

AEQUITAS



INNOVATIONS

# BREAKING THE VIRTUAL CANADIAN MARKET DATA MONOPOLY

**A POSITION PAPER BY  
AEQUITAS INNOVATIONS INC.**

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## ABSTRACT

In the Canadian capital markets today, there are multiple trading venues facilitating the trading of publicly listed securities. As a result, there is no single source of market data, and pricing remains at the mercy of the terms and conditions of each individual trading venue. This stands in stark contrast to the US markets where regulators have mandated a consolidated market data solution available to everyone at a reasonable cost.

Although the Canadian Securities Administrators provided for choice and competition in trading, they have not yet addressed other potential anti-competitive practices, including the use of a dominant position to maintain control over the pricing for market data. In the market data space, the TMX has remained, in effect, an unfettered monopoly, leveraging its market power to charge prohibitive and monopolistic pricing. These exorbitant market data fees have left investment dealers with no choice but to restrict market data access given to their investment advisors and retail clients.

The prohibitive cost of market data has negatively impacted Canadian investors and capital-raising companies:

- Canadian retail investors and domestic investment advisors are only given access to a partial view of what is going on in the public markets. Without access to the whole picture, investors are making less informed investment decisions.
- It has also led to negative perceptions about liquidity and transparency, further impacting investor confidence and interest.
- Trading information from Canada's public companies and investment products is not reaching the broadest possible audience, neither domestically nor internationally. This is devastating to the visibility and liquidity required by public companies. It is also devastating to the strength and quality of investment opportunities in Canada.

Aequitas has developed a solution to break the virtual Canadian market data monopoly. The solution would utilize investment dealers' private market data - order and trade information sent directly from contributing Canadian investment dealers based on their activity on the different Canadian marketplaces - to construct a Consolidated Market View (Aequitas CMV Connect™). Aequitas CMV Connect would not be reliant on the expensive public market data feeds provided by trading venues, therefore enabling tens of millions of dollars in cost savings for the industry. It would also produce superior quality market data compared to what most investors have access to today.

One problem remains: the monopolistic behaviour of the TMX has ensured that investment dealers are captive consumers and captive suppliers of their own private market data. Armed with data agreements that we believe are anti-competitive, TMX claims ownership over investment dealers' private market data. The TMX can seek to prevent the deployment of Aequitas CMV Connect solution by refusing to allow investment dealers to contribute their private market data.

The TMX is clinging to a monopolistic past that has no place in Canada's capital markets in 2015.

Aequitas cannot challenge the TMX on access to private market data alone. This issue impacts the entire industry and the industry needs to respond. It is time for all industry participants to make their voice heard. It is time for a commercial solution to challenge the TMX stranglehold on Canadian market data. It's time to drive meaningful change.

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# INTRODUCTION TO MARKET DATA

## What is market data?

Market data is the quoted pricing and trading-related information for a particular publicly listed security such as a stock or an Exchange Traded Fund (ETF). Market data is reported by trading venues, such as stock exchanges. Market data allows traders and investors to know the bid and offer prices at which they can sell and/or buy securities, the most recent prices at which trades took place, the most recent update of overall volume traded, historical trends, as well as other information to enable sound investment decisions.

Market data is also very important for publicly listed companies, ETF providers and other types of security issuers, as it allows them to promote their security and ensure that investors and traders are aware that the security is publicly traded. It enables investor interest and liquidity, both critical to successful public listings.

## The listing and trading landscape in Canada

Historically in Canada, public securities were listed and traded on the Toronto Stock Exchange, the Montreal Stock Exchange, as well as exchanges in Vancouver, Calgary, and Winnipeg. The exchanges existed for their investment dealer members as utilities to list and trade securities and report information on trading activity.

At the end of the last century, the market landscape drastically changed. In 1999, through a national realignment plan, the Toronto Stock Exchange became Canada's sole platform for the listing and trading of senior equities, while the Canadian Venture Exchange (CDNX) consolidated listing and trading of junior securities. In the early 2000s, the Toronto Stock Exchange became a for-profit organization, acquired the CDNX (rebranded into TSX Venture Exchange) and itself became a public company.

In an effort to avoid a trading monopoly and to ensure a competitive trading environment, in 2001 the Canadian Securities Administrators established a regulatory framework to allow other organizations to set up trading venues providing choice and competition to market participants. Trading venues can be either Exchanges or Alternative Trading Systems (ATs), with the main difference being that Exchanges can both list and trade securities, whereas ATs can only trade but not list securities. While Exchanges and ATs are regulated differently,<sup>1</sup> both have the right, but not the obligation, to trade any Canadian listed security.

Today in Canada there are over 10 different trading venues. The TMX Group owns and operates three trading venues for securities – Toronto Stock Exchange (TSX),<sup>2</sup> TSX Venture Exchange (TSXV) and Alpha. The following chart shows the market share for the various trading venues:<sup>3</sup>

### THE IMPORTANCE OF MARKET DATA

I am interested in investing in Bombardier Inc. (a Canadian multinational aerospace and transportation company listed on the Toronto Stock Exchange under the symbol BBD.B) and will go to my online direct investing platform provided by my broker to access information and complete the trade. The market data shows me that the best bid/offer in the market is \$1.16/\$1.17. If I want to buy the stock, someone is willing to sell it to me for \$1.17 and someone else is willing to buy for \$1.16. I can also see that there are several thousand shares available at the offer price. I should be able to buy the shares at the price I see offered.

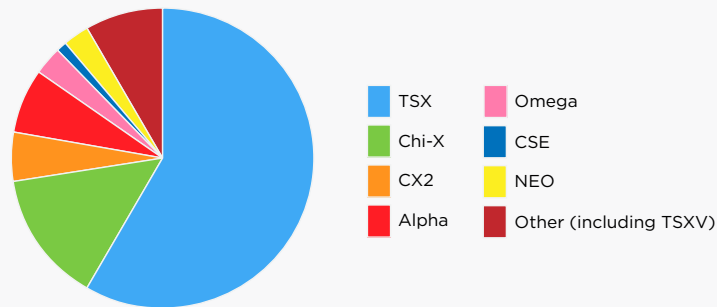
<sup>1</sup> Exchanges are regulated by the Canadian Securities Administrators (CSA) and ATs are regulated under marketplace rules by the CSA and also as dealers by the Investment Industry Regulatory Organization of Canada (IIROC).

<sup>2</sup> TSX Inc. (TSX) is owned and operated by TMX Group Inc., which also operates the TSX Venture Exchange (TSXV). References in this white paper about market data practices of the TSX are also generally applicable to the TSXV. Any reference to "TMX" would typically encompass both TSX and TSXV.

