entered into a secured standby liquidity facility of \$2.0 billion or US equivalent that can be drawn in either Canadian or US currency. This arrangement is available to support settlement activities in the event of a Participant default with CDS's Continuous Net Settlement service. The terms of the facility permits CDS to increase the amount available by an additional \$500.0 million or US equivalent, with approval of the lenders. Borrowings under this secured facility are obtained by pledging or providing collateral pledged by Participants primarily in the form of debt and equity instruments. Depending on the currency drawn, the borrowing rate for the secured standby liquidity facility is the US base rate plus 150 bps or the Canadian prime rate plus 150 bps. On March 25, 2019, CDS extended the maturity date to March 24, 2020.

In addition, CDS has an agreement that would allow the Bank of Canada to provide emergency last-resort liquidity to CDS at the discretion of the Bank of Canada. This liquidity facility is intended to provide end-of-day liquidity for payment obligations arising from CDSX, and only in the event that CDS is unable to access liquidity from its standby liquidity facility or in the event that the liquidity under such facilities is insufficient. Use of this facility would be on a fully collateralized basis.

In compliance with PFMI and additional Canadian regulatory and oversight guidance, CDS and CDCC each maintain a recovery plan, to be applied in the event that the entity is unable to provide defined critical operations and services as a going concern. These recovery plans are filed with their respective Canadian regulators. In connection with the recovery plans, and if certain funding conditions are met, TMX Group agreed to provide certain limited financial support to CDS and CDCC, if necessary, in the context of a recovery.

Shorcan maintains a facility with a major chartered bank to provide end of day liquidity to cover any shortfalls due to timing of payments and receipts. Utilization of this facility is secured by collateral in the form of securities.

Contractual Obligations

(in millions of dollars)

		December 31, 2019		
	Total	Less than 1 year	Between 1 and 5 years	Greater than 5 years
Participants' tax withholdings*	151.5	151.5	—	—
Accrued interest payable	3.8	3.8	—	—
Other trade and other payables	61.0	61.0	—	—
Provisions	16.1	7.9	8.2	—
Lease liabilities	103.7	8.3	32.2	63.2
Balances with Participants and Clearing Members*	26,588.9	26,588.9	—	—
Total return swaps	1.1	1.1	—	—
Commercial Paper	239.6	239.6	—	—
Debentures	747.1	—	548.2	198.9

*The above financial liabilities are covered by assets that are restricted from use in the ordinary course of business.

MANAGING CAPITAL

The Company's primary objectives in managing capital, which we define to include our cash and cash equivalents, marketable securities, share capital, Commercial Paper, Debentures, and various credit facilities, include:

- Maintaining sufficient capital for operations to ensure market confidence and to meet regulatory requirements and credit facility requirements (see **Commercial Paper, Debentures, Credit and Liquidity Facilities** for a description of certain financial covenants under the Credit Agreement). Currently, we target to retain a minimum of \$185.0 million in cash, cash equivalents and marketable securities. This amount is subject to change;
- Maintaining a credit rating in a range consistent with the Company's current A (high) and R1-low credit ratings from DBRS;
- Using excess cash to invest in and continue to grow the business;
- Returning capital to shareholders through methods such as dividends paid to shareholders and purchasing shares for cancellation pursuant to normal course issuer bids; and
- Reducing the debt levels to be below the total leverage ratios as discussed in (a) below, which decrease over time.

TMX Group aims to achieve the above objectives while managing its capital subject to capital maintenance requirements imposed on TMX Group and certain subsidiaries as follows:

- In respect of the TMX Group Limited credit facility that requires TMX Group to maintain:
 - an interest coverage ratio of more than 4.0:1;
 - a total leverage ratio of not more than 3.50:1
- In respect of TSX, as required by the OSC to maintain certain financial ratios on both a consolidated and non-consolidated basis, as defined in the OSC recognition order, as follows:
 - a current ratio of greater than or equal to 1.1:1;

- ii. a debt to cash flow ratio of less than or equal to 4.0:1; and
 - iii. a financial leverage ratio of less than or equal to 4.0:1.
- c. In respect of Alpha Exchange Inc., as required by the OSC to maintain certain financial ratios as defined in the OSC recognition order, as follows:
 - i. a current ratio of greater than or equal to 1.1:1;
 - ii. a debt to cash flow ratio of less than or equal to 4.0:1; and
 - iii. a financial leverage ratio of less than or equal to 4.0:1.
- d. In respect of TSX Venture Exchange, as required by certain provincial securities commissions, to maintain sufficient financial resources to perform its functions.
- e. In respect of MX, as required by the AMF, to maintain certain financial ratios as defined in the AMF recognition order, as follows:
 - i. a working capital ratio of more than 1.5:1;
 - ii. a cash flow to total debt outstanding ratio of more than 20%; and
 - iii. a financial leverage ratio of less than 4.0.
- f. In respect of CDCC, to maintain certain amounts, as follows:
 - i. maintain sufficient financial resources as required by the OSC and AMF;
 - ii. \$5.0 million cash and cash equivalents or marketable securities as part of the Clearing Member default recovery process plus an additional \$5.0 million in the event that the initial \$5.0 million is fully utilized during a default;
 - iii. sufficient cash, cash equivalents and marketable securities to cover 12 months of operating expenses, excluding amortization and depreciation; and
 - iv. \$30.0 million total shareholder's equity.
- g. In respect of CDS and CDS Clearing, as required by the OSC and the AMF to maintain certain financial ratios as defined in the OSC recognition order, as follows:
 - i. a debt to cash flow ratio of less than or equal to 4:1; and
 - ii. a financial leverage ratio of less than or equal to 4:1.
 - iii. In addition, the OSC requires CDS and CDS Clearing to maintain working capital to cover 6 months of operating expenses (excluding, in the case of CDS, the amount of shared services fees charged to CDS Clearing).
 - iv. CDS is required to dedicate a portion of its own resources in the CNS default waterfall for the CNS function. The Company maintains \$1.0 million in cash and cash equivalents or marketable securities to cover potential losses incurred as a result of a Participant default.
- h. In respect of Shorcan:
 - i. by IIROC which requires Shorcan to maintain a minimum level of shareholders' equity of \$0.5 million;
 - ii. by the National Futures Association ("NFA") which requires Shorcan to maintain a minimum level of net capital; and

- iii. by the OSC which requires Shorcan to maintain a minimum level of excess working capital.
- i. In respect of TSX Trust:
 - i. as required by the Office of the Superintendent of Financial Institutions, to maintain the following minimum capital ratios:
 - 1. common equity tier 1 capital ratio of 7%;
 - 2. tier 1 capital ratio of 8.5%; and
 - 3. total capital ratio of 10.5%
 - ii. as required by IIROC, to maintain in excess of \$100.0 million of paid up capital and surplus on the last audited balance sheet for the acceptable institution designation.

As at December 31, 2019, we were in compliance with each of these externally imposed capital requirements.

FINANCIAL INSTRUMENTS

Cash, Cash Equivalents and Marketable Securities

Our financial instruments include cash, cash equivalents and investments in marketable securities which are held to earn investment income. Marketable securities consist of Federal and Provincial treasury bills.

We have designated our marketable securities as fair value through profit and loss. Fair values have been determined by reference to quoted market prices.

The primary risks related to cash, cash equivalents and marketable securities are credit risk, market risk and liquidity risk. For a description of these risks, please refer to **Credit Risk - Cash and cash equivalents**, **Credit Risk – Marketable Securities**, **Market Risk - Interest Rate Risk – Marketable Securities**, **Liquidity Risk - Cash and cash equivalents** and **Liquidity Risk - Marketable securities**.

Restricted Cash and Cash Equivalents

Restricted cash and cash equivalents contains tax withheld by CDS on entitlement payments made by CDS on behalf of CDS participants. The restricted cash and cash equivalents related to this withheld tax is ultimately under the control of CDS; however, the amount is payable to various taxation authorities within a relatively short period of time and so is restricted from use in normal operations. An equivalent and offsetting amount is included in the consolidated balance sheet under the caption Participants' tax withholdings. At December 31, 2019, we had restricted cash and cash equivalents of \$151.5 million.

The primary risks related to restricted cash and cash equivalents are credit risk and liquidity risk. For a description of these risks, please refer to **Credit Risk - Restricted Cash and cash equivalents** and **Liquidity Risk - Restricted Cash and cash equivalents**.

Trade Receivables

Our financial instruments include accounts receivable, which represents amounts that our customers owe us. The carrying value is based on the actual amounts owed by the customers, net of loss allowances for trade receivables measured at an amount equal to lifetime expected credit losses, calculated using historical credit loss experience taking

into account current observable data at the reporting date to reflect the effects of any relevant current market conditions and forecasts of future economic conditions.

The primary risks related to trade receivables are credit risk and market risk. For a description of these risks, please refer to **Credit Risk – Trade Receivables and Market risk - Foreign Currency Risk**.

CDS – Participant cash collateral and entitlements and other funds

As part of CDS's clearing operations, CDS Participant Rules require participants to pledge collateral to CDS in the form of cash or securities in amounts calculated in relation to their activities. Cash pledged and deposited with CDS is recognized as an asset and an equivalent and offsetting liability is recognized as these amounts are ultimately owed to the participants. There is no impact on the consolidated income statement. Securities pledged do not result in an economic inflow to CDS, and therefore, are not recognized.

The primary risks associated with these financial instruments are credit risk, market risk and liquidity risk. For a description of these risks, please refer to **Credit Risk – CDS, Other Market Price Risk – CDS, Market Risk - Foreign Currency Risk, Liquidity Risk - Balances with Clearing members and participants, Liquidity Risk - New York Link service - CDS and Liquidity Risk - Credit and liquidity facilities - Clearing operations**.

CDCC – Daily Settlements due to and due from Clearing Members

As part of CDCC's clearing operations, amounts due from and to Clearing Members as a result of marking to market open futures positions and settling options transactions each day are required to be collected from or paid to Clearing Members prior to the commencement of trading the next day. The amounts due from and due to Clearing Members are recognized in the consolidated assets and liabilities as Balances with Participants and Clearing Members. There is no impact on the consolidated statements of income.

CDCC – Clearing Members' cash margin deposits and clearing fund cash deposits

These balances represent the cash deposits of Clearing Members held in the name of CDCC as margins against open positions and as part of the clearing fund. The cash held is recognized as an asset and an equivalent and offsetting liability is recognized as these amounts are ultimately owed to the Clearing Members. There is no impact on the consolidated income statement.

CDCC – Net amounts receivable/payable on open REPO agreements

CDCC clears fixed income REPO agreements. OTC REPO agreements between buying and selling Clearing Members are novated to CDCC whereby the rights and obligations of the Clearing Members under the REPO agreements are cancelled and replaced by new agreements with CDCC. Once novation occurs, CDCC becomes the counterparty to both the buying and selling Clearing Member. As a result, the contractual right to receive and return the principal amount of the REPO as well as the contractual right to receive and pay interest on the REPO is thus transferred to CDCC. These balances represent outstanding balances on open REPO agreements. Receivable and payable balances outstanding with the same Clearing Member are offset when they are in the same currency and are to be settled on the same day, as CDCC has a legally enforceable right to offset and the intention to net settle. The balances include both the original principal amount of the REPO and the accrued interest, both of which are carried at amortized cost. As CDCC is the central counterparty, an equivalent amount is recognized in both TMX Group's assets and liabilities.

The primary risks associated with these financial instruments are credit risk, market risk and liquidity risk. For a description of these risks, please refer to **Credit Risk - CDCC, Other Market Price Risk - CDCC, Liquidity Risk - Balances with Clearing members and participants and Liquidity Risk - Credit and liquidity facilities - Clearing operations**.

Commercial Paper

TMX Group maintains a Commercial Paper Program to offer potential investors up to \$500.0 million (or the equivalent U.S. dollars) of Commercial Paper to be issued in various maturities of up to one year from the date of issue. The Commercial Paper bears interest rates based on the prevailing market conditions at the time of issuance. The Commercial Paper Program is supported by the Credit Agreement. The Commercial Paper issued represents an unsecured obligation and ranks equally with all other senior unsecured obligations of TMX Group. The Commercial Paper has been assigned a rating of “R-1 (low)” with a Stable trend by DBRS.

The Commercial Paper is subject to market risk and liquidity risk. For a description of these risks, please refer to **Market Risk – Interest Rate Risk - Commercial Paper and Debentures, Market Risk - Foreign Currency Risk and Liquidity Risk - Commercial Paper, Debentures and Credit Facility.**

Debentures

TMX Group has the following Debentures outstanding: a \$250-million Series B Debentures with a 4.461% coupon and a 10-year term, a \$300.0-million principal amount Series D Debentures with a 2.997% coupon and a 7-year term, and a \$200.0-million Series E Debentures with a 3.779% coupon and a 10-year term. The Debentures received and maintain a credit rating of A (high) with a Stable trend from DBRS. The fair value of the Debentures was obtained using market prices as inputs.

The Debentures are subject to market risk and liquidity risk. For a description of these risks, please refer to **Market Risk – Interest Rate Risk - Commercial Paper and Debentures and Liquidity Risk - Commercial Paper, Debentures and Credit Facility.**

Total Return Swaps (TRS)

We have entered into a series of TRSs, which synthetically replicate the economics of purchasing our shares as a partial economic hedge to the share appreciation rights of the RSUs and DSUs.

We have classified our series of TRSs as fair value through profit and loss and mark to market the fair value of the TRSs as an adjustment to income. We also simultaneously mark to market the liability to holders of the units as an adjustment to income. Fair value is based on the share price of our common shares at the end of the reporting period. The fair value of the TRSs and the obligation to unit holders are reflected on the consolidated balance sheet. The contracts are settled in cash upon maturity.

For the year ended December 31, 2019, unrealized losses and realized gains on the TRSs of \$2.8 million and \$10.8 million, respectively have been reflected in the consolidated income statement (2018 – unrealized losses and realized gains of \$3.7 million and \$6.0 million, respectively).

TRSs are subject to credit risk and market risk. For a description of this risk, please refer to **Credit Risk – All Other and Market Risk**

CRITICAL ACCOUNTING ESTIMATES

Goodwill and Intangible Assets – Valuation and Impairment Testing

We recorded goodwill and intangible assets valued at \$5,041.2 million as at December 31, 2019, down by \$13.7 million from \$5,054.9 million at December 31, 2018. Management has determined that the testing for impairment of goodwill and intangible assets involves making critical accounting estimates.

Goodwill is recognized at cost on acquisition less any subsequent impairment in value. We measure goodwill arising on a business combination as the fair value of the consideration transferred less the fair value of the identifiable assets acquired and liabilities assumed, all measured as of the acquisition date.

Intangible assets are recognized at cost less accumulated amortization, where applicable, and any impairment in value. Cost includes any expenditure that is directly attributable to the acquisition of the asset. The cost of internally developed assets includes the cost of materials and direct labour, and any other costs directly attributable to bringing the assets to a working condition for their intended use.

Assets are considered to have indefinite lives where management believes that there is no foreseeable limit to the period over which the assets are expected to generate net cash flows.

We test for impairment as follows:

The carrying amounts of our goodwill and intangible assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Goodwill and intangible assets that have indefinite useful lives or that are not yet available for use, are tested for impairment at least annually even if there is no indication of impairment, and the recoverable amount is estimated each year at the same time.

For the purpose of impairment testing, assets that cannot be tested individually are grouped together into the smallest group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows of other assets or groups of assets (the cash-generating unit, or CGU). For the purposes of goodwill impairment testing, goodwill acquired in a business combination is allocated to the CGU, or the group of CGUs, that is expected to benefit from the synergies of the combination and reflects the lowest level at which that goodwill is monitored for internal reporting purposes.

The recoverable amount of an asset or CGU is based on the higher of the value in use or fair value. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. The cash flow projections cover a period of five years with the exception of *Capital Formation - Listings*, which covers seven years and Global Solutions, Insights and Analytics - Trayport, which covers eight years.

An impairment loss is recognized if the carrying amount of an asset, or its CGU, exceeds its estimated recoverable amount. Impairment losses recognized in respect of CGUs are allocated first to reduce the carrying amount of any goodwill allocated to the units, and then to reduce the carrying amounts of the other assets in the unit on a pro rata basis. Impairment losses along with any related deferred income tax effects are recognized in the consolidated income statement.

There was a non-cash impairment related to the goodwill associated with Shorcan of \$18.0 million for 2019 (see **RESULTS OF OPERATIONS - Impairment Charge**).

Considerable judgement is required to predict future operating performance and to estimate cash flows. Economic weakness due to macroeconomic factors moderating activity and heightening risks may impact our business. Such factors include the U.S.-China trade conflict, softened international trade and investment, and financial market pressures. These factors could result in future impairment charges related to goodwill and intangible assets. A significant impairment charge in the future could have a significant impact on our reported net income.

Capital Formation – Listings

In 2019, management updated its growth projections. Management has identified three key assumptions, the pre-tax discount rate, the terminal growth rate, and the cash flow projections, that have a significant impact on the estimate of the recoverable amount.

Equities Trading

In 2019, management updated its growth projections. Based on current assumptions, the recoverable amount for Equities Trading remains above carrying value, and as such no impairment has been identified. Management has identified three key assumptions, the pre-tax discount rate, the terminal growth rate, and the cash flow projections, that have a significant impact on the estimate of the recoverable amount.

CDS

In 2019, management updated its growth projections. Based on current assumptions, the recoverable amount for the CDS CGU remains above carrying value, and as such no impairment has been identified. Management has identified three key assumptions, the pre-tax discount rate, the terminal growth rate, and the cash flow projections, that have a significant impact on the estimate of the recoverable amount.

Derivatives Trading and Clearing - MX/CDCC

In 2019, management updated its growth projections. Based on current assumptions, the recoverable amount for Derivatives Trading and Clearing remains above carrying value, and as such no impairment has been identified. Management has identified three key assumptions, the pre-tax discount rate, the terminal growth rate, and the cash flow projections, that have a significant impact on the estimate of the recoverable amount.

Global Solutions, Insights & Analytics - TMX Datalinx

In 2019, management updated its growth projections. Management has determined that the TMX Datalinx CGU may be subject to a reasonably possible change to one or more of the key assumptions used to determine the recoverable amount, which could cause this CGU to become impaired. Management has identified three key assumptions, the pre-tax discount rate, the terminal growth rate, and the cash flow projections, that have a significant impact on the estimate of the recoverable amount. Changes in these assumptions that would cause the carrying value to equal the recoverable amount are a 3.8% reduction in the terminal growth rate or a 18.1% decrease in cash flow.

Global Solutions, Insights & Analytics - Trayport

In 2019, management updated its growth projections. Based on current assumptions, the recoverable amount for Trayport remains above carrying value, and as such no impairment has been identified. Management has identified three key assumptions, the pre-tax discount rate, the terminal growth rate, and the cash flow projections, that have a significant impact on the estimate of the recoverable amount.

Other - Shorcan

At December 31, 2019, we determined that the fair value of the Shorcan CGU was lower than its carrying amount. This fair value of Shorcan had declined below the carrying value primarily due to lower revenue projections for the business. This resulted in a non-cash impairment charge of \$18.0 million.

In making this assessment of the fair value of Shorcan, we utilized a value in use calculation. The value in use for Shorcan was determined using a discounted cash flow methodology based on management's best estimate of the forecasted cash flows.

Select Annual Information

(in millions of dollars except per share amounts)	2019	2018	2017
Revenue	\$ 806.9	\$ 820.7	\$ 668.9
Net income from continuing operations	247.6	286.0	191.2
Net income	247.6	286.0	368.0
Total assets (as at December 31)	32,359.7	31,657.9	25,624.8
Non-current liabilities (as at December 31)	1,707.6	1,615.7	1,433.3
Earnings per share - from continuing operations			
Basic	4.42	5.14	3.46
Diluted	4.38	5.10	3.43
Earnings per share:			
Basic	4.42	5.14	6.66
Diluted	4.38	5.10	6.60
Adjusted earnings per share: ³⁶			
Basic	5.36	5.20	4.69
Diluted	5.31	5.16	4.65
Cash dividends declared per common share	2.52	2.24	1.95

2019 compared with 2018

(See **RESULTS OF OPERATIONS and LIQUIDITY AND CAPITAL RESOURCES - Year ended December 31, 2019 (2019) compared with Year ended December 31, 2018 (2018)**)

2018 compared with 2017

Revenue

Revenue was \$820.7 million in the year ended December 31, 2018, up \$151.8 million or 23% compared with \$668.9 million in the year ended December 31, 2017. There was an increase in Global Solutions, Insights and Analytics revenue reflecting approximately \$111.7 million in revenue from Trayport in 2018 compared with approximately \$4.5 million in 2017 (acquired on December 14, 2017), partially offset by \$8.6 million decrease in revenue from TMX Atrium (sold on April 30, 2017). With increased revenue in all operating segments, our organic revenue growth in 2018 was 8% (based on revenue of \$820.7 million less Trayport revenue of \$111.7 million and TMX FTSE revenue of \$1.0 million for 2018, and revenue of \$668.9 million for 2017 less Trayport revenue of approximately \$4.5 million for Q4/17, TMX Atrium revenue of \$8.6 million to April 30, 2017 and TMX FTSE revenue of \$2.3 million).

Net income, Earnings per share and Adjusted earnings per share

Net income in the year ended December 31, 2018 was \$286.0 million, or \$5.14 per common share on a basic basis and \$5.10 per common share on a diluted basis, compared with net income of \$368.0 million, or \$6.66 per common share on a basic and \$6.60 on a diluted basis, for the year ended December 31, 2017. Net income for 2017 included a gain of \$157.8 million from the sale of NGX and Shorcan Energy as well as a gain on FX forwards relating to the Trayport acquisition. In addition, net income for 2017 included income of \$19.1 million, net of tax, from January 1, 2017 to December 14, 2017 for

³⁶ See discussion under the heading "Non-IFRS Financial Measures".

NGX and Shorcan Energy. However, net income for 2017 was reduced by acquisition costs on the purchase of Trayport and non-cash income tax adjustments relating to a change in the B.C. and U.S. corporate income tax rates. Net income for 2018 included a before and after tax gain on the sale of TMX FTSE of \$26.8 million, an after tax gain of \$0.9 million on the reduction in our shareholding in CanDeal, and an after tax gain of \$2.3 million on the sale of Contigo. In 2018, there was also a net income tax recovery on the gain on sale of NGX, which increased net income.

From an operational perspective, the net decrease in net income described above was partially offset by the impact from higher revenues across each operating segment of our business, which included \$111.7 million related to Trayport (acquired December 14, 2017). The increase was partially offset by higher operating expenses, including \$70.5 million related to Trayport. The overall decrease in basic and diluted earnings per share was also due to an increase in the number of weighted-average common shares outstanding in 2018 compared with 2017 and higher net finance costs.

Adjusted diluted earnings per share³⁷ increased by 11% from \$4.65 in the year ended December 31, 2017 to \$5.16 in the year ended December 31, 2018. The increase in adjusted diluted earnings per share³⁸ reflected higher revenue which included \$111.7 million related to Trayport (acquired December 14, 2017). The increase in revenue was partially offset by higher operating expenses which included \$70.5 million related to Trayport. The increase in adjusted diluted earnings per share³⁹ was partially offset by the impact from an increase in the number of weighted-average common shares outstanding in the year ended December 31, 2018 compared with the year ended December 31, 2017, and higher net finance costs.

Total assets

Our consolidated balance sheet as at December 31, 2018 includes outstanding balances on open REPO agreements within Balances with Participants and Clearing Members. These balances have equal amounts included within Total Liabilities. The increase in Total Assets of \$6,033.1 million from December 31, 2017 reflected higher balances in CDCC at December 31, 2018 partially offset by lower investments in equity accounted investees (sale of our interest in TMX FTSE on April 12, 2018 and reduction in our shareholding in CanDeal on October 26, 2018).

Non-current liabilities

Non-current liabilities as at December 31, 2018 were \$182.4 million higher than as at December 31, 2017. The increase was largely driven by the issuance of \$200.0 million of Series E Debentures in June, 2018.

³⁷ See discussion under the heading "Non-IFRS Financial Measures".

³⁸ See discussion under the heading "Non-IFRS Financial Measures".

³⁹ See discussion under the heading "Non-IFRS Financial Measures".

QUARTERLY FINANCIAL INFORMATION

(in millions of dollars except per share amounts - unaudited)	Dec 31 2019	Sep 30 2019	Jun 30 2019	Mar 31 2019	Dec 31 2018	Sep 30 2018	Jun 30 2018	Mar 31 2018
Capital Formation	\$42.6	\$43.7	\$52.6	\$41.8	\$45.4	\$45.1	\$57.8	\$50.4
Equities and Fixed Income Trading	22.7	23.5	25.6	26.2	28.6	25.1	25.8	29.3
Equities and fixed Income - clearing, settlement, depository and other services (CDS)	28.4	21.8	23.0	22.3	26.3	20.3	21.0	21.8
Derivatives Trading & Clearing	33.3	33.5	33.8	32.6	35.1	30.2	33.3	31.3
Global Solutions, Insights and Analytics	75.9	73.6	75.6	74.6	73.8	72.1	70.7	72.7
Other	(0.1)	0.2	(0.3)	—	2.0	—	0.9	1.7
Revenue	202.8	196.3	210.3	197.5	211.2	192.8	209.5	207.2
Operating expenses	106.3	104.7	106.2	107.3	114.2	106.3	119.7	111.5
Income from operations	96.5	91.6	104.1	90.2	97.0	86.5	89.8	95.7
Net income	47.5	61.7	77.2	61.2	69.8	57.5	95.6	63.1
Earnings per share ⁴⁰								
Basic	0.85	1.10	1.38	1.10	1.25	1.03	1.72	1.14
Diluted	0.84	1.09	1.37	1.09	1.24	1.02	1.71	1.13

Q4/19 compared with Q4/18

- Revenue was \$202.8 million in Q4/19, down \$8.4 million or 4% from \$211.2 million in Q4/18 largely attributable to decreases in revenue from *Capital Formation*, *Equities and Fixed Income Trading*, *Derivatives Trading and Clearing* as well as *Other* revenue, somewhat offset by an increase in Trayport and CDS revenue.
- Operating expenses in Q4/19 were 106.3 million, down \$7.9 million or 7%, from \$114.2 million in Q4/18. The decrease in costs was largely related to lower short term and long term employee performance incentive plan costs of \$7.2 million. Offsetting this decrease, certain recoverable costs related to CDS's clearing operation, previously netted, are now included in both CDS revenue and *Selling, general and administration* expenses. The amounts reclassified to *Selling, general and administration* expenses were \$5.3 million for Q4/19 and \$3.6 million for Q4/18.
- Net income in Q4/19 was \$47.5 million, or \$0.85 per common share on a basic and \$0.84 on a diluted basis, compared with a net income of \$69.8 million, or \$1.25 per common share on a basic and \$1.24 on a diluted basis, for Q4/18. The decrease in net income and earnings per share was driven by a non-cash impairment charge of \$18.0 million related to Shorcan and lower revenue largely offset by lower operating expenses. The decrease in diluted earnings per share was also driven by an increase in the number of weighted-average common shares outstanding in Q4/19 compared with Q4/18.

⁴⁰ Earnings per share information is based on net income.

- In Q4/19, Cash flows from operating activities increased compared with Q4/18 reflecting an increase in cash related to trade and other receivables, and prepaid expenses, other assets and liabilities as well as trade and other payables. The increases were somewhat offset by an increase in income taxes paid.
- In Q4/19, Cash flows used in financing activities decreased from Q4/18 to Q4/19. In Q4/18, we used \$400.0 million of cash to repay our Series A Debentures. There was also a decrease of \$5.0 million in interest paid from Q4/18 to Q4/19. However, during Q4/19 there was a net increase in cash of \$348.0 million used in financing activities to redeem Commercial Paper.
- In Q4/19, Cash flows used in investing activities were higher than in Q4/18 when we generated cash from investing activities. There was a decrease in cash of \$32.5 million in Q4/19 compared with Q4/18 related to the net purchase of marketable securities. In addition, during Q4/18, we received proceeds from the sale of investments and businesses of \$13.5 million.