<sup>3</sup> Source: [http://www.iiroc.ca/industry/marketmonitoringanalysis/Documents/MarketplaceStatisticsReportCurrent\\_en.pdf](http://www.iiroc.ca/industry/marketmonitoringanalysis/Documents/MarketplaceStatisticsReportCurrent_en.pdf)

## TRADING VENUE MARKET SHARE

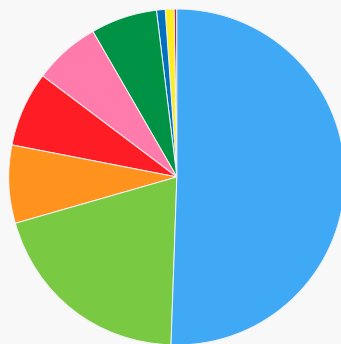
NOTIONAL VALUE TRADED - Q3 2015



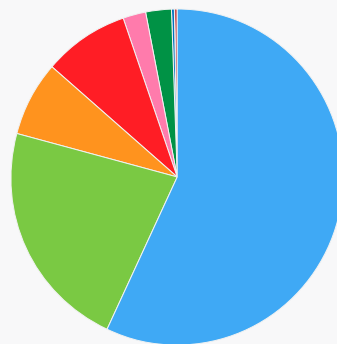
In actively traded securities, it is common to see half, or more, of the daily volume traded off the listing exchange. Here are examples of some actively traded TSX-listed securities and their distribution of trading volume among the different trading venues:<sup>4</sup>

## EXAMPLES OF TRADING VOLUME DISTRIBUTION FOR TSX-LISTED SECURITIES

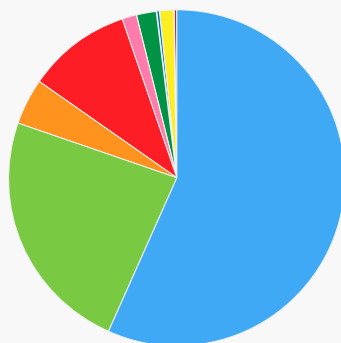
BOMBARDIER INC. (BBD.B)



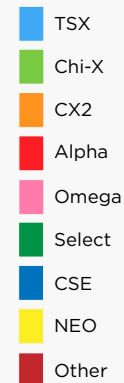
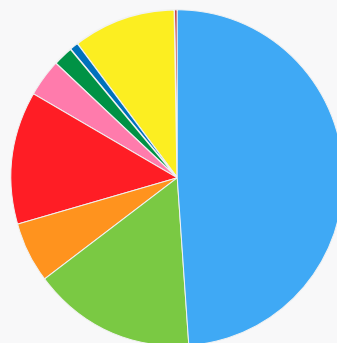
BLACKBERRY INC. (BB)



ELDORADO GOLD CORP. (ELD)

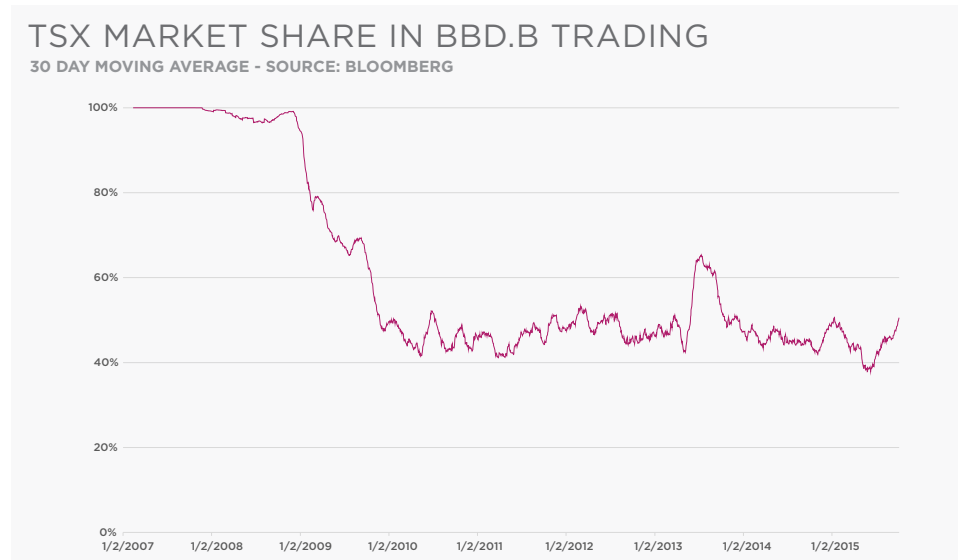


ISHARES S&P/TSX INDEX ETF (XIU)



<sup>4</sup> Data extracted from Fidessa Fragulator Service for the month of August 2015: <http://fragmentation.fidessa.com/fragulator/>

The recent growth in the number of trading venues has resulted in a corresponding loss of market share by the TSX and the TSXV. We can expect this trend to continue, if not accelerate. The diagram below shows the TSX market share erosion over time in the trading of Bombardier, an actively traded security listed on the TSX:



As several studies<sup>5</sup> have shown, competition in the trading space and the general electrification of markets have stimulated innovation, reduced trading fees and increased market efficiencies. With the exception of trading venues that enable predatory trading strategies, trading competition has, for the most part, benefitted investors.

### The market data conundrum

A notable exception to the benefits of competition in the trading space is access to market data.

A vast majority of investors and their advisors only have access to TSX and TSXV market data, despite the fact that a continuously growing part of the trading action is taking place on other trading venues. When market participants receive market data on a TSX-listed security exclusively from the TSX, they are only seeing part of the picture. Without access to the whole picture, they are making less informed investment decisions.

<sup>5</sup> See for example the Bank of Canada study on the effects of fragmentation of markets in Canada from August 2013: <http://www.banqueducanada.ca/wp-content/uploads/2013/11/boc-review-autumn13-garriott.pdf>

## ACCESS TO MARKET DATA

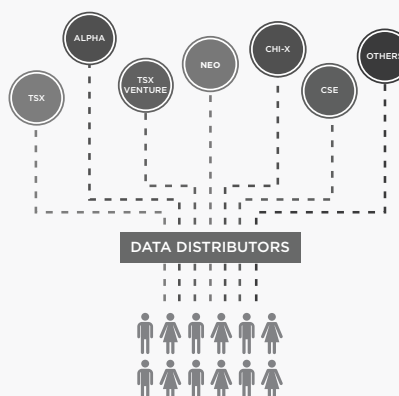
### How do market participants access market data?

Market data can be accessed in multiple ways and access varies by type of market participant:

- Algorithmic traders<sup>6</sup> pay a significant amount of money to connect directly to trading venues and consolidate the market data themselves for use in their electronic trading engines.
- For professional traders and investors, there are a number of companies that specialize in consolidating and distributing market data. Data vendors like Bloomberg and Thomson Reuters gather market data from all the different trading venues and package it in an aggregated and consolidated manner across various products and services. The cost of these products and services means that they are targeted at professional users and typically absorbed as a part of their firms' overall operating expenses.
- Investment advisors typically access the best bid and offer prices available (called “top of book” or “level 1”) through desktop applications provided by specialized data vendors. Most commonly, their brokerage firm absorbs this cost, or passes it through to the investment advisors.
- Retail investors typically access market data through their direct investing platform, media outlets or the internet (Google, Yahoo etc.). Sources on the internet would typically show 15 minute delayed data which is provided at no cost, while direct investing platforms show live snapshot<sup>7</sup> data or stream real-time data where the cost of data is embedded in the fee for the direct investing service.

### MARKET DATA ACCESS THE CHALLENGE

1. Each marketplace distributes data in real-time about the trading that is taking place on its market
2. Market data vendors, or data distributors, aggregate that data
3. Each end user must be permissioned for, and pay fees to, **each individual marketplace** in order to get consolidated data



At first glance it seems simple, and it appears that all market participants can easily access the market data of a security listed on the TSX. A closer look, however, will reveal that retail investors and investment advisors are not seeing the full picture of market activity.