Q4/19 compared with Q3/19

- *Revenue* was \$202.8 million in Q4/19, up \$6.5 million from Q3/19 reflecting increases in CDS and *Global Solutions, Insights and Analytics* revenue. Certain recoverable costs related to CDS's clearing operation, previously netted, are now included in both CDS revenue and *Selling, general and administration* expenses. The amount reclassified to CDS revenue in Q4/19 was \$5.3 million. The increases were partially offset by decreases in *Capital Formation*, and *Equities and Fixed Income Trading* revenue.
- *Operating expenses* increased from Q3/19 to Q4/19. Certain recoverable costs related to CDS's clearing operation, previously netted, are now included in both CDS revenue and *Selling, general and administration* expenses. The amount reclassified to *Selling, general and administration* expenses in Q4/19 was \$5.3 million. There was also an increase in operating costs related to *Selling, general and administration* expenses, including project spending and fees, as well as staffing costs. These increases were largely offset by a decrease in short term and long term employee performance incentive plan costs of approximately \$2.3 million and approximately \$8.0 million, respectively. The latter costs decreased by approximately \$4.0 million due to the decrease in our share price between Q3/19 and Q4/19 as well as the reversal of an accrual of approximately \$4.0 million relating to long term employee performance incentives that were forfeited upon the execution of an agreement on January 10, 2020 in respect of the CEO's retirement.
- *Income from operations* increased from Q3/19 to Q4/19 due to the higher revenue, which was partially offset by the higher operating expenses.
- *Net income* in Q4/19 was \$47.5 million, or \$0.85 per common share on a basic and \$0.84 on a diluted basis, compared with net income of \$61.7 million, or \$1.10 per common share on a basic and \$1.09 on a diluted basis in Q3/19. The decrease in net income was largely driven by impairment charges of \$18.0 million in Q4/19 related to Shorcan.

Q3/19 compared with Q2/19

- *Revenue* was \$196.3 million in Q3/19, down \$14.0 million from Q2/19 reflecting decreases in all segments including *Capital Formation* driven by lower additional listing fees, *Equities and Fixed Income Trading & Clearing*, and *Global Solutions, Insights and Analytics*.
- *Operating expenses* decreased in Q3/19 compared with Q2/19 reflecting a reduction in Strategic re-alignment expenses, a decrease in project spending and fees as well as increased recoverable expenses. The decreases were somewhat offset by an increase of approximately \$3.9 million in long term employee performance incentive plan costs driven by the increase in our share price.
- *Income from operations* decreased from Q2/19 to Q3/19 due to lower revenue partially offset by lower operating expenses.
- *Net income* in Q3/19 was \$61.7 million, or \$1.10 per common share on a basic and \$1.09 on a diluted basis, compared with net income of \$77.2 million, or \$1.38 per common share on a basic and \$1.37 on a diluted basis in Q2/19. There were lower revenues in Q3/19 compared with Q2/19 partially offset by lower operating expenses.

Q2/19 compared with Q1/19

- *Revenue* was \$210.3 million in Q2/19, up \$12.8 million from Q1/19 reflecting increases in *Capital Formation* driven by higher additional listing fees, *Derivatives Trading & Clearing*, and *Global Solutions, Insights and Analytics* driven by Trayport.
- *Operating expenses* were down in Q2/19 compared with Q1/19 reflecting lower strategic re-alignment costs, reduced payroll taxes and pension adjustments as well as lower *Depreciation and Amortization* costs. The decreases were largely offset by higher severance costs, project spending, long-term employee performance incentive plan costs as well as expenses and transaction costs related to VisoTech (acquired May 15, 2019).
- *Income from operations* increased from Q1/19 to Q2/19 largely reflecting the higher revenue and also the lower operating expenses.
- *Net income* in Q2/19 was \$77.2 million, or \$1.38 per common share on a basic and \$1.37 on a diluted basis, compared with net income of \$61.2 million, or \$1.10 per common share on a basic and \$1.09 on a diluted basis in Q1/19. There were significantly higher revenues and also lower operating expenses in Q2/19 compared with Q1/19. There was also a gain on sale of interest in Bermuda Stock Exchange of approximately \$2.0 million after tax (4 cents per basic and diluted share) and a deferred income tax recovery of \$4.3 million related to a decrease in the Alberta corporate income tax rate (8 cents per basic and diluted share) in Q2/19.

Q1/19 compared with Q4/18

- *Revenue* was \$197.5 million in Q1/19, down \$13.7 million from Q4/18 reflecting decreases in *Capital Formation, Equities and Fixed Income Trading & Clearing, Derivatives Trading & Clearing*, and *Other* partially offset by an increase in *Global Solutions, Insights and Analytics* driven by Trayport. Certain recoverable costs related to CDS's clearing operation, previously netted, were included in both CDS revenue and *Selling, general and administration* expenses for Q4/19 and Q4/18. The amount reclassified to CDS revenue in Q4/18 was \$3.6 million.
- *Operating expenses* were down in Q1/19 compared with Q4/18 reflecting a decrease of \$1.1 million related to Contigo (sold November 30, 2018), lower employee performance incentive plan costs of \$1.7 million, lower severance costs of \$2.5 million, lower project spend of \$2.5 million, and lower *Information and trading systems* spend of \$2.5 million. These decreases were somewhat offset by increased payroll taxes of \$3.5 million and strategic re-alignment expense of \$3.3 million in Q1/19. In addition, certain recoverable costs related to CDS's clearing operation, previously netted, were included in both CDS revenue and *Selling, general and administration* expenses for Q4/19 and Q4/18. The amount reclassified to *Selling, general and administration* expenses in Q4/18 was \$3.6 million.
- *Income from operations* decreased from Q4/18 to Q1/19 due to lower revenue partially offset by lower operating expenses.
- *Net income* in Q1/19 was \$61.2 million, or \$1.10 per common share on a basic and \$1.09 on a diluted basis, compared with net income of \$69.8 million, or \$1.25 per common share on a basic and \$1.24 on a diluted basis in Q4/18. Overall, there was lower revenue partially offset by lower operating expenses in Q1/19 compared with Q4/18. There was a gain on sale of Contigo of approximately \$2.3 million after tax (4 cents per basic and diluted share), and a gain on reduction in our shareholding in CanDeal of \$0.9 million after tax (2 cents per basic and diluted share) in Q4/18. In addition, there was a net income tax recovery on gain on sale of NGX resulting in a tax benefit of approximately \$2.0 million (4 cents per basic and diluted share) in Q4/18.

Q4/18 compared with Q3/18

- *Revenue* was \$211.2 million in Q4/18, up \$18.4 million from Q3/18 reflecting increases in all operating segments. Certain recoverable costs related to CDS's clearing operation, previously netted, were included in both CDS revenue and *Selling, general and administration* expenses for Q4/19 and Q4/18. The amount reclassified to CDS revenue in Q4/18 was \$3.6 million.

- *Operating expenses* were up \$7.9 million in Q4/18 compared with Q3/18. There were higher *Information and trading systems* expenses, as well as higher recoverable expenses related to increased revenues in Q4/18 compared with Q3/18. In addition, certain recoverable costs related to CDS's clearing operation, previously netted, were included in both CDS revenue and *Selling, general and administration* expenses for Q4/19 and Q4/18. The amount reclassified to *Selling, general and administration* expenses in Q4/18 was \$3.6 million.
- *Income from operations* increased in Q4/18 from Q3/18 reflecting higher revenue partially offset by higher operating expenses.
- Net income in Q4/18 was \$69.8 million, or \$1.25 per common share on a basic and \$1.24 on a diluted basis compared with net income of \$57.5 million, or \$1.03 per common share on basic and \$1.02 on a diluted basis in Q3/18. There was a gain on the sale of Contigo of approximately \$2.3 million after tax (4 cents per basic and diluted share), and a gain on reduction in our shareholding in CanDeal of \$0.9 million after tax (2 cents per basic and diluted share) in Q4/18. In addition, there was a net income tax recovery on gain on sale of NGX resulting in a tax benefit of approximately \$2.0 million (4 cents per basic and diluted share) in Q4/18.

Q3/18 compared with Q2/18

- *Revenue* was \$192.8 million in Q3/18, down \$16.7 million from Q2/18 reflecting decreases in *Capital Formation and Derivatives Trading and Clearing* revenue as well as declines in *Equities and Fixed Income Trading and CDS* revenue. The decreases were partially offset by an increase in *Global Solutions Insights and Analytics* revenue. Trayport's revenue was essentially unchanged from Q2/18 to Q3/18.
- *Operating expenses* were down \$13.4 million in Q3/18 compared with Q2/18. In Q2/18 we recorded a commodity tax provision of \$7.6 million and a lease termination payment of \$4.5 million.
- *Income from operations* decreased from Q2/18 to Q3/18 due to the lower revenue partially offset by the lower operating expenses.
- Net income in Q3/18 was \$57.5 million, or \$1.03 per common share on a basic and \$1.02 on a diluted basis compared with net income of \$95.6 million, or \$1.72 per common share on a basic and \$1.71 per share on a diluted basis in Q2/18. In Q2/18, there was a gain on the sale of our interest in TMX FTSE of \$26.8 million before and after income tax (48 cents per basic and diluted share). In addition, during Q2/18, there was a decrease in income tax expense, which reduced our effective tax rate for Q2/18, relating to realizing and utilizing a capital loss. We realized a capital loss on the wind up of a limited partnership, resulting in a tax benefit of approximately \$11.8 million. This capital loss was applied to eliminate income tax otherwise payable of \$3.8 million on the sale of our interest in TMX FTSE in Q2/18 and reduce the income tax of \$8.0 million on our sale of NGX in 2017. Also, the non-taxable portion of the capital gain on the sale of our interest in TMX FTSE resulted in a tax benefit of approximately \$3.3 million. Net income also declined due to the decrease in income from operations from Q2/18 to Q3/18.

Q2/18 compared with Q1/18

- *Revenue* was \$209.5 million in Q2/18, up \$2.3 million from Q1/18 reflecting increases in *Capital Formation and Derivatives Trading and Clearing* revenue largely offset by declines in *Equities and Fixed Income Trading, CDS* and *Global Solutions Insights and Analytics* revenue.
- *Operating expenses* were up \$8.2 million in Q2/18 compared with Q1/18 reflecting a commodity tax provision of \$7.6 million (10 cents per basic and diluted share), a lease termination payment of \$4.5 million (6 cents per basic and diluted share) and higher fees related to liquidity facilities. The increases were partially offset by a decrease in severance costs of approximately \$2.0 million and a decrease in payroll taxes of approximately \$2.1 million.
- *Income from operations* decreased from Q1/18 to Q2/18 due to higher operating expenses partially offset by higher revenue.
- Net income in Q2/18 was \$95.6 million, or \$1.72 per common share on a basic and \$1.71 on a diluted basis compared with net income of \$63.1 million, or \$1.14 per common share on a basic and \$1.13 on a diluted basis in Q1/18. There was a gain on the sale of our interest in TMX FTSE of \$26.8 million before and after income tax (48 cents per basic and diluted share). In addition, during Q2/18, there was a decrease in income tax expense, which reduced our effective

tax rate for Q2/18, relating to realizing and utilizing a capital loss. We realized a capital loss on the wind up of a limited partnership, resulting in a tax benefit of approximately \$11.8 million. This capital loss was applied to eliminate income tax otherwise payable of \$3.8 million on the sale of our interest in TMX FTSE in Q2/18 and reduce the income tax of \$8.0 million on our sale of NGX in 2017. Also, the non-taxable portion of the capital gain on the sale of our interest in TMX FTSE resulted in a tax benefit of approximately \$3.3 million. These increases in net income were somewhat offset by the decrease in *income from operations* from Q1/18 to Q2/18.

ENTERPRISE RISK MANAGEMENT

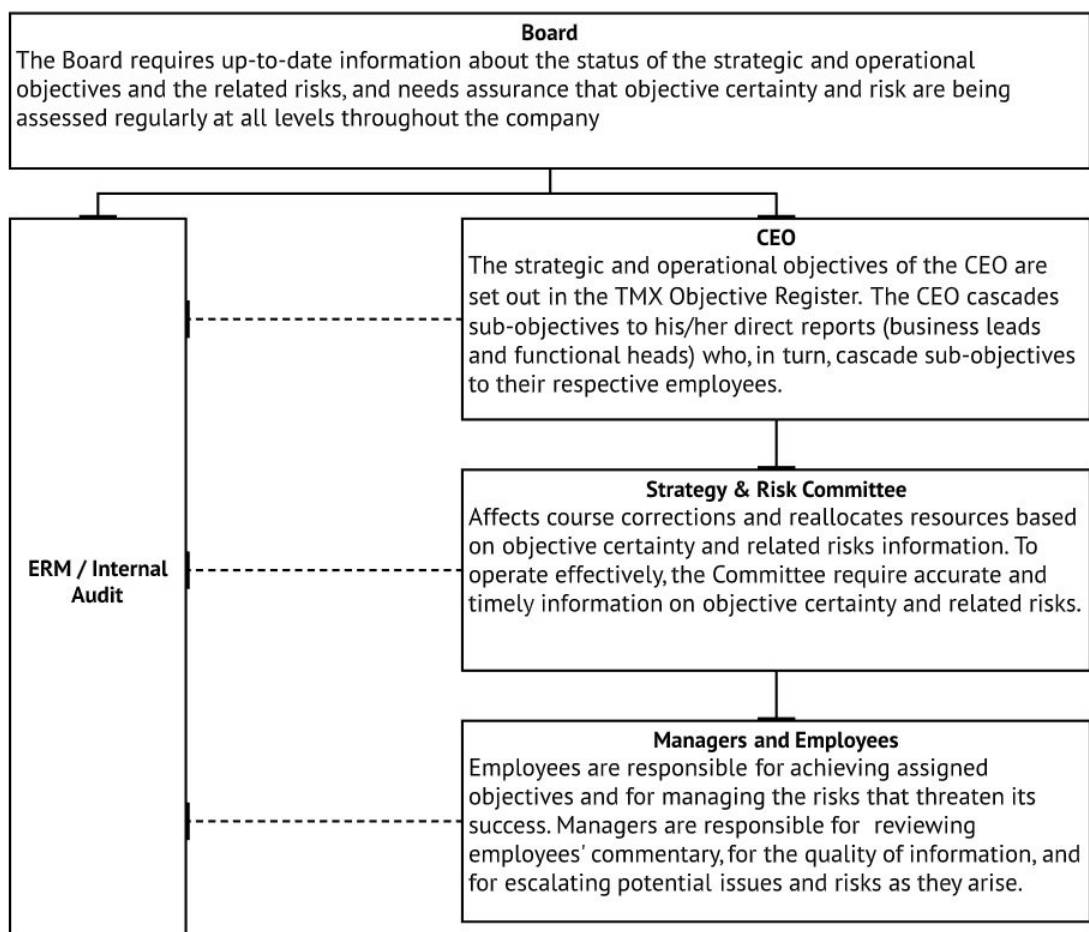
Executive Summary

TMX Group provides essential services to the Canadian capital and global commodity markets and effectively managing objective certainty risk is fundamental to our ability to execute on our enterprise and business strategies. The purpose of enterprise risk management (ERM) is to facilitate and support the businesses in their pursuit of their objectives to ensure the outcomes of these activities across the enterprise are transparent and understood, consistent with our risk appetite, appropriately balance risk and reward, and serve as inputs into the enterprise strategy formulation process.

We have identified a number of principles which guide our management of risks, including the following:

- We promote and maintain an enterprise-wide ethical culture that values the importance of effective risk management in day-to-day business activities and decision making, and encourages frank and open communication.
- Our business units and corporate functions own the objectives, and therefore risks, assumed in their activities and are accountable for the effective management of those risks, supported by the risk management and internal audit functions. TMX uses Five Lines of Accountability (see below) which enhances the Three Lines of Defence model while recognizing the role of senior management and the Board in risk management. We adequately define these roles and responsibilities and associated levels of authority for risk-taking across the enterprise.
- We employ effective and consistent risk management processes across the enterprise to ensure that objectives and risks are transparent, well understood, and remain within an accepted and approved level of risk appetite.
- We employ sufficient resources and effective tools, methods, models and technology to support our risk management processes.
- Our ERM framework reflects industry standards and legal and regulatory requirements, and is regularly reassessed.

The management of risk is essential to the successful execution of our Strategic Plan. Consequently, we have adopted an Objective Centric Risk Management (“OCRM”) approach to risk management. Rather than managing our risks in isolation, we use OCRM to address opportunities, uncertainties and threats to the successful achievement of our objectives. An OCRM approach to risk management does not change the risks faced by our organization. Instead, it ties the process to our objectives which ensures the proper allocation of resources across the enterprise. As illustrated in the diagram below, using OCRM requires senior management, under the supervision of the Board, to (i) clearly define roles across the businesses; (ii) explicitly specify risk and assurance requirements; and (iii) determine the business objectives that warrant more formal and visible risk assessment processes. This ensures the integration of the enterprise's objectives, risks, risk treatments, and performance. The Board has established a set of enterprise objectives and the Strategy and Risk Committee (“SRC”), a management committee of TMX Group, determines the key risks to the successful achievement of our objectives, identifies new or emerging risks, evaluates our execution strategy and allocates resources as required.



Key risks identified are:

Competition: We compete with other exchanges domestically and internationally on listings, cash equities and equity option trading. Muted capital markets activity has created a headwind for raising capital.

Market and Macroeconomic Risk: A significant portion of our revenue comes from trading revenue. Similar to other exchanges, this is highly sensitive to macro conditions. Canada is our largest geographic concentration of revenue. Given the majority of business is conducted domestically, macroeconomic factors such as GDP growth, regulations, interest rates, volatility, and market activity, can impact our business.

Execution Risk: We are exposed to the risk that we lack capabilities or fail to prioritize initiatives to deliver against our strategy and objectives in an efficient and effective manner.

Cyber Risk: Our processes and networks and those of our third-party service providers may be vulnerable to information risks, including unauthorized access, computer viruses, denial of service attacks, and other security issues.

Concentration Risk: A large portion of the Canadian economy is based in natural resources and energy related business and as such, we are exposed to downturns in these sectors as they can impact capital formation business and the trading and clearing activity.

Key Person Risk: Should key senior management positions become vacant there could be a risk in executing our strategy.

These risks and uncertainties are further expanded upon below. The risks and uncertainties discussed in this section are not the only ones facing TMX Group. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business. If any of the following risks actually occur, our reputation, business, financial condition, or operating results could be adversely affected.

Competition Risk

We are exposed to the risk that established and new competitors, including disruptive technology providers, will challenge our business model and objectives.

Our Capital Formation business competes with other exchanges and other financing platforms

We compete for listings with North American exchanges in a broad range of sectors and also internationally, particularly for resource companies and SMEs. We also face competition from North American and international exchanges for Canadian listings. Domestically, we currently compete for listings with two other exchanges.

While some Canadian issuers seek a listing on another major North American or international exchange, historically, the vast majority of these issuers also list on TSX or TSXV and do not bypass our markets. We also compete with institutions and various market participants that offer alternative forms of financing including private equity, venture capital and various forms of debt financing.

TSX, TSXV and TSX Alpha Exchange face competition from other exchanges, other marketplaces and trading mechanisms

We face competition for business from other exchanges, especially those in the U.S. as investing becomes more global. In particular, these competitors could look to attract Canadian issuers that are listed on one of our exchanges. For example, one of our U.S.-based competitors operates a Canadian market. It is possible that this competitor could, in addition to competing for listing and trading of Canadian issuers, enter into other business areas in which we currently operate.

In addition, the variety of other marketplaces and trading venues in the U.S. that trade Canadian securities, including dark markets and internalization facilities, places increasing competitive pressure on our business. For example, some market participants in the U.S., known as wholesalers, are currently able to pay our customers for order flow under U.S. securities laws and regulations. This practice is not permitted in Canada, and therefore puts us at a competitive disadvantage. IIROC published guidance and a technical notice to clarify the requirements for investment dealers when orders in Canadian-listed securities are executed away from Canadian markets, an important step in IIROC's approach to addressing concerns about the routing of orders to the U.S. If we are unable to continue to provide competitive trade execution, the volume traded in all interlisted issuers on our equity exchanges could decrease in the future and adversely affect our operating results. Our combined market share (including TSX, TSXV, and Alpha) of the total volume traded in Canadian based interlisted issues was approximately 31% in 2019, up from 30% in 2018. Our cash equities sales team is focused on attracting more foreign participants and order flow by raising the level of awareness of the benefits of trading on TSX, TSXV and Alpha.

Domestic competition in our cash equities trading business has intensified since the establishment of ATSs in Canada. Technological advances have lowered barriers to entry and have created a multiple marketplace environment for trading TSX and TSXV listed securities. There are currently 15 Canadian equity marketplaces which trade TSX and/or TSXV listed securities, including dark and visible trading venues. There are also sophisticated mechanisms to internalize order flow, liquidity aggregators and smart order routers that facilitate trading on other venues. New market entrants have fragmented domestic equities market share and we continue to face significant competitive pressure from existing venues, and potential

new entrants. Excluding intentional crosses, in the issues we trade, our combined domestic equities trading market share was 65%⁴¹ in 2019, down from 67% 2018. We only trade securities that are listed on TSX or TSXV. Excluding intentional crosses, in all listed issues in Canada, our combined domestic equities trading market share was 57% in 2019, down from 58% 2018.

These trading venues may, among other things, respond more quickly to competitive pressures, develop similar or alternative products and services to those that TSX, TSXV and Alpha offer that are preferred by customers, develop and expand their network infrastructures and offerings more efficiently, adapt more swiftly to new or emerging technologies and changes in customer requirements, and adopt better, more user friendly and reliable technology. If these trading venues attract significant order flow, or other market structure changes occur in the marketplace which negatively impacts our ability to effectively compete, our listing, trading and GSIA revenue could be materially adversely affected.

There is also intense price competition in the cash equities markets where competitors may price their trading and data products more attractively. While we have developed a pricing mix to attract greater liquidity to our markets, the competitive environment in which we operate places significant pricing pressures on our trading and market data offerings. Some competitors may seek to increase their share of trading by reducing their transaction fees, by offering larger liquidity payments, by offering inverted pricing and/or by offering other forms of financial or other incentives. We have in the past lowered our equity trading fees and we may, in the future, be required to adjust our pricing to respond to competitive pricing pressure. If we are unable to compete successfully with respect to the pricing of our offerings, our business, financial condition and results of operations could be materially adversely affected.

MX and CDCC face competition from other venues

While MX is the only Canadian financial derivatives exchange offering standardized products and CDCC the only clearing house headquartered in Canada clearing such products, their various component activities are exposed. MX already competes with, among others, options and other derivatives exchanges as well as the OTC market. This competition exists particularly in the US, but also in Europe and Asia. For example, in the U.S., MX competes for market share of trading single stock options and share futures on Canadian-based inter-listings, or dual listings. However, options and share futures traded in the U.S. are not fungible with those traded in Canada. In addition, OTC regulatory reform that is underway in Canada could encourage the entry of new competition within the Canadian clearing space. OTC inter-dealer and dealer-to-client trading platforms represent increased competitive risk to MX with their lookalike and substitute products. We may, in the future, also face competition from other Canadian marketplaces. These competitors may, among other things, respond more quickly to competitive pressures, develop similar products to those MX offers that are preferred by customers or they may develop alternative competitive products. Furthermore, they may price their products more competitively, develop and expand their network infrastructures and offerings more efficiently, adapt more swiftly to new or emerging technologies and changes in customer requirements and use better, more user friendly and reliable technology. Increased competition could lead to reduced interest in MX's products which could materially adversely affect our business and operating results.

The Canadian clearing services market may become more competitive as some competitors receive recognition or exemption orders from regulators to operate as clearing agencies. Provincial regulators have also exempted from recognition in their respective province a number of foreign clearing agencies, allowing those exempted clearing agencies to provide clearing services to participants in the province under the terms of the applicable exemption orders, including Eurex Clearing AG and Chicago Mercantile Exchange Inc.

Increasing regulatory requirements imposed upon banks through higher capital requirements imposed under the Basel regulatory framework, which increase the costs of acting as a futures clearing agent on behalf of end customers may make clearing services more challenging for end customers to obtain, which could limit growth in the futures clearing business. Other major competitors may gain some of this business as they have started to offer clearing services

⁴¹ Source: IIROC

directly to end customers, eliminating challenges end customers may face in obtaining clearing agent services from banks.

The derivatives trading industry is characterized by intense price competition. While our derivatives markets have developed a pricing mix to attract greater liquidity to these markets while maintaining our average price per contract, market conditions may result in increased competition which, in turn, may place significant pricing pressures in the future. Some competitors may seek to increase their share of trading by reducing their transaction fees, by offering larger liquidity payments or by offering other forms of financial or other incentives. Our business, financial condition and results of operations could be materially adversely affected as a result of these developments.

Shorcan faces competition from OTC markets and other sources

Shorcan has several competitors in the fixed income IDB market. If Shorcan fails to attract institutional dealer order flow from this market, it would adversely affect its business and operating results.

Global Solutions, Insights and Analytics

We face competition in market data and analytics, from other trading venues and vendors. Market data is generated from trading activity and the success of certain data products is linked to maintaining order flow.

Economic Risk

We are exposed to the risk that the macroeconomic and industry conditions (among others, the commodity cycle and economic growth) will challenge our business model and objectives.

We depend on the economy of Canada

Our financial results are, and continue to be affected by the Canadian economy, including by commodity prices in the resource sector, especially fluctuations in the price for crude oil. Any prolonged economic downturn could have a significant negative impact on our business. We have increased our focus on the innovation sector. However capital raised may not equal that of the energy sector. If the profit growth of Canadian-based companies is generally lower than the profit growth of companies based in other countries, the markets on which those other issuers are listed may be more attractive to investors than our equity exchanges. A prolonged economic downturn may have a negative impact on investment performance, which could materially adversely affect the number of issuers and new listed issuers, the market capitalization of our listed issuers, additional securities being listed or reserved, trading volumes across our markets, the number of transactions related to our equity and fixed income clearing and settlement, depository, custodial and entitlement services and market data sales.

Our operating results may be adversely impacted by global economic conditions

The economic and market conditions in Canada, the United States, Europe, China and the rest of the world impact the different aspects of our business and our revenue drivers. In particular, lower commodity prices, including fluctuations in the price for crude oil, can, and has, negatively impacted our business. Changes in the economic and political climate in the United States and Asia Pacific, including changes relating to trade agreements, could impact our business. In addition, increased uncertainty in Europe, including the impact of Brexit and the possibility of sovereign defaults on debt, may also impact our business, including Trayport. Political and civil uncertainty in Hong Kong as well as the trade war between China and the United States may impact growth plans in Asia in the short term. Because listing, initial and additional financing, trading and clearing activities are significantly affected by economic, political and market conditions and the overall level of investor confidence, they impact the level of listing activity (including IPOs), the market capitalization of our issuers, trading volumes and sales of data across our markets. In addition, our clearing customers face higher credit costs associated with complying with margining regimes which could result in lower volumes.

Global market and economic conditions have fluctuated in recent years and we have witnessed both high and low levels of volatility. While higher volatility in markets can generate increased transaction volume, when coupled with prolonged negative economic conditions higher volatility can adversely affect trading volumes and the demand for market data and can lead to slower collections of accounts receivable as well as increased counterparty risk which, in turn, could adversely affect our business, financial condition, and operating results. A low-volatility environment can result in lower levels of trading, particularly for derivative products, placing downward pressure on operating results.

We depend on market activity that is outside of our control

Our revenue is highly dependent upon the level of activity on our exchanges and clearing houses, including: the volume of securities traded on our cash markets; the number of transactions, volume of contracts or products traded and cleared on our derivatives markets; the number and market capitalization of listed issuers; the number of new listings; the number of active traders and brokerage firms; the number of transactions related to our equity and fixed income clearing and settlement, depository services; and the number of subscribers to market data and Trayport services.