In order to see the complete trading activity of any listed security, information on trading activity across all trading venues needs to be considered, but the cost of accessing this is prohibitive.

<sup>6</sup> This group of market participants includes High-Frequency Traders (HFT) who perform a type of algorithmic trading characterized by high speed, high turnover rates and high order-to-trade ratios, leveraging special access mechanisms to the data.

<sup>7</sup> Snapshot data is typically provided on a pay-per-click basis. Retail investors would not see this cost, but each time they refresh their browser to get the latest market data update their brokerage firm incurs a small fee.

### The cost of consolidated Canadian market data

The cost of consolidated Canadian market data available today is considerably out of line with markets around the world. Let's look at two specific and telling examples comparing the cost of TSX and TSXV market data only with the cost market data from all exchanges and marketplaces in the United States:<sup>8</sup>

	TSX+TSXV DATA	U.S. CONSOLIDATED DATA
Investment advisor monthly cost for real-time public market data	<ul style="list-style-type: none"> <li>~60% of volume traded in Canada (TSX + TSXV), varies by security</li> <li>TSX and TSXV-listed securities only (excludes CSE-listed securities)</li> <li>Canadian market capitalization ~\$2 trillion USD</li> </ul>	<ul style="list-style-type: none"> <li>Includes traded volume for all securities listed on any US exchange regardless of where they trade (excluding venues that are not required to publish their data, like proprietary dark pools)</li> <li>US market capitalization ~\$28 trillion USD</li> </ul>
	TSX level 1 = \$30 TSXV level 1 = <u>\$25</u> <b>Total = \$55</b>  Normalized consolidated fee based on 60% market share (55 / 60%) = ~\$92  Normalized based on market capitalization (92 / 2) = \$46	CTA Network A = US\$27 (assumes 3 -999 units) CTA Network B= US\$23 <u>UTP = US\$22</u> <b>Total = US\$72</b>  Converted to CAD (72 / 0.75) = ~\$96  Normalized based on market capitalization (96 / 28) = ~\$3.5
	<b>Conclusion: TMX fees for professional users are about 13 times more expensive than US fees (\$46 / \$3.5 = ~13)</b>	
Retail investor monthly cost for real-time public market data	TSX level 1 = \$6 TSXV level 1 = <u>\$6</u> <b>Total = \$12</b>  Equivalent consolidated fee based on 60% market share (12 / 60%) = ~\$20  Normalized based on market capitalization (20 / 2) = \$10	CTA Network A = \$1 CTA Network B= \$1 <u>UTP = \$1</u> <b>Total = \$3</b>  Converted to CAD (3 / 0.75) = ~\$4  Normalized based on market capitalization (4 / 28) = ~\$0.1
	<b>Conclusion: TMX fees for retail investors are about 100 times more expensive than US fees (\$10 / \$0.1 = 100)</b>	

A detailed comparative analysis of market data costs amongst Canadian trading venues and a comparison to some of the leading international peers is available in Appendix A.

Market data fees are significantly more expensive in Canada compared to international peers because the TMX has used its dominant market position to maintain artificially high pricing. These prices alone are too expensive for dealers.

On top of this, dealers also have to pay additional fees to the other individual trading venues to access their market data.<sup>9</sup> These fees are typically charged for every single end-user (i.e. trader, advisor or client). With thousands of end-users, the costs become prohibitive and unsustainable for the dealers, leaving them no choice but to provide access to TSX and TSXV data only.

<sup>8</sup> For details and sources see Appendix A

<sup>9</sup> For a comparison of fees between different Canadian trading venues, see Appendix A



## THE MARKET DATA MONOPOLY IN CANADA

In the US, the trading landscape is even more fragmented than in Canada, with over 50 venues trading the same listed securities. However, unlike Canada, US regulators have mandated a consolidated market data solution available at a reasonable cost.<sup>10</sup> Market participants, including retail investors and investment advisors, pay a low fixed fee per month and all the contributing trading venues get a portion of that fee largely based on their market share and quality of quotes.

In Canada, while there is a requirement for all trading venues to send their market data to a regulated “information processor”<sup>11</sup> which acts as a consolidator, market data costs are still at the mercy of the terms and conditions of each individual trading venue.

Although the Canadian Securities Administrators provided for choice and competition in trading, they have not yet addressed other potential anti-competitive behaviours, including use of a dominant position to maintain control over the pricing for market data. When it comes to market data, the TMX has remained, in effect, an unfettered monopoly, charging prohibitive and monopolistic pricing.

***US regulators have mandated a consolidated market data solution available at a reasonable cost.***

***The TMX has remained, in effect, an unfettered monopoly, charging prohibitive and monopolistic pricing.***

**The root cause of the Canadian market data cost issue**

The TMX’s virtual monopoly in the market data space impedes competitive forces from operating effectively to bring down the cost of market data in Canada. This, combined with an acceptance of the status quo to date by the Canadian regulators, has further enabled the TMX to maintain an extremely high fee strategy.

<sup>10</sup> In the US, consolidated securities market data is regulated by Section 11A of the Exchange Act which mandates the availability, at a reasonable cost, of a consolidated securities market data solution provided for by the Consolidated Tape Association (“CTA”) and Consolidated Quotation (“CQ”) Plans for quote and trade data dissemination for exchange-listed securities, and the OTC/UTP Plan for quote and trade data dissemination for Nasdaq-listed securities. Each of these Plans are filed with and approved by the Securities and Exchange Commission in accordance with Section 11A. Dealers subscribe only to the Plans.

<sup>11</sup> All Canadian trading venues are required to send their market data to the Information Processor (IP). The IP will consolidate all the different market data feeds and normalize them into a common format. This provides market participants an easy way through a single source to get access to market data from all Canadian venues. However, this has no impact on the cost of market data as the IP simply passes through the fees from all the contributing venues. The regulators have appointed TMX to be the operator of this service. For more information see: <http://www.tmxinfoservices.com/tmx-datalinx/tmx-ip>

There are many examples that clearly demonstrate that TMX has a virtual monopoly over market data:

- Despite declining market share of the TSX and TSXV trading venues, the TMX has not reduced its market data fees to reflect this decline.
- Alpha, a competitive alternative trading venue, was acquired by TMX in 2012. The platform now has a market share around 5%, but the TMX is still charging the same fees as prior to the acquisition, when Alpha had a 20% market share.
- TMX recently closed down its TMX Select trading venue under the guise of reducing market complexity, while at the same time transforming the Alpha trading model.<sup>12</sup> Doing the exact opposite – closing Alpha and transforming Select – would have had significantly less impact on the investment dealer community, but TMX chose to go forward with Alpha which, unlike Select, charges for market data.

### Most Canadian investors have no access to consolidated market data

The anti-competitive pricing applied by the TMX has led to serious and adverse consequences. Canadian dealers, under profitability pressure and with no regulatory requirement to provide investors with consolidated market data, only provide their retail investors and investment advisors with minimum access: market data reported by the TSX and TSXV trading venues. Despite available infrastructure, prohibitive costs are preventing retail investors and investment advisors, domestically and abroad, from accessing consolidated Canadian market data.