We do not have direct control over these variables. Among other things, these variables depend upon the relative attractiveness of securities listed and traded on our exchanges and the relative attractiveness of our exchanges as a place to list and trade those securities as compared to other exchanges and other trading mechanisms. Those variables are in turn influenced by:

- the overall economic conditions and monetary policies in Canada, the United States, Europe, China, and in the world in general (especially growth levels, political stability and debt crisis);
- broad trends in business and corporate finance, including trends in the exchange industry, capital market trends and the mergers and acquisitions environment;
- the economic health of the resource sector;
- the level and volatility of interest rates and resulting attractiveness of alternative asset classes;
- the regulatory environment for investment in securities, including the regulation of marketplaces and other market participants, both in Canada and other jurisdictions;
- the relative activity and performance of global capital markets;
- investor confidence in the prospects and integrity of our listed issuers, and the prospects of Canadian-based listed issuers in general;
- pricing volatility of global commodities and energy markets; and
- changes in tax legislation that would impact the relative attractiveness of certain types of securities, or listing in certain countries.

We may be able to indirectly influence the volume of trading by providing efficient, reliable and low-cost trading; maximizing the availability of timely, reliable information upon which research, advice and investment decisions can be based; and maximizing the ease of access to listings and trading facilities. However, those activities may not have a positive effect on or effectively counteract the factors that are outside of our control. We face a risk that regulators may impose higher burdens on our clients that could impinge on their ability to invest.

Strategic Risk

We are exposed to the risk of attaining sub-optimal enterprise business performance due to:

Opportunity Cost Risk: failure to develop, assess and select optimal pathways for portfolio-level success in context of enterprise capabilities, resources, and the external environment

Implementation Risk: failure to commit to chosen pathways and translate them into clear actions and goals

Execution Risk: failure to execute committed plans

Change Management Risk: failure to identify changes in the strategic context of the business with sufficient foresight, and to develop, select and execute effective responses

Our strategic planning processes may not enable us to identify and properly respond to opportunities or threats resulting in our inability to develop new products and services that meet clients' evolving needs

Our strategic planning process includes a thorough analysis of the business context in which we operate as well as significant peer and competitive analysis. While we regularly test the key assumptions underlying our strategic plan, it is possible that we may not identify or respond to opportunities or threats in our industry despite the investment of time and resources in this process.

Execution Risk

We are exposed to the risk that we lack capabilities or fail to prioritize initiatives to deliver against our strategy and objectives in an efficient and effective manner. It is possible that our capital allocation decisions may not be optimal.

We may not be successful in executing our strategy

We invest significant resources in the development and execution of our corporate strategy to grow profitability and maximize shareholder value. We may not succeed in executing our strategies effectively because of, among other things, increased global competition, inability to mobilize or co-ordinate internal resources on a timely basis, difficulty developing and introducing products or regulatory restrictions. In addition, we may have difficulty obtaining financing for new business opportunities, due to financial restrictions that currently or may in the future be placed on TMX Group under our Commercial Paper Program, Debentures, Credit Facility, Recognition Orders and under our regulatory oversight agreements. While we have established process and tools for effective and rigorous oversight of our key initiatives, any of these factors could materially adversely affect the successful execution of our strategies. Inadequate succession planning could slow the successful execution of our strategy. The execution of our strategy could also be impacted if we failed to respond quickly to a changing landscape.

New business activities may adversely affect income

We may enter new business activities which, while they could provide opportunities for us, may also impose restrictions on us and/or have an adverse effect on our existing profitability. While we would expect to realize new revenue from these new activities, there is a risk that this new revenue would not be greater than the associated costs or any related decline in existing revenue sources.

Expansion of our operations internationally involves unique challenges that we may not be able to meet

We continue to expand our operations internationally, including making acquisitions, opening offices and acquiring distribution, technology and other systems in foreign jurisdictions, and obtaining regulatory authorizations or exemptions to allow remote access to our markets by approved participants outside Canada. We expect that the expansion of access to our electronic markets will continue to increase the portion of our business that is generated from outside Canada. We face certain risks inherent in doing business in international markets, particularly in the regulated exchange and clearing businesses. These risks include, but are not limited to:

- restrictions on the use of trading terminals or the contracts that may be traded;
- reduced protection for intellectual property rights;
- difficulties in staffing and managing foreign operations;
- potentially adverse tax consequences;
- enforcing agreements and collecting receivables through certain foreign legal systems; and
- foreign currency fluctuations for international business.

We would be required to comply with the laws and regulations of foreign governmental and regulatory authorities of each country in which we obtain authorizations or exemptions for remote access to our markets. These may include laws, rules and regulations relating to any aspect of the business. In many cases, the additional costs related to compliance can be substantial, and could outweigh the potential benefits. International expansion may expose TMX Group to geographic regions that may be subject to greater political, economic and social uncertainties than countries with developed economies.

Any of these factors could have a material adverse effect on the success of our plans to grow our international presence and market products and services and consequently on our business, financial condition and results of operations.

Integration/Divestitures Risk

We are exposed to the risk that we fail to integrate acquisitions to achieve the planned economics or divest under-performing businesses effectively.

We face risks associated with integrating the operations, systems, and personnel of acquisitions

As part of our strategy to sustain growth, we have and expect to continue to pursue appropriate acquisitions of other companies and technologies. An acquisition will only be successful if we can integrate the acquired businesses' operations, products and personnel; retain key personnel; and expand our financial and management controls and our reporting systems and procedures to accommodate the acquired businesses. It is possible that integrating an acquisition could result in less management time being devoted to other parts of our core business. In addition, pursuant to the Final Recognition Orders⁴², prior regulatory approval is required before TMX Group can implement significant integration, combination or reorganization of businesses, operations or corporate functions among TMX Group entities. The requirement to obtain these approvals may restrict or delay TMX Group's ability to make planned changes to these aspects of its operations in the future which could have a material adverse effect on TMX Group's business, financial condition and results of operations. If an investment, acquisition or other transaction does not fulfill expectations, we may have to write down its value in the future and/or sell at a loss.

We face risks associated with not being able to divest under-performing businesses

As part of our normal course of operations and strategic review processes, we may from time to time identify under performing assets or businesses that we choose to divest.

⁴² Recognition orders issued by the securities regulators with respect to the Maple Transaction.

Similar to integration risks, we also face the risks of not divesting under-performing businesses in a timely and effective manner to enable better utilization of our capital and other resources.

Operational Risks

Technology Risk

We are exposed to the risk that our technology and underlying IT processes do not enable us to develop and/or deliver our products and services effectively.

We depend heavily on information technology, which could fail or be subject to disruptions

We are extremely dependent on our information technology systems. Trading and data on our cash equities markets, data on energy markets, trading, clearing and data on our derivatives markets and clearing, settlement and depository activity for equities and fixed income securities are conducted exclusively on an electronic basis.

We have incident and disaster recovery and contingency plans as well as back-up procedures to mitigate the risk of an interruption, failure or disruption, including those due to cyber attacks on our critical information technology including that of TSX, TSXV, Alpha, MX, Trayport, CDCC and CDS. We also test and exercise our disaster recovery plans. However, depending on an actual failure or disruption, those plans may not be adequate as it is difficult to foresee every possible scenario and therefore we cannot entirely eliminate the risk of a system failure or interruption. We have experienced occasional information technology failures and delays in the past, and we could experience future information technology failures, delays or other interruptions.

The current technological architecture for our cash equities, derivatives trading and clearing, and market data information technology systems may not effectively or efficiently support our changing business requirements. We are heavily invested in a Post Trade Modernisation project; the significant delay or failure of which may impact investor confidence and expose us to system reliability issues.

We are continually improving our information technology systems so that we can handle increases and changes in our trading, clearing, settlement and depository activities and market data volumes to respond to customer demand for improved performance. This requires ongoing expenditures which may require us to expend significant amounts of resources in the future. System changes may introduce risk; while we have and follow, standard deployment processes for managing and testing these changes, we cannot entirely eliminate the risk of a system failure or interruption.

If the TMX Quantum XA trading enterprise, the SOLA derivatives trading enterprise, the SOLA Clearing platform, or CDS's CDSX system fail to perform in accordance with expectations, our business, financial condition and operating results may be materially adversely affected.

Information Security and Privacy Risk

We are exposed to the risk that information security breaches will adversely affect the operations, intellectual property and reputation of TMX Group.

Our processes and networks and those of our third-party service providers may be vulnerable to data security risks, including cyber attack

Our processes and networks and those of our third-party service providers, our POs and approved participants and our customers may be vulnerable to information risks, including unauthorized access, computer viruses, theft of data, denial of service attacks, and other security issues. Persons who circumvent security measures could wrongfully use our information or cause interruptions or malfunctions in our operations which could damage the integrity of our markets and data provision, any of which could have a material adverse effect on our business, financial condition and results of operations. We may be required to expend significant resources to protect against the threat of security breaches or to

alleviate problems, including reputational harm and litigation, caused by any breaches. Although we intend to continue to implement industry-standard security measures, these measures may prove to be inadequate and result in system failures and delays that could lower trading volume and have a material adverse effect on our business, financial condition and results of operations.

Geopolitical & External Disruption Risks

We are exposed to the risks that geopolitical upheavals (e.g. a terrorist attack) or non-political external events (e.g. extreme weather) will affect the provision of our critical services.

Geopolitical, climate change and other factors could interrupt our critical business functions

The continuity of our critical business functions could be interrupted by geopolitical upheaval, including terrorist, criminal and political, or other types of external disruptions, including human error, climate change, natural disasters, extreme weather, power loss, telecommunication failures, theft, sabotage and vandalism. Given our position in the Canadian capital markets, we may be more likely than other companies to be a target of such activities.

We have a series of integrated disaster recovery and business continuity plans for critical business functions to mitigate the risk of an interruption. We currently maintain duplicate facilities, both data centres and office space, to provide redundancy and back-up both in terms of technology and staffing to reduce the risk and recovery time of system disruptions for key systems. However, not all systems are duplicated, and any major disruption may affect our existing and back-up facilities. Any interruption in our key services could impair our reputation, damage our brand name, and negatively impact our financial condition and operating results.

Talent Management Risk

We are exposed to the risk that we are unable to attract and/or retain talented employees, which adversely affects the achievement of our objectives.

We need to retain and attract qualified personnel

Our success depends to a significant extent upon the continued employment and performance of a number of key management personnel whose compensation is partially tied to vested share options and other long-term incentive plans that mature over time. The value of this compensation is dependent upon total shareholder return performance factors, which includes appreciation in our share price. The loss of the services of key personnel could materially adversely affect our business and operating results. We also believe that our future success will depend in large part on our ability to attract and retain highly skilled technical, managerial and marketing personnel. There can be no assurance that we will be successful in retaining and attracting the personnel we require which could negatively affect our business and results of operations.

Insider Threat Risk

We may be exposed to a threat where an authorized employee may take bad faith actions towards our technology, information or operations. We conduct background checks prior to the offer of employment and throughout the individual's employment; the frequency of which is based on their level of access. Access levels are reviewed on a regular basis and all access changes/terminations are communicated in a timely manner. All access is monitored by Security on a continuous basis.

Our trading, clearing and depository businesses could be exposed to loss due to operational failures

If our systems are significantly compromised or disrupted or if we suffer repeated failures, this could interrupt our cash equities trading services, MX's trading and CDCC's clearing services, CDS' clearing, settlement and depository services, as well as the transition services we provide to BOX; cause delays in settlement; cause us to lose data; corrupt our trading and clearing operations, data and records; or disrupt our business operations, or BOX's operations for the for the period in which we provide transition services. This could undermine confidence in our exchanges and clearinghouses, materially adversely affect our reputation or operating results, and may lead to customer claims, litigation and regulatory sanctions. Failure of CDS' systems could also affect other systemically important financial infrastructures such as the Large Value Transfer System operated by Payments Canada.

CDS holds securities on behalf of its participants in safe keeping. A small portion of this securities inventory is held in physical form. This risk is mitigated through layers of physical security arrangements as well as insurance coverage. However, CDS may be exposed to the risk of the loss or theft of these securities.

The operational processes at CDS and CDCC which provide clearing and central-counterparty services, are subject to the risk of failure for which they may be held liable. These process failures may result in material financial losses. To mitigate this risk, CDS and CDCC have instituted a comprehensive set of internal controls, which are audited by an external party on at least an annual basis. CDS and CDCC are the sole clearers for the transactions they process.

Operations Risk relating to Transfer Agent and Corporate Trust Services Business

Our transfer agent and corporate trust services business could be exposed to losses due to operational risks

The principal risks associated with the services and products offered by TSX Trust are operational in nature as TSX Trust does not lend money or trade in marketable securities. The most significant operational risks include securities issuance and transfers, corporate actions processing, disbursements, escrows, corporate trust and segregated accounts reconciliation activities. To mitigate these risks, its management has instituted a comprehensive set of internal controls, which are audited by an external party on at least an annual basis.

Model Risk

We are exposed to the risk that our clearing and settlement risk models used within our clearing houses are not designed or operating effectively, thereby exposing us to systemic failure.

We are dependent on the accuracy and effective implementation of risk models

CDS and CDCC use financial models to estimate risk exposures and the value of margin and collateral to mitigate those exposures. These models are subject to risks including the incorrect use of variables input into the models, the misspecification of the model or errors in the implementation and/or use of models and their results which could result in the risks resulting from a clearing member failure being inadequately collateralized. The model risks are mitigated through model testing prior to implementation and the existence of a risk management framework with necessary governance to regularly assess the adequacy of the models. In addition, our clearinghouse risk models are subject to independent vetting and validation thereby ensuring that those models continue to perform as they were originally designed to do. Failure of the models may result in under or over estimation of financial risk exposures and may create systemic risks.

Third Party Risk

We are exposed to the risk that the use of third party vendors or outsourcing service providers for technology and/or business processes will result in loss of critical business data and/or compromise controls.

We depend on third-party suppliers and service providers

We depend on a number of third parties, such as IIROC, cloud services, data processors, software and hardware suppliers, communication and network suppliers, suppliers of electricity, and many other vendors, for elements of our businesses including trading, clearing, routing, providing market data and other products and services. These third parties may not be able to provide their services without interruption, or in an efficient, cost-effective manner. In addition, we may not be able to renew our agreements with these third parties on favourable terms or at all. These third parties also may not be able to adequately expand their services to meet our needs. We have established a central procurement function focused on vendor selection and management. However, if a third party suffers an interruption in or stops providing services and we cannot make suitable alternative arrangements, or if we fail to renew certain of our agreements on favourable terms or at all, our business, financial condition or operating results could be materially adversely affected.