Most importantly, retail investors and investment advisors are often unaware of the information gap, which may lead them to “*uninformed and therefore sub-optimal order entry decisions*”, as stated by the Investment Industry Regulatory Organization of Canada (IIROC).<sup>16</sup>

Without access to affordable consolidated market data, retail investors and investment advisors are settling for less information. As a result, they are at a distinct disadvantage when making investment decisions.

#### QUICK FACTS

- Only between 2-5%<sup>13</sup> of Canadian investment advisors have access to consolidated market data for TSX- or TSXV-listed securities.
- Close to zero percent of retail investors using direct investing platforms<sup>14</sup> have access to consolidated market data, potentially leading them to make uninformed and sub-optimal order entry decisions.
- Only 10-15%<sup>15</sup> of all North American investment advisors have access to Canadian real-time market data, in any form, for TSX- and TSXV-listed securities<sup>16</sup>, therefore ignoring Canadian securities as an investment opportunity.

<sup>12</sup> Source: <http://www.tsx.com/resource/en/683/reshaping-canadas-equities-trading-landscape-2014-12-10-en.pdf>

<sup>13</sup> Estimate based on a survey amongst Canadian dealers with a significant number of affiliated investment advisors.

<sup>14</sup> Estimate based on a survey amongst providers of discount brokerage platforms.

<sup>15</sup> Estimate based on a high level assessment of subscriptions amongst global investment dealers.

<sup>16</sup> The Investment Industry Regulatory Organization of Canada stated in a [survey](#), published in March 2014, the following: “IIROC is concerned that firms engaged in the on-line retail trading business that provide limited market data may not be clearly describing the scope of the market data offered. Clients that are unaware of the constraints of the market data provided may make uninformed and therefore sub-optimal order entry decisions.” Link: <http://www.iiroc.ca/Documents/2014/7ee6a32a-09e1-4545-a27d-a8435634c84c-en.pdf>

# DETRIMENTAL EFFECTS ON CANADIAN CAPITAL FORMATION

## Impact on Canadian investors and their dealers

Without a holistic view of market pricing, liquidity and volume, the ability of investors and investment advisors to make sound investment decisions is inhibited. Furthermore, investment dealers are forced to place resting orders (limit orders that won't immediately trade) on the TSX or the TSXV trading venues so their investment advisors and retail investors can see them. This is not necessarily in their best interest from a best execution perspective.

## Impact on Canadian capital-raising companies

The consequences of the market data monopoly in Canada are multiple and go far beyond the ability of retail investors and investment advisors to make informed and optimal investment decisions.

### THE IMPORTANCE OF MARKET DATA

When an investment advisor looks up the market data of an ETF, because he is of the opinion that it would be the right investment for his clients, he gets an inaccurate picture of trading activity, but without knowing that is the case. For example, he may see that the best prices are \$10.00 to buy, \$10.10 to sell and that this ETF has not traded at all today. As a result, he may conclude that under these conditions he will not buy the ETF. The problem is that he only saw TSX data. If he had access to market data from all the other trading venues, he might have seen the best prices at \$10.03 to buy, \$10.07 to sell and thousands of units traded today. Unaware of the actual activity, he decided against the investment opportunity for his client.

Public companies and other issuers listed on the TSX or TSXV do not benefit from the interest they could and should have if Canadian investment advisors and retail investors had a holistic view of the trading activity in their securities. A partial view of trading activity in a security can lead to negative perceptions about liquidity and transparency, impacting interest in the security and overall investor confidence.

Multiple TSX-listed ETF issuers raised this specific issue with us, stating that investment opportunities in ETFs were rejected by investment advisors due to the lack of volume the advisors could see by only having access to TSX market data. In reality, the volume traded across all Canadian trading venues in ETFs is

about three times larger than what is traded on the TSX. We had investment advisors confirm this type of scenario and can only imagine how it affects public companies where executives, further away from how market structure operates, do not realize the adverse implications of the current market data issue in Canada.

Furthermore, the prohibitive cost of Canadian market data keeps non-Canadian investment advisors – and all the investment dollars they represent – away from the Canadian market, thereby ignoring Canadian investment opportunities. This lack of interest from a larger pool of potential investors impacts Canadian listed companies and the Canadian economy overall.

***Trading information does not reach the broadest possible audience.***

Trading information from Canada's public companies and other listed securities does not reach the broadest possible audience, domestically and internationally. This is devastating to the visibility of Canadian listed companies and to their ability to attract investments.

## STATUS QUO IS NOT ACCEPTABLE

The debate around Canadian market data, and the excessive costs associated with it, has been going on for many years<sup>17</sup> without any clear signals from the securities regulators that they are addressing the issue. The most recent proposals from the regulators on the matter were put out for public comment in May 2014.<sup>18</sup> Other than adopting a methodology for reviewing all market data fee changes proposed by trading venues, there was no further follow-up. The many concerns and substantial discussions raised in subsequent comment letters were not addressed. The fact that

***TMX charges virtually the same fees as they did when they had 100% market share.***

the TMX charges virtually the same fees as they did when they had 100% market share has not been taken into consideration.<sup>19</sup> Furthermore, no indication was given about progressing towards a US-like ‘reasonable cost’ approach that would have the ability to address the status quo.

The remainder of this position paper describes the solution Aequitas Innovations Inc. (Aequitas) designed to tackle the problem, the tangible and intangible benefits it would bring and how market participants can help make it happen.

<sup>17</sup> On June 7th, 2011, the Investment Industry Association of Canada (IIAC) issued a Press Release titled “TMX Group Market Data Price Reductions not responsive to market reality”, calling for rigorous regulatory review “based on the findings of a study commissioned by IIAC, which had as purpose to assess Canada’s price competitiveness for market data from a global perspective: Link: <http://iiac.ca/wp-content/themes/IIAC/New%20Releases/2011/IIAC%20TMX%20Press%20Release%20-%20June%207%202011.pdf>

The study, completed in January, was undertaken by Securities Litigation Consulting Group (SLCG):

<http://iiac.ca/wp-content/themes/IIAC/resources/1580/original/SLCG-Canadian-Market-DataJune%207.pdf>

<sup>18</sup> Source: [http://www.osc.gov.on.ca/documents/en/Securities-Category2/csa\\_20140515\\_23-101\\_rfc-pro-amd.pdf](http://www.osc.gov.on.ca/documents/en/Securities-Category2/csa_20140515_23-101_rfc-pro-amd.pdf)

<sup>19</sup> For example, based on published TMX market data fees, in 2003 TMX fees at the highest discount level for TSX level 1 data were \$30 per month. In 2015, they remain at \$30 per month. Similarly, in 2003, TMX fees at the highest discount level for TSX level 1 + 2 data were \$75 per month. In 2015, they are now \$110 per month.

## THE AEQUITAS SOLUTION

The design of the Aequitas solution was based on a three-step approach:

1. Understand what market participants really need in a fair and efficient market.
2. Identify where to source prerequisite data in a cost efficient way.
3. Develop a model and pricing structure that packages high quality consolidated market data at a reasonable cost.