Client Concentration Risk

We depend on an adequate number of clients

If we determine that there is not a fair market, the markets will be shut down. There will not be a fair market if too few POs, or approved participants are able to access our cash equity or derivatives exchanges, including market data information generated from these exchanges. If trading on our exchanges is interrupted or ceases, it could materially adversely affect our equity, derivatives or energy operations, our financial condition and our operating results.

Our trading and clearing operations depend primarily on a small number of clients

During 2019, approximately 76% of our trading and related revenue, net of rebates, on TSX and approximately 56% of our trading and related revenue on TSXV were accounted for by the top ten POs on each exchange based on volumes traded.

Approximately 58% of CDS's revenue, net of rebates, in 2019 was accounted for by the top ten customers (excluding securities regulators).

Approximately 69% of MX and CDCC's trading and clearing revenue, net of rebates, in 2019 was accounted for by the top ten participants based on volume of contracts traded.

If there was a significant decrease in revenue from several of these customers, there would be a negative impact on our business.

Legal & Regulatory Risk

Regulatory Climate & Compliance

We are exposed to the risks that are associated with the complexity and unpredictability of our legal and regulatory environment, including legislation and regulations that impact our listed issuers. Our response to regulatory requirements could result in higher operating costs. Moreover, we are also exposed to the risk that we fail to comply with laws and regulations, resulting in financial and reputational loss.

Cost of Regulation

We incur costs to comply with the regulatory requirements that are imposed pursuant to the Recognition Orders.

For more information on the regulatory impact on our business, please see the TMX Group Annual Information Form, dated March 28, 2019.

We operate in a highly regulated industry and are subject to extensive regulation and could be subject to increased regulatory scrutiny in the future

We are subject to significant regulatory constraints. We operate in a highly regulated industry and are subject to extensive government regulation and we could be subject to increased regulatory scrutiny in the future. Regulators in Canada, as well as regulators in other jurisdictions where we do business, such as the U.S., regulate us, our exchanges, our clearing houses and certain of our other businesses. Regulators in other jurisdictions may regulate our future operations. Canadian regulators propose changes, including amendments to National Instruments, on an ongoing basis.

Our regulators have broad powers over the entities they regulate to audit, investigate and enforce compliance with applicable regulations and impose sanctions for non-compliance.

Our regulators are vested with broad powers to prohibit us from engaging in certain business activities and to suspend or revoke existing approval to engage in certain business activities, including exchange, clearing agency and SRO related activities. In the case of actual or alleged non-compliance with legal or regulatory requirements, our regulated entities could be subject to investigations and administrative or judicial proceedings that may result in substantial penalties, including the suspension or revocation of approval to act as an exchange, clearing agency or SRO, as applicable. Any such investigation or proceeding, whether successful or not, would result in substantial costs and diversions of resources and might also harm our reputation, any of which may have a material adverse effect on our business, financial condition and results of operations.

The regulation of our businesses may impose barriers or constraints which limit our ability to build an efficient, competitive organization and may also limit our ability to expand global operations. Securities and other regulators also impose financial and corporate governance restrictions on us and our equity and derivatives exchanges and clearing agencies and operations. Some of our regulators must approve or review our regulated entities' listing rules, trading rules, clearing, settlement and depository rules, fee structures and features and operations of, or changes to, our systems. These approvals or reviews may increase our costs and delay our plans for implementation. There could also be regulatory changes that impact our customers and that could materially adversely affect our business and results of operations.

We could be subject to increased regulatory scrutiny in the future. The multi-market environment in Canada and the impact of global economic conditions continue to lead to more aggressive regulation of our businesses by securities and other regulatory agencies in Canada, the U.S. and abroad and could extend to areas of our businesses that to date have not been regulated.

There may be a conflict of interest, real or perceived, between our regulatory responsibilities and our own business activities. While we have implemented stringent governance measures and have and will continue to put into place policies and procedures to manage such conflicts, any failure to diligently and fairly manage such conflicts may significantly harm our reputation, prompt regulatory action and could materially adversely affect our business, financial condition and results of operations.

New regulatory requirements may make it more costly to comply with relevant regulation, to operate our existing businesses or to enter into new business areas

A number of regulatory initiatives and changes have been identified or proposed or are being implemented by regulators, including in Canada, the U.S. and Europe. We cannot be certain whether, or in what form, regulatory changes will take place, and cannot predict with certainty the impact of such changes on our businesses and operations. Changes in, and additions to, the rules affecting our exchanges and clearing houses could require us to change the manner in which we and our customers conduct business or govern ourselves. For example, impacts of Brexit on our exchanges, clearing houses and Trayport, as well as our clients, remain uncertain. Failure to make the required changes and comply on a timely basis could result in material reductions to activity or revenue, sanctions and/or restrictions by the applicable regulatory authorities.

Unexpected and new regulatory requirements could make it more costly to comply with relevant regulations and for affected entities to operate their existing businesses or to enter into new business areas. In addition, high levels of regulation may stifle growth and innovation in capital markets generally and may adversely affect our business, financial condition and results of operations.

CDS Clearing and CDCC operate financial market infrastructures, including central counterparties for cash and derivative markets, commodity markets, securities settlement systems and central securities depositories that are subject to the CPMI-IOSCO Principles for Financial Market Infrastructure (PFMIs) for these types of services, which are reflected in the requirements of such entities' regulators and applicable securities law including National Instrument 24-102 Clearing Agency Requirements. The ongoing implementation of PFMI by regulators on these businesses will continue to impact the cost of regulatory compliance.

European energy market regulatory changes could potentially affect the structure of these markets and hence the number of trading venues supported by Trayport.

Our Recognition Orders impose significant regulatory constraints

Under the Recognition Orders, we are subject to extensive regulation and regulatory oversight with respect to, among other things, fees, fee models, discounts and incentives. The Recognition Orders also impose significant regulatory constraints on our ongoing business. The additional regulatory and oversight provisions provided for in the Recognition Orders provide the applicable regulators with broad powers that could, depending on how such powers are exercised in the future, impose barriers or constraints that limit our ability to build an efficient, competitive organization, which could have a material adverse effect on our business, financial condition and results of operations.

With respect to the fees charged by all of our equity exchanges (TSX, Alpha, and TSXV), the Recognition Orders impose restrictions or prohibitions on certain types of fee discounts or incentives that such exchanges may provide, including discounts or incentives that are accessible only to a particular marketplace participant or class of marketplace participants. Such prohibitions and restrictions may limit the ability of our equity exchanges to introduce new products in the future or to introduce them on a timely basis, which could materially adversely affect the success of our future strategies, financial condition and results of operations. In addition, under the Recognition Orders the OSC has the right to require TSX and Alpha to submit a fee, fee model or incentive that has previously been approved by the OSC for re-approval. In such circumstances, if the OSC decides not to re-approve the fee, fee model or incentive, it must be revoked.

We have incurred increased costs to comply with the additional regulatory requirements that are imposed pursuant to the Recognition Orders. In addition, we and certain of our businesses are subject to participation and activity fees imposed by provincial securities regulators. The overall scope of the additional regulatory costs may have a material adverse effect on our business, financial condition, and results of operations.

Pursuant to the Recognition Orders, prior regulatory approval is also required before we can implement changes to a number of aspects of our operations. This includes prior regulatory approval of (a) changes to internal cost allocation models and any transfer pricing between affiliated entities, (b) significant integration, combination or reorganization of businesses, operations or corporate functions between TMX Group entities, (c) non-ordinary course changes to TSXV's operations, and (d) any outsourcing of key services or systems by a marketplace. The requirement to obtain approvals may restrict or delay our ability to make planned changes to these aspects of our operations in the future which could have a material adverse effect on our business, financial condition and results of operations.

Our Recognition Orders impose ownership restrictions on our voting shares

Under the OSC and AMF Recognition Orders, no person or combination of persons, acting jointly or in concert, is permitted to beneficially own or exercise control or direction over more than 10% of any class or series of voting shares of TMX Group without prior approval of the OSC and the AMF. Should a person or combination of persons, acting jointly or in concert, beneficially own or exercise control or direction over more than 10% of any class or series of voting shares of TMX Group without prior approval of the OSC and the AMF, their respective voting rights will be limited to no more than 10% until such time as approval has been granted by the OSC and the AMF.

Litigation/Legal Proceedings Risk

We are exposed to the risk that litigation or other legal proceedings are launched against us.

We are subject to risks of litigation and other legal proceedings

Some aspects of our business involve risks of litigation. Dissatisfied customers or vendors, among others, may make claims with respect to, among other things, the manner in which we operate or they may challenge our regulatory actions, decisions or jurisdiction. Although we may benefit from certain contractual indemnities and limitations on liabilities, these rights may not be sufficient. In addition, with civil liability for misrepresentations in our continuous disclosure documents and statements and for the failure to make timely disclosures of material changes in Ontario and certain other jurisdictions, dissatisfied shareholders have a statutory right to make claims against us. We could incur significant legal expenses defending claims, even those without merit. If a lawsuit or claim is resolved against us, it could materially adversely affect our reputation, business, financial condition and operating results.

Intellectual Property Risk

We are exposed to the risk that we fail to protect our intellectual property resulting in material financial loss to us. We are exposed to the risk that an infringement claim may be asserted against us.

We may be unable to protect our intellectual property

To protect our intellectual property rights, we rely on a combination of trademark laws, copyright laws, patent laws, trade secret protection, confidentiality agreements, and other contractual arrangements with our affiliates, customers, strategic partners, and others. This protection may not be adequate to deter others from misappropriating our proprietary rights. We may not be able to detect the unauthorized use of, or take adequate steps to enforce, our intellectual property rights. If we are unable to protect our intellectual property adequately, it could harm our brand, affect our ability to compete effectively and may limit our ability to maintain or increase revenue. It could also take significant time and money to defend our intellectual property rights, which could adversely affect our business, financial condition, and operating results.

We are subject to risks of intellectual property claims

We license a variety of intellectual property from third parties. Others may bring infringement claims against us or our customers in the future because of an alleged breach of such a license. We may also be subject to claim alleging that we are infringing on a third party's intellectual property rights without a license. If someone successfully asserts an infringement claim, we may be required to spend significant time and money to develop or license intellectual property that does not infringe upon the rights of that other person or to obtain a license for the intellectual property from the owner. We may not succeed in developing or obtaining a license on commercially acceptable terms, if at all. In addition, any litigation could be lengthy and costly and could adversely affect us even if we are successful.

Financial Risks

Operational Risk

Most of our expenses are fixed and cannot be easily lowered in the short-term if our revenue decreases, which could have an adverse effect on our operating results and financial condition. We are exposed to the risk that we fail to develop, implement and maintain the appropriate corporate finance model and capital structure. The Trust Indentures governing the Debentures impose various restrictions on TMX Group and its subsidiaries, including restrictions on the ability of TMX Group and each of its material subsidiaries (as defined in the Trust Indentures) to create a lien on these entities' assets, limitations on the ability of material subsidiaries of TMX Group to enter into certain types of indebtedness, and requirements to repurchase outstanding Debentures on change of control of TSX Inc. or MX coupled

with a triggering event (i.e., rating of the Debentures is lowered to below investment grade). Notwithstanding our treasury and capital allocation programs which include leverage ratio and dividend payout ratio analysis, some, or all, of these restrictions could limit our flexibility to change our capital structure.

Our Credit Agreement requires us to satisfy and maintain an interest coverage ratio and a leverage ratio, among other covenants, including the timely payment of principal and interest when due. It is important that we meet all of the terms under our Credit Facility since it provides a 100% backstop to our Commercial Paper Program. Based on the current level of operations and anticipated growth, we believe that our cash flows from operations and our available cash are adequate to meet our current liquidity needs. However, we cannot guarantee that our businesses will generate sufficient earnings or cash flows from operations or that anticipated growth will be realized or that we will be able to control our expenses in an amount sufficient to enable us to satisfy the financial ratios and other covenants, or pay our indebtedness or fund our other liquidity needs. If we do not have sufficient funds, we may be required to renegotiate the terms of, restructure, or refinance all or a portion of our indebtedness on or before our stated maturity, reduce or delay capital investments and acquisitions, reduce or eliminate our dividends, or sell assets. Our ability to renegotiate, restructure, or refinance our indebtedness would depend on the condition of the financial markets and our financial condition at that time. Failure to comply with the financial ratios as well as covenants of the Credit Agreement could result in a default under the Trust Indentures, which, if not cured or waived, could result in TMX Group being required to repay outstanding borrowings under both the Credit Agreement and the Debentures before their due dates. In addition, an event of default under the Trust Indentures governing the Debentures that would result in an acceleration of maturity of the applicable series of Debentures could lead to an acceleration of the maturity of the Credit Agreement.

In addition, if we fail to comply or are reasonably likely to fail to comply with any financial covenant or ratio contained in any Final Recognition Order, such failure could result in a default under the Credit Agreement as well, if a governmental authority issues a decision or orders restrictions on us or any of our subsidiaries as a result of the non-compliance where a requisite majority of the lenders determine that the restrictions have or will have a material adverse effect as defined in the Credit Agreement. It will also be a default under the Credit Agreement if a governmental authority issues a decision or orders restrictions on our or any of our subsidiaries' ability to move cash or cash equivalents among TMX Group and our subsidiaries, where a requisite majority of the lenders determine that the restrictions have or will have a material adverse effect. If these events of default under the Credit Agreement were to result in an acceleration of maturity under the Credit Agreement, the event(s) could constitute an event of default under the Trust Indentures, which in turn would result in the acceleration of maturity of the outstanding Debentures. If we are forced to refinance these borrowings on less favourable terms or cannot refinance these borrowings, our business, results of operations, and financial condition would be adversely affected. Borrowings under the Commercial Paper Program and Credit Agreement incur interest at variable rates and expose us to interest rate risk. If interest rates increase, our debt service obligations on our variable rate indebtedness would increase even though the amount borrowed remained the same, and our net income and cash flows, including cash available for servicing the indebtedness, would correspondingly decrease. TMX Group has an issuer rating of A (high) from DBRS with a Stable trend. Our Debentures, have the same credit rating from DBRS with a Stable trend. The Commercial Paper has been assigned a rating of "R-1 (low)" with a Stable trend by DBRS.

DBRS regularly evaluates and monitors the rating of our Commercial Paper and the rating of our Debentures outstanding. A downgrade from our existing rating could adversely affect our cost of borrowing and/or our ability to access sources of liquidity and capital and reduce financing options available to us.

Credit Risk

Credit risk is the risk of loss due to the failure of a borrower, counterparty, clearing member or participant to honour their financial obligations. It arises principally from the clearing operations of CDS Clearing and CDCC, the operations of TSX Trust, the brokerage operations of Shorcan, cash and cash equivalents, restricted cash and cash equivalents, marketable securities, trade receivables, interest rate swaps and total return swaps.

Credit Risk – Clearing Houses

Credit Risk - CDS

CDS Clearing is exposed to the risk of loss due to the failure of a Participant in CDS Clearing's clearing and settlement services to honour its financial obligations. To a lesser extent, CDS Clearing is exposed to credit risk through the performance of services in advance of payment.

Through the clearing and settlement services operated by CDS Clearing, credit risk exposures are created. During the course of each business day, transaction settlements can result in a net payment obligation of a Participant to CDS Clearing or the obligation of CDS Clearing to pay a Participant. The potential failure of the Participant to meet its payment obligation to CDS Clearing results in payment risk, a specific form of credit risk. Payment risk is a form of credit risk in securities settlement whereby a seller will deliver securities and not receive payment, or that a buyer will make payment and not receive the purchased securities. Payment risk is mitigated by delivery payment finality in CDSX, CDS' multilateral clearing and settlement system, as set out in the CDS Participant Rules.

In the settlement services offered by CDS Clearing, payment risk is transferred entirely from CDS Clearing to Participants who accept this risk pursuant to the contractual rules for the settlement services. This transfer of payment risk occurs primarily by means of Participants acting as extenders of credit to other Participants through lines of credit managed within the settlement system or, alternatively, by means of risk-sharing arrangements whereby groups of Participants cross-guarantee the payment obligations of other members of the group. Should a Participant be unable to meet its payment obligations to CDS Clearing, these surviving Participants are required to make the payment. Payment risk is mitigated on behalf of Participants through the enforcement of limits on the magnitude of payment obligations of each Participant and the requirement of each Participant to collateralize its payment obligation. Both of these mitigants are enforced in real time in the settlement system.

The risk exposure of CDS Clearing in its central counterparty services is mitigated through a daily mark-to-market of each Participant's obligations as well as risk-based collateral requirements calculated daily. These mitigants are intended to cover the vast majority of market changes and are tested against actual price changes on a regular basis. This testing is supplemented with analysis of the effects of extreme market conditions on a collateral valuation and market risk measurements which are used to determine additional collateral requirements of Participants to a default fund established in 2015. Should the collateral of a defaulter in a central counterparty service be insufficient, either because the value of the collateral has declined or the loss to be covered by the collateral exceeded the collateral requirement, the surviving participants in the service are required to cover any residual losses.

Credit Risk – CDCC

CDCC is exposed to loss in the event that Clearing Members fail to satisfy any of the contractual obligations as stipulated within CDCC's rules.

CDCC is exposed to the credit risk of its Clearing Members since it acts as the central counterparty for all transactions carried out on MX's markets and on certain OTC markets which are serviced by CDCC. As such, in the event of a Clearing Member default, the obligations of those defaulting counterparties would become the responsibility of CDCC.

The first line of defense in CDCC's credit risk management process is the adoption of strict membership criteria which include both financial and regulatory requirements. In addition, CDCC performs on-going monitoring of the financial viability of its Clearing Members against the relevant criteria as a means of ensuring the on-going compliance of its Clearing Members. In the event that a Clearing Member fails to continue to satisfy any of its membership criteria, CDCC has the right through its rules, to impose various sanctions on such Clearing Members.

One of CDCC's principal risk management practices with regards to counterparty credit risk is the collection of risk-based margin deposits in the form of cash, equities and liquid government securities. Should a Clearing Member fail to meet settlements and/or daily margin calls or otherwise not honour its obligations under open futures, options contracts and REPO agreements, margin deposits would be seized and would then be available to apply against the potential losses incurred through the liquidation of the Clearing Member's positions.

CDCC's margining system is complemented by a Daily Capital Margin Monitoring (DCMM) process that evaluates the financial strength of a Clearing Member against its margin requirements. CDCC monitors the margin requirement of a Clearing Member as a percentage of its capital (net allowable assets). CDCC will make additional margin calls when the ratio of margin requirement/net allowable assets exceeds 100%. The additional margin is equal to the excess of the ratio over 100% and is meant to ensure that Clearing Member leverage in the clearing activities does not exceed the value of the firm. CDCC also has additional margin surcharges to manage the risk exposures associated with certain idiosyncratic risks. These include: concentration charges for Clearing Members that are overly concentrated in certain positions, wrong-way risk charges for those Clearing Members holding positions which are highly correlated with their own credit risk profile, mismatched settlement surcharges which are meant to mitigate the risk of cherry-picking by a potential defaulter in the settlement process.

Credit Risk – Shorcan

Shorcan is exposed to credit risk in the event that customers fail to settle on the contracted settlement date. This risk is limited by their status as agents, in that they do not purchase or sell securities for their own account. As agents, in the event of a failed trade, Shorcan has the right to withdraw its normal policy of anonymity and advise the two counterparties to settle directly.

Credit Risk – All Other

We manage our exposure to credit risk on our cash and cash equivalents and restricted cash and cash equivalents by holding the majority of our cash and cash equivalents with major Canadian chartered banks or in Government of Canada and provincial treasury bills and US treasury bills. We manage exposure to credit risk arising from investments in marketable securities by holding investment funds that actively manage credit risk or by holding high-grade individual fixed income securities with credit ratings of A/R1-low or better.

Our exposure to credit risk resulting from uncollectable accounts is influenced by the individual characteristics of our customers, many of whom are banks and financial institutions. We invoice our customers on a regular basis and maintain a collections team to monitor customer accounts and minimize the amount of overdue receivables. Due to the bilateral nature of the TRSs, we are exposed to the counterparty credit risk. To manage this credit risk, we only enter into the TRSs with major Canadian chartered banks.

TSX Trust is exposed to credit risk on foreign exchange transactions processed for clients in the event that either the client or the financial counterparty fails to settle contracts for which foreign exchange rates have moved unfavourably. The risk of a financial counterparty failing to settle a transaction is considered remote as TSX Trust deals only with reputable financial institutions comprised of major Canadian chartered banks.

Market Risk

Market risk is the risk of loss due to changes in market prices and rates such as equity prices, interest rates and foreign exchange rates. We are exposed to market risk relating to equity prices when we grant DSUs, RSUs and PSUs to our directors and employees, as our obligation under these arrangements are partly based on our share price. We have entered into TRSs as a partial fair value hedge to the share appreciation rights of RSUs and DSUs.

We are exposed to market risk on interest earned on our cash, cash equivalents and marketable securities. This risk is partially mitigated by having variable interest rates on our short-term debt (Commercial Paper). We are exposed to market risk relating to interest paid on our Commercial Paper.

Other Market Price Risk – CDS, CDCC, TSX, TSX Venture and Shorcan

We are exposed to market risk factors from the activities of CDS Clearing, CDCC, and Shorcan if a Participant, Clearing Member, or Client, as the case may be, fails to take or deliver either securities or derivatives products on the contracted settlement or delivery date where the contracted price is less favourable than the current market price.

CDS

CDS is exposed to market risk through its CCP function in the event a participant defaults as it becomes the legal counterparty to all of the defaulters' novated transactions and must honor the financial obligations that arise from those novated transactions. Adverse changes to market prices and rates would expose CDS to credit risk losses.

The principal mitigation of this credit risk exposure post default is the default management process. CDS has developed default management processes that would enable it to neutralize the market exposures via open market operations within prescribed time periods. Any losses from such operations would be set-off against the collateral contributions of the defaulting participant to the Participant Fund and Default Fund for the CCP service, thereby minimizing credit losses.

CDCC

CDCC is exposed to market risk through its CCP functions in the event of a Clearing Member default as it becomes the legal counterparty to all of the defaulter's novated transactions and must honor the financial obligations that arise from those novated transactions. Adverse changes to market prices and rates would expose CDCC to credit risk losses.

The principal mitigation of this credit risk exposure post default is the default management process. CDCC has developed detailed default management processes that would enable it to neutralize the market exposures through either its auction process or via open market operations within prescribed time periods. Any losses from such operations would be set-off against the margin and clearing fund (if necessary) collateral that are pre-funded by all Clearing Members for these purposes, thereby minimizing the credit losses.

TSX and TSX Venture Exchange

We are exposed to market price risk on a portion of our sustaining services revenue, which is based on quoted market values of listed issuers as at December 31 of the previous year.

Shorcan

Shorcan's risk is limited by its status as an agent, in that it does not purchase or sell securities or commodities for its own account, the short period of time between trade date and settlement date, and the defaulting customer's liability for any difference between the amounts received upon sale of, and the amount paid to acquire, the securities or commodities.

Foreign Currency Risk

We are exposed to foreign currency market risk on revenue and expenses where we invoice or procure in a foreign currency, principally in U.S. dollars.

We do not currently employ currency hedging strategies with respect to our operating activities, and therefore significant moves in exchange rates, specifically a strengthening of the Canadian dollar against the U.S. dollar and GBP can have an adverse effect on the value of our revenue or assets in Canadian dollars.

Settlements in the clearing and settlement services offered by CDS occur in both Canadian and U.S. dollars. Market risk relating to foreign exchange rates could be created if there is a default and the currency of the payment obligation is different from the currency of the collateral supporting that payment obligation. This risk is mitigated by discounting the collateral value of securities where these mismatches occur.

Based on 2019 revenue and operating expenses, the approximate impact of a 10% rise or a 10% decline in the Canadian dollar compared with the U.S. dollar on revenue, net of operating expenses, is approximately \$7.7 million. Based on Trayport's 2019 revenue and operating expenses, the approximate impact of a 10% rise or a 10% decline in the Canadian dollar compared with Great British Pounds (GBP) on revenue, net of operating expenses, is approximately \$4.3 million.

We are also exposed to market risk relating to foreign currency rates applicable to our cash and cash equivalents, trade receivables and trade payables, principally denominated in U.S. dollars. At December 31, 2019, cash and cash equivalents and trade receivables, net of current liabilities, include US\$15.8 million, which are exposed to changes in the US-Canadian dollar exchange rate (2018 – US\$14.2 million), £0.7 million which are exposed to changes in the GBP-Canadian dollar exchange rate (2018 - £0.7 million), and €0.1 million which are exposed to changes in the Euro-Canadian dollar exchange rate (2018 - €0.1 million). The approximate impact of a 10% rise or a 10% decline in the Canadian dollar compared with the U.S. dollar, GBP and Euro on these balances as at December 31, 2019 is a \$2.2 million decrease or increase in income before income taxes, respectively.

Liquidity Risk - Operations

Liquidity risk is the risk of loss due to the inability of TMX Group or its borrowers, counterparties, Clearing Members, or Participants to meet their financial obligations in a timely manner or at reasonable prices. We manage liquidity risk through the management of our cash and cash equivalents and marketable securities, all of which are held in short term instruments, and our Debentures, Commercial Paper as well as credit and liquidity facilities. In clearing and depository services, liquidity risk results from the requirement to convert collateral to cash in the event of the default of a participant/customer.

Cash and cash equivalents and restricted cash and cash equivalents consist of cash and highly liquid investments. Our investment policy will only allow excess cash to be invested within money market securities or fixed income securities. Individual fixed income securities held have credit ratings of A/R1-low or better and are highly liquid.

Liquidity Risk - Clearing Houses

The margin deposits of CDCC and CDS and clearing fund margins of CDCC are held in liquid instruments. Cash margin deposits and cash clearing fund deposits from Clearing Members, which are recognized on the consolidated balance sheet, are held by CDCC with the Bank of Canada. Non-cash margin deposits and non-cash clearing fund deposits pledged to CDCC under irrevocable agreements are in government securities and other securities and are held with approved depositories. Cash collateral from CDS' participants, which is recognized on the consolidated balance sheet, is held by CDS at the Bank of Canada and NSCC/DTC. Non-cash collateral, which is not recognized on the consolidated balance sheet, pledged by participants under Participant Rules is held by CDS in liquid government and fixed income securities.

CDS

The design of CDS' New York Link service does not apply strict limits to a Participant's end-of-day payment obligation, creating the potential for unlimited liquidity risk exposure if a user of the service were to default on its obligation. CDS manages this risk through active monitoring of payment obligations and a committed liquidity facility which covers the vast majority of potential Participant default scenarios.

CDS maintains two secured standby liquidity facilities that can be drawn in either U.S. or Canadian currency. These arrangements are available to support processing and settlement activities in the event of a participant default in either the CNS or NYL service lines. Borrowings under the secured facilities are obtained by pledging securities that are settled through CNS or NYL services or providing collateral pledged by participants primarily in the form of debt instruments issued or guaranteed by federal, provincial and/or municipal governments in Canada or U.S. treasury instruments. As a designated FMI, CDS has access to the Emergency Lending Assistance (ELA) program offered by the Bank of Canada and is meant to provide emergency funding in the event of liquidity shortfalls at CDS that may occur under market stress events. The ELA is offered at the full discretion of the Bank of Canada and is meant to be fully collateralized by SLF-eligible assets.

CDCC

The syndicated revolving standby liquidity facility for a total of \$400.0 million is also in place to provide end of day liquidity in the event that CDCC is unable to clear the daylight liquidity facilities to zero as well as to provide a source of overnight funding for securities that are not eligible to be pledged at the Bank of Canada or for emergency liquidity needs in the event of a Clearing Member default. Advances under the facility will be secured by collateral in the form of

securities that have been received by CDCC. The syndicated REPO facility is also in place to provide end of day liquidity in the event that CDCC is unable to clear the daylight liquidity facilities to zero or for emergency liquidity needs in the event of a Clearing Member default. It will provide liquidity in exchange for securities that have been pledged to or received by CDCC. As a designated FMI CDCC has access to the Emergency Lending Assistance (ELA) program offered by the Bank of Canada and is meant to provide emergency funding in the event of liquidity shortfalls at CDCC that may occur under market stress events. The ELA is offered at the full discretion of the Bank of Canada and is meant to be fully collateralized by SLF-eligible assets.