### What adversely impacted market participants need: consolidated market view

When discussing consolidated market data, industry and regulatory attention has often focused on the real-time market data typically used by algorithmic traders to make trading decisions in an automated or semi-automated fashion. Algorithmic traders typically want to be connected directly to all the trading venues because they are more latency sensitive than cost sensitive. As such, they are not the type of users that face unsurmountable market data cost and access issues.

The cost of and access to consolidated market data is more of an issue for investment dealers that deliver trading and displayed “real-time” market data services to their retail clients and to their investment advisors. These are the capital markets stakeholders that are directly and most adversely impacted by the current Canadian market data monopoly. We believe our solution will help these stakeholders.

Based on our interactions with a representative sample of these stakeholders, it became rapidly clear to us that they need consolidated market data at a reasonable cost and delivered to them within a reasonable timeframe. We have defined this as Consolidated Market View, or Aequitas CMV Connect™. It is not about delivering real time market data within micro-seconds from when it is generated, which is what algorithmic traders seek. Rather, it is about delivering market data within a timeframe that adequately supports the human decision-making process.

We have designed the Aequitas CMV Connect solution to:

- Reduce the access cost for displayed market data to be substantially lower than the cost for TSX and TSXV market data only.
- Deliver displayed market data within 50-100 milliseconds from when the data is generated. This delay is immaterial to the human decision-making process.

#### QUICK FACTS

- It takes 200 - 400 milliseconds for you to blink your eye.
- Human reaction time takes 150 - 300 milliseconds, not including any analysis.

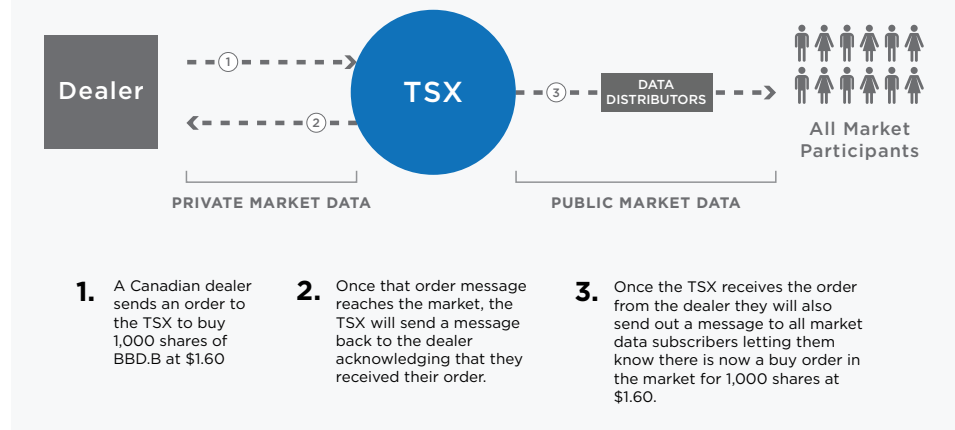
### Sourcing the data for consolidated interactive market data at a reasonable cost

As trading venues clearly show no desire to make their market data (*public market data*) available in a consolidated way at a reasonable cost, we looked for another source of data that would allow us to achieve this objective.

The answer was obvious: the order and trade data that dealers (on behalf of their clients or for their own accounts) send to, and receive from, the trading venues for specific orders they place in the market. This data is known in the industry as *private market data*. Dealers typically use this private market data for risk management purposes, sending order and trade confirmations to their clients and for regulatory reporting requirements.

In contrast, *public market data* is the information sent by each trading venue to all their data subscribers, reporting the order and trading activity that is taking place on their own venue.

## UNDERSTANDING PRIVATE MARKET DATA VS PUBLIC MARKET DATA



Aequitas CMV Connect will be built leveraging private market data:

- Private market data belongs to the dealers and their clients. Therefore, we avoid the need to use public market data published by trading venues.
- Private market data includes, for each dealer, all information required to build a consolidated view of their activity across all trading venues on which they trade.
- With a combination of dealers participating, the consolidated data (across dealers) will be superior to the public market data published by TSX and TSXV.
- The application of a filter, and the intrinsic delay of the solution, will ensure that all confidential information is protected and that no information leakage can occur.

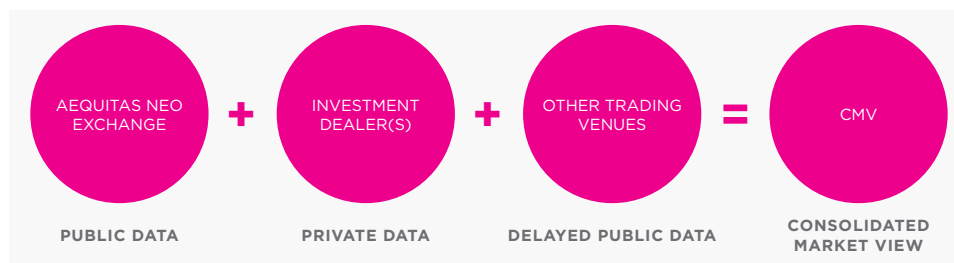
### The Aequitas CMV Connect™ model and pricing structure

The model underpinning Aequitas CMV Connect is, in its purest form, very simple. If you have access to all the private market data generated by all Canadian investment dealers it is possible to construct a complete consolidated picture for any listed security at any point in time. There will be no public market data fees paid to trading venues, which allows the solution to be made available at a reasonable cost.

- Public market data from the Aequitas NEO Exchange will act as a foundation layer,<sup>20</sup> available at no cost (excluding any data that would duplicate private market data from contributing dealers).
- This will be enriched with delayed trading volume information from other contributing venues, also available at no cost<sup>21</sup> (excluding any data that would duplicate private market data from contributing dealers).
- The public and delayed market data would then be combined with the private market data of contributing Canadian investment dealers.

<sup>20</sup> Aequitas is open to discussions with other Canadian marketplaces interested in participating in the foundation layer

<sup>21</sup> As per the fee structure of these venues.



For a more detailed depiction of the proposed solution,<sup>22</sup> see appendix B.

We realize that the number of investment dealers who contribute their private data will grow over time. Therefore, Aequitas has designed a solution that would work in different scenarios:

#### SMALL-SCALE SCENARIO

One or several dealers contribute private data to CMV Connect, supplemented with Aequitas NEO Exchange public data and delayed volume data from other contributing trading venues:

- CMV Connect will provide pricing in all securities, with a much better view of consolidated volume data.<sup>23</sup>
- Investment advisors and retail investors of the contributing dealers will have complete visibility into the status of their own orders.
- Market data fees will be substantially lower.

#### LARGE-SCALE SCENARIO

A significant number of dealers contribute private data to CMV Connect, representing over 50% of volume traded, supplemented with Aequitas NEO Exchange public data and delayed volume data from other contributing trading venues:

- CMV Connect will provide pricing and consolidated volume for all securities that is superior in quality to what most retail investors and advisors get today.<sup>24</sup>
- Investment advisors and retail investors of the contributing dealers will have complete visibility into the status of their own orders.
- Market data fees will be substantially lower.

#### FULL-SCALE SCENARIO

All dealers contribute their private data to CMV Connect and no supplemental data is required:

- CMV Connect is the optimal solution for all market participants.
- Market data fees will be substantially lower.

<sup>22</sup> Aequitas Innovations Inc. has patent applications pending in Canada, the United States and Europe for the “System and Method for Aggregating Market Data of Financial Interests”. Publication No: W0/2014/089672.

<sup>23</sup> Non-contributing Canadian dealers and their clients would not be provided access to CMV Connect.

<sup>24</sup> Non-contributing Canadian dealers and their clients would not be provided access to CMV Connect.

## BENEFITS OF THE AEQUITAS SOLUTION

The Aequitas CMV Connect solution will lead to substantial costs savings for the dealer community and provide substantial benefits to Canada's capital formation process overall.

### Financial benefits

In order to determine the appropriate fee structure for CMV Connect, we analyzed market data fees applied across exchanges on an international basis. For this analysis to be meaningful, and intellectually honest, we also took into account the relative importance of the different exchanges amongst investors, which we believe is best represented by the market capitalization of the securities that are listed on those exchanges.<sup>25</sup>

Taking this analysis into consideration, we believe that an appropriate fee for consolidated market data in Canada (and CMV Connect) should be about half of what the TMX currently charges for TSX and TSXV market data only. At this level of fees, we believe the overall cost of Canadian market data would be in line with international practice.<sup>26</sup>

If we use the above assumption about what the appropriate fee for Canadian consolidated data should be, and our own estimates of the number of domestic and international subscribers (professional and non-professional) to displayed Canadian market data, we estimate<sup>27</sup> that CMV Connect will result in financial savings:

- For Canadian subscribers only: between \$17 million and \$66 million per year.
- For all subscribers (domestic and international): between \$24 million and \$95 million per year.<sup>28</sup>

These savings represent the savings at the level of displayed market data subscriptions and do not include additional savings that CMV Connect would provide at the level of market data feed subscriptions.

### UNDERSTANDING THE SAVINGS IMPACT OF AEQUITAS CMV CONNECT™

A large Canadian dealer has 2,000 investment advisors that all have access to Level 1 data for TSX and TSXV. The fee applied by TMX for this data would be \$55/user/month, which for 2,000 advisors amount to \$1.3 million per year. Should the dealer provide its advisors with access to market data from all trading venues, the yearly cost would increase to \$2.9 million.

Considering a fee for CMV Connect of \$25/user/month, this would represent an annual savings of \$0.8 million for the dealer compared to what it currently pays for just TMX data and of \$2.4 million compared to the current cost of consolidated Canadian market data.

If you consider other uses of market data within the dealer's business, like their direct investing platform, the savings are substantially more.

<sup>25</sup> Based on data from the World Federation of Exchanges <http://www.world-exchanges.org/home/>, the Canadian market is, for example, about half the size of the UK market and about 14 times smaller than the US market.

<sup>26</sup> See Appendix A for a detailed cost comparison of Canadian market data domestically and internationally.

<sup>27</sup> Interested parties can get access to a detailed calculation of the cost savings and all underlying assumptions subject to the execution of an NDA.

<sup>28</sup> The lower end of the ranges compares the savings to what subscribers currently pay for securities market data reported by the TSX and TSXV trading venues only, and the upper range compares the savings to what subscribers would pay today if they had a true consolidated securities market data solution based on the fee structures of all existing Canadian trading venues.



### Benefits to the capital formation process

The TMX's virtual monopoly in market data has caused many adverse impacts on investors, public companies and their dealers. The Aequitas CMV Connect solution helps to address these issues.

#### BENEFITS FOR INVESTMENT DEALERS

- Substantial reduction of ongoing expenses for market data services, which today are not compressible due to the lack of adequate competition in the provision of market data.
- Ability to provide their investment advisors and direct investing clients with a high quality view of trading activity in TSX- and TSXV-listed securities across all trading venues, at a reasonable cost.

#### BENEFITS FOR INVESTMENT ADVISORS AND RETAIL INVESTORS

- Access to a quality view of market data for TSX- and TSXV-listed securities, with superior market pricing, liquidity and volume information. This will allow them to make better informed investment decisions.
- Best execution considerations will no longer be hindered by investment dealers' being forced to place their non-immediately tradable orders on the TSX or TSXV trading venues for visibility purposes.

#### BENEFITS FOR CAPITAL-RAISING COMPANIES

- Trading information accessible to their investors will no longer be partial in nature.
- Trading information will reach a much broader investor audience in Canada and internationally.
- With an enhanced ability to get price information out to the market, public companies and other issuers will feel much more comfortable to consider alternative and competitive exchanges to list their securities.

#### BENEFITS FOR OTHER CANADIAN TRADING VENUES

- Ability to more effectively compete for non-immediately traded order flow, which is today typically routed to the TSX or TSXV so the dealers' customers and advisors can see them.

#### BENEFITS FOR THE CANADIAN ECONOMY

- More efficient capital markets driven by the availability of better information.
- Increased investor confidence.
- Better exposure of Canadian capital-raising companies to domestic and international investors.
- Better access to funding to support companies' growth and, as a result, employment growth and overall growth of the Canadian economy.

## AEQUITAS DRIVERS AND MISSION

Aequitas CMV Connect is a logical next initiative within the frame of Aequitas' vision and mission to make Canadian capital markets more fair to the benefit of investors and capital-raising companies.

Aequitas was established in the first half of 2013 by a group of leading Canadian corporations - the majority ownership in the hands of institutional investors and capital-raising companies - to address a number of troubling trends affecting the Canadian capital markets:

- An investor confidence crisis.
- The eroding confidence in going public amongst capital-raising companies.
- Disengagement amongst the investment dealer community.<sup>29</sup>
- Regression to a virtual monopoly in the Canadian exchange space.

Our analysis identified a number of issues that underpinned these concerns:

- Predatory High Frequency Trading strategies in the equities market.
- Liquidity erosion amongst the vast majority of publicly listed companies in Canada.
- Companies going public prematurely.
- Marketplaces that exasperate conflicts of interest within the dealer community.
- Prohibitive costs of participating in the markets, including trading, listing and market data fees charged to market participants.
- Lack of meaningful exchange competition to the benefit of investors, capital-raising companies and their dealers.

Aequitas CMV Connect is part of our solution suite and seeks to address the market data issues that Canadian capital markets stakeholders face. We believe it will help strengthen the confidence of investors and capital-raising companies, help reduce costs for the investment dealers by enabling true competition, and benefit Canada as whole.

29 Source: IIAC 2014 Securities Industry Performance Report: <http://iiac.ca/wpcontent/uploads/2013/05/Q4-14-SIP-EN.pdf>

## CALL TO ACTION

Aequitas is ready to launch CMV Connect, and believes the market is ready and willing to support it.

However, the TMX Group poses a challenge to the successful implementation of CMV Connect by claiming intellectual property rights in their data agreements with dealers for both public and private market data. We believe these agreements are anti-competitive and tie the hands of investment dealers. Aequitas strongly believes that private data belongs to the investment dealers and their clients, and that they should be entitled to use this data in any way they want, including contributing it to CMV Connect.

Because of their dominant market position, the TMX has ensured dealers have become their captive consumers and captive suppliers. Armed with their data agreements, they can now work to prevent the deployment of CMV Connect to the detriment of all other Canadian capital markets participants.