Commercial Paper Program

We rely on our Commercial Paper Program, Debentures and Credit Facility as a source of financing. The specific liquidity risk related to Commercial Paper is that we are unable to borrow under a new Commercial Paper issuance in order to pay for Commercial Paper that is coming due because of a lack of liquidity or demand for our Commercial Paper in the market. To mitigate this risk, we maintain a Credit Agreement that provides 100% coverage or backstop to the Commercial Paper Program.

Accounting and Control Matters

Changes in accounting policies

The following new IFRS standards and amendments were effective for TMX Group from January 1, 2019:

- IFRS 16, *Leases*;
- IFRIC 23, *Uncertainty over Income Tax Treatments*; and
- Annual improvements 2015-2017 cycle.

There was no impact on the financial statements as a result of their adoption, except for IFRS 16 as discussed below.

TMX Group has applied IFRS 16, *Leases*, from January 1, 2019 using the modified retrospective approach and therefore comparative information has not been restated, and continues to be reported under IAS 17, *Leases*, and IFRIC 4, *Determining Whether an Arrangement Contains a Lease*. On transition to IFRS 16, TMX Group elected to apply the practical expedient to grandfather the assessment of which contracts are leases. TMX Group only applied IFRS 16 to contracts that were previously identified as leases. Contracts that were previously not identified as leases were not reassessed. Therefore, the definition of a lease under IFRS 16 has been applied only to contracts entered into or changed on or after January 1, 2019. In the comparative period, as a lessee, TMX Group classified leases that transfer substantially all of the risks and rewards of ownership as finance leases. Assets held under other leases were classified as operating leases and were not recognized on TMX Group's balance sheet.

At inception of a contract, TMX Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. TMX Group allocates the consideration in the contract to each lease and non-lease component on the basis of their relative stand-alone prices.

As a lessee, TMX Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and any estimated costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received. The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term and is reduced for any impairment losses and adjusted for certain remeasurements of the lease liability.

TMX Group applies judgement in determining the lease term for some lease contracts in which there is a renewal option. Lease payments included in the measurement of the lease liability comprise the following:

- Fixed payments, including in-substance fixed payments which may contain variability but are unavoidable; and
- Variable payments that depend on an index or a rate, are initially measured using the index or rate as at the commencement date. Variable payments based on usage or performance are not included in the measurement of the lease liability.

The lease liability is measured at amortized cost using the effective interest method. The lease liability is subsequently increased by the interest cost and decreased by lease payments made, over the term of the lease. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, a change in the estimate of the amount expected to be payable under a residual value guarantee, or as appropriate, changes in the assessment of whether a purchase or extension option is reasonably certain to be exercised or a termination option is reasonably certain not to be exercised. When a lease liability is remeasured, a corresponding adjustment is also made to the carrying amount of the right-of-use asset.

Short-term leases and leases of low-value assets

TMX Group has elected to not recognize right-of-use assets and lease liabilities for short-term leases that have a lease term of 12 months or less, and leases of low-value assets. TMX Group continues to recognize the lease payments associated with these leases as an expense over the term of the lease on a straight-line basis.

ADOPTION OF IFRS 16

Substantially all of TMX Group's identified leases are premise leases. At transition, lease liabilities were measured at the present value of the remaining lease payments, discounted at TMX Group's incremental borrowing rate as at January 1, 2019. Right-of-use assets are measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments. TMX Group has applied judgment in determining the lease term for some lease contracts in which there is a renewal option or termination option.

TMX Group applied the following practical expedients when applying IFRS 16 to leases previously classified as operating leases under IAS 17:

- applied a single discount rate to a portfolio of leases with similar characteristics;
- applied the exemption not to recognize right-of-use assets and liabilities for leases with less than 12 months of lease term;
- used hindsight when determining the lease term if the contract contains options to extend or terminate the lease; and
- relied on TMX Group's assessment of whether leases were onerous applying IAS 37, *Provisions, Contingent Liabilities and Contingent Assets*, which was made immediately before the date of initial application as an alternative to performing an impairment review.

Impact on Balance Sheet

On transition to IFRS 16, TMX Group recognized \$94.9 million of right-of-use assets and \$103.2 million of lease liabilities, of which \$8.2 million was classified as current lease liabilities and recorded in "Other current liabilities". The difference between right-of-use assets and lease liabilities is attributable to previously accrued lease payments. When measuring lease liabilities, TMX Group discounted lease payments using its incremental borrowing rate, which is derived from an indicative credit spread as at January 1, 2019. TMX Group applied a weighted average incremental borrowing rate of 3.4%.

Impact on Income Statement

For 2019, the following is an estimate of the impact of implementing IFRS 16:

\$ increase / (decrease) in net income (in millions of dollars)	Year ended December 31, 2019
Depreciation and amortization expense	(9.8)
Net finance costs	(3.5)
Selling, general and administration expenses (related to occupancy costs)	10.3
Income tax expense	0.7
Overall impact on Net Income	(2.3)

Future changes in accounting policies

The following new standards and amendments to standards and interpretations are not yet effective for the year ending December 31, 2019, and have not been applied in the preparation of the financial statements. These new and amended standards and interpretations are required to be implemented for financial years beginning on or after January 1, 2020, unless otherwise noted:

- IFRS 3, Business Combinations - Amendments clarify that while businesses usually have outputs, outputs are not required for an integrated set of activities and assets to qualify as a business. To be considered a business, an acquired set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs. We do not expect the amendments to have a material impact on our financial statements.
- IAS 1, Presentation of Financial Statements, and IAS 8, Accounting Policies, Changes in Accounting Estimates and Errors - Amendments are intended to make the definition of material in IAS 1 easier to understand and are not intended to alter the underlying concept of materiality in IFRS standards. The concept of "obscuring" material information with immaterial information has been included as part of the new definition. The threshold for materiality influencing users has been changed from "could influence" to "could reasonably be expected to influence". The definition of material in IAS 8 has been replaced by a reference to the definition of material in IAS 1. We do not expect the amendments to have a material impact on our financial statements for years after 2019.
- Amendments to conceptual framework - On March 29, 2018 the IASB issued a revised version of its Conceptual Framework for Financial Reporting that underpins IFRS Standards. The IASB also issued Amendments to References to the Conceptual Framework in IFRS Standards to update references in IFRS Standards to previous versions of the Conceptual Framework. We do not expect the amendments to have a material impact on our financial statements for years after 2019.

Disclosure Controls and Procedures and Internal Control over Financial Reporting

Disclosure Controls and Procedures

TMX Group's disclosure controls and procedures (DCP), as defined in National Instrument 52-109 – Certification of Disclosure in Issuers' Annual and Interim Filings (NI 52-109) are designed to provide reasonable assurance that information required to be disclosed in our filings under securities legislation is recorded, processed, summarized and reported within the time periods specified in securities legislation. They are also designed to provide reasonable assurance that all information required to be disclosed in these filings is accumulated and communicated to management, including the Chief Executive Officer (CEO) and Chief Financial Officer (CFO) as appropriate, to allow timely decisions regarding public disclosure. We regularly review our disclosure controls and procedures; however, they cannot provide an absolute level of assurance because of the inherent limitations in control systems to prevent or detect all misstatements due to error or fraud.

Our management, including the CEO and CFO, conducted an evaluation of the effectiveness of our DCP as of December 31, 2019. Based on this evaluation, the Interim CEO and CFO has concluded that our DCP were effective as of December 31, 2019.

Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting (ICFR), as defined in NI 52-109. ICFR means a process designed by or under the supervision of the CEO and CFO, and effected by our board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS, and includes those policies and procedures that: (1) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of TMX Group; (2) are designed to provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS, and that receipts and expenditures of TMX Group are being made only in accordance with authorizations of management and directors of TMX Group; and (3) are designed to provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of TMX Group's assets that could have a material effect on the financial statements.

All internal control systems have inherent limitations and therefore our ICFR can only provide reasonable assurance and may not prevent or detect misstatements due to error or fraud.

Our management, including the interim CEO and CFO, conducted an evaluation of the effectiveness of our ICFR as of December 31, 2019 using the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework (2013). Based on this evaluation, the Interim CEO and CFO has concluded that our ICFR were effective as of December 31, 2019.

Changes in Internal Control over Financial Reporting

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

Related Party Relationships and Transactions

Parent

The shares of TMX Group are widely held and, as such, there is no ultimate controlling party of TMX Group. Under the OSC and AMF Recognition Orders, no person or combination of persons, acting jointly or in concert, is permitted to beneficially own or exercise control or direction over more than 10% of any class or series of voting shares of TMX Group without prior approval of the OSC and the AMF.

Key management personnel compensation

Compensation for key management personnel, including TMX Group's Board of Directors, was as follows for the year:

(in millions of dollars)	2019	2018
Salaries and other short-term employee benefits, and termination benefits	\$9.7	\$14.1
Post-employment benefits	0.6	0.6
Share-based payments	17.0	12.2
	27.3	26.9

CAUTION REGARDING FORWARD-LOOKING INFORMATION

This MD&A of TMX Group contains “forward-looking information” (as defined in applicable Canadian securities legislation) that is based on expectations, assumptions, estimates, projections and other factors that management believes to be relevant as of the date of this MD&A. Often, but not always, such forward-looking information can be identified by the use of forward-looking words such as “plans,” “expects,” “is expected,” “budget,” “scheduled,” “targeted,” “estimates,” “forecasts,” “intends,” “anticipates,” “believes,” or variations or the negatives of such words and phrases or statements that certain actions, events or results “may,” “could,” “would,” “might,” or “will” be taken, occur or be achieved or not be taken, occur or be achieved. Forward-looking information, by its nature, requires us to make assumptions and is subject to significant risks and uncertainties which may give rise to the possibility that our expectations or conclusions will not prove to be accurate and that our assumptions may not be correct.

Examples of forward-looking information in this MD&A include, but are not limited to, growth objectives; the ability to integrate VisoTech into Trayport and the expected impact of the VisoTech acquisition on TMX Group's results; the proposed relaunch of the Two-Year Government of Canada Bond Futures; our target dividend payout ratio; the ability of TMX Group to de-leverage and the timing thereof; the modernization of clearing platforms, including the expected cash expenditures related to the modernization of our clearing platforms and the timing of the modernization; other statements related to cost reductions; the impact of the market capitalization of TSX and TSXV issuers overall (from 2018 to 2019) on TMX Group's revenue; future changes to TMX Group's anticipated statutory income tax rate for 2019; factors relating to stock, and derivatives exchanges and clearing houses and the business, strategic goals and priorities, market conditions, pricing, proposed technology and other initiatives, financial results or financial condition, operations and prospects of TMX Group which are subject to significant risks and uncertainties.

These risks include: competition from other exchanges or marketplaces, including alternative trading systems and new technologies, on a national and international basis; dependence on the economy of Canada; adverse effects on our results caused by global economic conditions or uncertainties including changes in business cycles that impact our sector; failure to retain and attract qualified personnel; geopolitical and other factors which could cause business interruption; dependence on information technology; vulnerability of our networks and third party service providers to security risks, including cyber-attacks; failure to properly identify or implement our strategies; regulatory constraints; constraints imposed by our level of indebtedness, risks of litigation or other proceedings; dependence on adequate numbers of customers; failure to develop, market or gain acceptance of new products; failure to effectively integrate acquisitions to achieve planned economics, or divest underperforming businesses; currency risk; adverse effect of new business activities; adverse effects from business divestitures; not being able to meet cash requirements because of our holding company structure and restrictions on paying dividends; dependence on third-party suppliers and service providers; dependence of trading operations on a small number of clients; risks associated with our clearing operations; challenges related to international expansion; restrictions on ownership of TMX Group common shares; inability to protect our intellectual property; adverse effect of a systemic market event on certain of our businesses; risks associated with the credit of customers; cost structures being largely fixed; the failure to realize cost reductions in the amount or the time frame anticipated; dependence on market activity that cannot be controlled; the regulatory constraints that apply to the business of TMX Group and its regulated subsidiaries, costs of on exchange clearing and depository services, trading volumes (which could be higher or lower than estimated) and revenues; future levels of revenues being lower than expected or costs being higher than expected.

Forward-looking information is based on a number of assumptions which may prove to be incorrect, including, but not limited to, assumptions in connection with the ability of TMX Group to successfully compete against global and regional marketplaces; business and economic conditions generally; exchange rates (including estimates of exchange rates from Canadian dollars to the U.S. dollar or GBP), commodities prices, the level of trading and activity on markets, and particularly the level of trading in TMX Group's key products; business development and marketing and sales activity; the continued availability of financing on appropriate terms for future projects; productivity at TMX Group, as well as that of TMX Group's competitors; market competition; research and development activities; the successful introduction and client acceptance of new products; successful introduction of various technology assets and capabilities; the impact on TMX Group and its

customers of various regulations; TMX Group's ongoing relations with its employees; and the extent of any labour, equipment or other disruptions at any of its operations of any significance other than any planned maintenance or similar shutdowns.

In addition to the assumptions outlined above, forward looking information related to long term revenue cumulative average annual growth rate (CAGR) objectives, and long term adjusted earnings per share CAGR objectives are based on assumptions that include, but not limited to:

- TMX Group's success in achieving growth initiatives and business objectives;
- continued investment in growth businesses and in transformation initiatives including next generation post-trade systems;
- no significant changes to our effective tax rate, recurring revenue, and number of shares outstanding;
- moderate levels of market volatility;
- level of listings, trading, and clearing consistent with historical activity;
- economic growth consistent with historical activity;
- no significant changes in regulations;
- continued disciplined expense management across our business;
- continued re-prioritization of investment towards enterprise solutions and new capabilities; and
- free cash flow generation consistent with historical run rate.

While we anticipate that subsequent events and developments may cause our views to change, we have no intention to update this forward-looking information, except as required by applicable securities law. This forward-looking information should not be relied upon as representing our views as of any date subsequent to the date of this MD&A. We have attempted to identify important factors that could cause actual actions, events or results to differ materially from those current expectations described in forward-looking information. However, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended and that could cause actual actions, events or results to differ materially from current expectations. There can be no assurance that forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information. These factors are not intended to represent a complete list of the factors that could affect us.