***The TMX is clinging to a monopolistic past that has no place in Canada's capital markets in 2015.***

This is wrong. The TMX is clinging to a monopolistic past that has no place in Canada's capital markets in 2015.

Aequitas cannot challenge the TMX on access to private market data alone. This issue impacts the entire industry and the industry needs to respond. This means it is time for all industry participants to make their voice heard. It is time to encourage a commercial solution to challenge the TMX stranglehold on Canadian market data. It's time to drive meaningful change.

### **Take Action - Stand Up for Competition**

Aequitas believes it is important for the industry to challenge the TMX on access to market data and private market data in particular. The lack of consolidated Canadian market data available at a reasonable price impacts all market participants. It's time for the industry to support a commercial solution to challenge the TMX stranglehold on Canadian market data. It's time for the industry to drive meaningful change.

From day one, Aequitas has enabled market participants to make their voice heard regarding issues and opportunities in the Canadian capital markets. Once again, Aequitas is encouraging all market participants to take action by standing up for competition and challenging any form of anti-competitive practices in the Canadian capital markets. Because competition leads to innovation and innovation leads to solutions that benefit investors and capital-raising companies.

Together, industry stakeholders can advocate for consolidated market data at a fair price in Canada to enable sound investment decisions and maximize exposure for Canadian companies at home and abroad. Take action by visiting:

[www.standupforcompetition.ca](http://www.standupforcompetition.ca)

## APPENDIX A

### COST OF CANADIAN MARKET DATA

The Aequitas white paper focuses on fees for real-time “display use”. There are other types of usage of market data, but *display use* is when market data is displayed on a screen for a person to view and is what virtually all retail investors and their advisors would use to make investment decisions. For *display use* there are generally four components that determine the fee.

- *Type of data*: streaming real-time data is the most expensive, but there is also delayed data (15 minutes delayed), which is typically free, and a “pay per quote” model where you get real-time data in snapshot format (not streaming and must click to refresh).
- *Type of user*: marketplaces typically differentiate between professional users and non-professional users. A retail investor is a non-professional user, whereas his or her investment advisor would be an example of someone considered to be a professional user.
- *Listing exchange*: marketplaces typically charge different fees depending on where the security is listed (e.g. is it listed on TSX, TSXV, CSE or Aequitas NEO Exchange?).
- *Quantity of data*: marketplaces differentiate between Level 1 and Level 2 data. Level 1 data means “top of book” or simply put: only the best buy price and the best sell price available and completed trades. Level 2 data is the full information about all the orders that are in the market.

The following tables compare professional and non-professional real-time display use fees from the different lit marketplaces which charge for market data in Canada.<sup>30</sup>

Professional Users - Fee/Month/Subscriber (CAD)

	TSX/ TSXV <sup>1</sup>	TMX ALPHA	CHI-X	CSE <sup>2</sup>	OMEGA <sup>3</sup>	NEO <sup>4</sup>
<b>TSX Listed - Level 1</b>	30.0	15.0	12.0	12.0	2.9	6.0
<b>TSX Listed - Level 2</b>	80.0	48.0	30.0	30.0	-	10.0
<b>TSXV Listed - Level 1</b>	25.0	7.5	5.3	-	2.9	4.0
<b>TSXV Listed - Level 2</b>	51.0	24.5	10.0	-	-	5.0

1 TSX/TSXV subscribers to Level 2 data also have to subscribe to Level 1 data so Level 2 fees in this table include the Level 1 fee.

2 Does not differentiate between TSX and TSXV listed securities. One fee for all Canadian listed securities including CSE listed securities.

3 Currently Level 2 fees are subject to a fee holiday.

4 Fees applicable only when 5% trading market share threshold is reached, in addition NEO is sole venue to apply MISU (multiple interface, single user) methodology in Canada.

30 Source: the websites of TMX, Chi-X Canada, Omega ATS and CSE as of Oct 1, 2015

#### Non-Professional Users - Fee/Month/Subscriber (CAD)

	TSX/ TSXV	TMX ALPHA	CHI-X	CSE	OMEGA	NEO
<b>TSX Listed - Level 1</b>	6.0	3.0	Free	2.4	2.9	Free
<b>TSX Listed - Level 2</b>	36.0	18.0	Free	20.4	-	Free
<b>TSXV Listed - Level 1</b>	6.0	1.5	Free	-	2.9	Free
<b>TSXV Listed - Level 2</b>	40.0	9.0	Free	-	-	Free

1 TSX/TSXV subscribers to Level 2 data also have to subscribe to Level 1 data so Level 2 fees in this table include the Level 1 fee.

2 Does not differentiate between TSX and TSXV listed securities. One fee for all Canadian listed securities including CSE listed securities.

3 Currently Level 2 fees are subject to a fee holiday.

#### International Comparison

As we will show below, Canadian real-time market data fees are considerably out of line with other capital markets around the world.<sup>31</sup> Comparisons are not always straightforward, as different markets apply different fees and policies around data usage. There is, however, one key principle which is important to point out. There are generally two ways marketplaces apply their display use fees: some charge the fee per device (i.e. if you have three different applications all showing the same data you will pay three times the display fee) and some charge per individual user, however the user accesses the data (also known as MISU – Multiple Interface Single User).

The following table is a straight fee to fee comparison of professional user fees for some representative international markets (converted to CAD<sup>32</sup>).

#### Professional Users – Fee/Month/Subscriber (converted to CAD)

	TSX+ TSXV <sup>1</sup>	CONSOLIDATED US <sup>2</sup>	NYSE <sup>3</sup>	NASDAQ <sup>3</sup>	LSE	ASX <sup>4</sup>	HKEX
<b>Level 1</b>	55.0	96.0	-	-	57.1	-	20.7
<b>Level 2</b>	131.0	-	140	93.3	214.3	67.3	69.0

<sup>1</sup> TSX/TSXV subscribers to Level 2 data also have to subscribe to Level 1 data so Level 2 fees in this table include the level 1 fee.

<sup>2</sup> Total of CTA Network A (>3 users) + CTA Network B + UTP Plan (All US listed securities and all trading venues that are required to publish market data).

<sup>3</sup> Exchange specific level 1 fees are omitted as a consolidated level 1 feed exists.

<sup>4</sup> ASX does not offer a real-time level 1 product, only level 2 (which includes level 1).

31 See for example “An Economic Study of Securities Market Data Pricing by Canadian Trading Venues,” dated June 6, 2011, prepared by the Securities Litigation & Consulting Group, Inc. and commissioned by the Investment Industry Association of Canada. See also the “Comments Received for CSA Staff Consultation Paper 21-401 - Real-Time Market Data Fees” closed on February 8, 2013 and in particular the comments from data users and non-domestic associations (SIFMA, AFME) that clearly demonstrate the excessive nature of the cost in comparison with other jurisdictions.

32 Exchange rates used: CAD/USD – 0.75, CAD/GBP – 0.49, CAD/AUD – 1.04, CAD/HKD – 5.80.

Now let's see what happens if we take into consideration two important factors: the market capitalization differences and whether the market charges per device or per user.

*Normalized by market capitalization<sup>33</sup>*

	TSX+ TSXV	CONSOLIDATED US	NYSE	NASDAQ	LSE	ASX	HKEX
<i>Market Capitalization (USD trillions)</i>	2	28	21	7	4	2	4
<b>Level 1</b>	27.5	3.4	-	-	14.3	-	5.9
<b>Level 2</b>	65.5	-	6.7	13.3	53.6	44.9	19.7

*Normalized by methodology used to apply charges (i.e. MISU or not)*

TSX, TSXV, NYSE, NASDAQ and HKEX charge per device<sup>34</sup> and not per individual user (Consolidated US feed, however, applies a MISU approach). If we make the assumption that half of all professional users look at data on two devices we should multiply the fees for those exchanges that do not apply a MISU approach with a factor 1.5.

	TSX+ TSXV	CONSOLIDATED US	NYSE	NASDAQ	LSE	ASX	HKEX
<i>MISU factor</i>	1.5	1	1.5	1.5	1	1	1.5
<b>Level 1</b>	41.3	3.4	-	-	14.3	-	8.9
<b>Level 2</b>	98.3	-	10.0	20.0	53.6	44.9	29.6

After having normalized the fees for these two important factors, TSX+TSXV is almost three times more expensive for Level 1 data and almost twice as expensive for Level 2 data than the second most expensive market: the London Stock Exchange.

Now let's do the same exercise for non-professional users; however, we will only compare real-time Level 1 data as very few retail investors would be looking at Level 2 data, and inconsistencies in data policies between jurisdictions make the comparison overly complicated. We have also omitted ASX as they do not have a real-time Level 1 product for non-professionals and HKEX as they do not make a distinction between professional and non-professional in their fee structure.

<sup>33</sup> Source: World Federation of Exchanges.

<sup>34</sup> NEO, Consolidated US, and LSE allow for MISU. We could not find any references to MISU for ASX, although since their fee schedule says fees are per unique end user we are making the assumption that this is what they mean. It is also our assumption that NYSE does not allow for MISU on their Level 2 product although there is some uncertainty around this based on documentation available.

Non-Professional Users – Fee/Month/Subscriber (converted to CAD)

	TSX+ TSXV	CONSOLIDATED US <sup>1</sup>	LSE
<b>Level 1</b>	12.0	4.0	8.2

<sup>1</sup> Total of CTA Network A + CTA Network B + UTP Plan.

The above is a straight fee to fee comparison converted to CAD and if we again normalize these fees based on market capitalization we get the following result (the MISU normalization is not relevant for non-professional users).

*Normalized by market capitalization<sup>35</sup>*

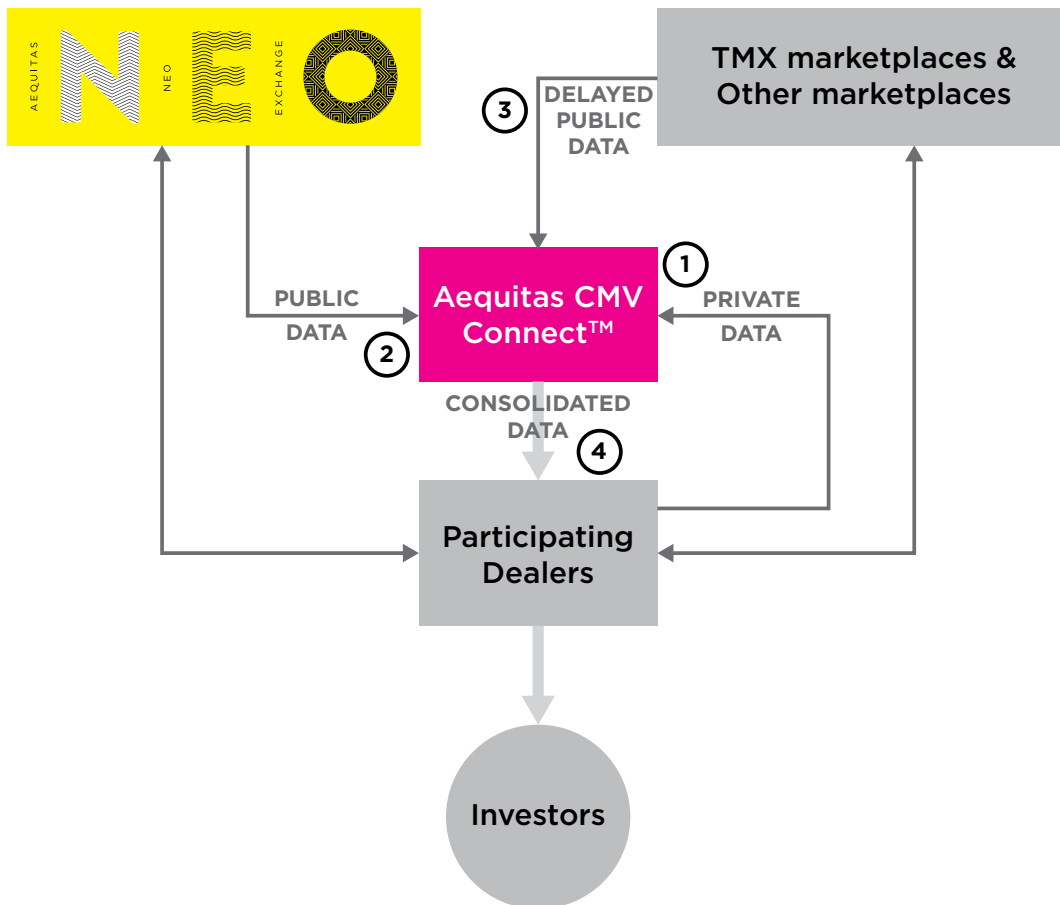
	TSX+ TSXV	CONSOLIDATED US <sup>1</sup>	LSE
<i>Market Capitalization (USD trillions)</i>	2	28	4
<b>Level 1</b>	6.0	0.1	2.0

As we can see TSX+TSXV is three times more expensive for Level 1 data than the second most expensive market: the London Stock Exchange. It is also important to note that the TSX+TSXV and LSE fees are only covering market data from those specific exchanges, whereas the Consolidated US is the entire market. If you take into account that TSX+TSXV represent approximately 60% of the Canadian securities market it appears to be even more out of line.

<sup>35</sup> Source: World Federation of Exchanges.

## APPENDIX B

### AEQUITAS CMV CONNECT™ SOLUTION



- 1.** Participating Dealer's private data relating to its activity on all TMX (and other) marketplaces will be sent to CMV Connect. Participating Dealer's private data includes information about its (proprietary, employee and client) resting orders on any marketplace and any trades it has done on its own behalf and on behalf of its employees and clients. The source of the private data information could be FIX drop-copies from a vendor system and/or FIX drop-copies from the marketplace.
- 2.** Aequitas NEO Exchange will contribute its public data feed to CMV Connect.
- 3.** Delayed public data regarding trading volume from other marketplaces is used to enrich the content of CMV Connect.
- 4.** Participating Dealer will subscribe to a consolidated data feed from CMV Connect that is to be used internally (and internally by any affiliates) only. That data feed will contain public data from Aequitas NEO Exchange aggregated with the private data from all contributing dealers, and delayed public data from other marketplaces.