

CSA Staff Consultation Paper 21-401
Real-Time Market Data Fees

Executive Summary

Real-time market data is an important input into trading decisions in Canada's equity markets and fair access to data is critical in a competitive environment. However, the costs of acquiring real-time market data have been escalating in recent years due to an increasing number of marketplaces entering the market and charging for their market data. In addition, there is a concern that the current market structure and regulatory environment may be contributing to these increasing costs. Too high or excessive costs are a form of friction in the market. We would be concerned that such an outcome would be inconsistent with our mandate to foster fair and efficient capital markets. By not addressing these issues, we risk negatively impacting confidence in the Canadian capital markets.

This Consultation Paper presents our understanding of the real-time market data environment in Canada, discusses issues related to the cost of real-time market data and seeks stakeholder input on options proposed to address these issues.

Our review of real-time market data fees has led us to consider whether further steps should be taken to address the fees charged for market data on an individual marketplace and aggregate basis. This is based on the following findings:

- TSX and TSXV market data fees do not appear unreasonable in relation to their share of trading activity;
- Marketplaces with a smaller market share are charging fees that are high in relation to their share of trading activity; while we have not been provided with cost information, it is possible that the higher "per-volume" fees charged by smaller marketplaces may reflect the fact that these marketplaces' cost of providing data for each user may be higher. Smaller marketplaces may have similar infrastructure costs as large marketplaces and the higher "per-volume" fees may reflect the fact that they need to recover those costs; and
- The cost of consolidated data in Canada is higher than it is in the United States relative to trading activity. We acknowledge the view held by marketplace participants in Canada that the data fees charged by Canadian and U.S. marketplaces should ideally be closer. However, differences in the regulatory environment, industry structure, scale and size of the two markets may explain the cost differential and arguably make such an outcome unrealistic.

This paper identifies a number of options to address potential concerns regarding market data fees going forward. These include greater transparency of fee changes, capping fees and the potential creation of a utility model distributor to provide consolidated data.

We are seeking comments on each of these options proposed in Part VII of this Consultation Paper. We are not advocating or taking a position on any of the options presented for discussion. Any regulatory proposals resulting from this Consultation Paper will be published for comment in the normal course.

I. INTRODUCTION

Real-time market data plays a key role in today's equity markets as it provides vital information about the market for securities, including information relating to prices, liquidity and trading activity. The equity markets have evolved over time, from a structure in which trading in a particular security was concentrated on a single listing exchange to one in which multiple marketplaces compete for trading in the same securities. This has meant that having access to real-time data from multiple marketplaces is a necessity to both trade effectively and service clients appropriately.

Regulators in countries with multiple, competing marketplaces have struggled to address issues related to fair access to real-time market data, fair fees for data and transparency of these fees to data consumers and their clients. These issues are relevant to the objectives of securities regulators, namely fostering fair and efficient capital markets and confidence in those markets.

Like many other jurisdictions, equity trading in Canada has become more competitive as the number of marketplaces (exchanges and alternative trading systems (ATSs)) has increased over the past few years. As a result, issues associated with market data fees have become apparent.

CSA Staff (we) acknowledged early on that access to real-time consolidated information from all marketplaces is critical in our competitive trading environment. To this end, we required marketplaces to provide order and trade information to an Information Processor (IP) in real time, which is then required to consolidate and disseminate this information. Each marketplace charges a fee for its data and when that data is sold through the IP, these fees are passed through to subscribers.

While the existence of the IP makes it simpler to access data and consolidated information from multiple marketplaces, the IP's pass-through fee model¹ means that market participants must still pay the full fee charged by each individual marketplace. This is also true for data and consolidated information purchased through a third-party data vendor. As the number of marketplaces increases, so do the costs of accessing real-time data either directly or through third-party data vendors, including the IP.

We are aware that concerns have been raised about market data fees. We note that in 2009, the CSA indicated its intention to review these fees.² To facilitate our review, we obtained information on fees and talked to marketplace participants about their market data fee issues. This consultation paper (Consultation Paper) presents the issues we have identified and those raised by marketplace participants and outlines our analysis of those issues. In addition, this Consultation Paper seeks feedback from stakeholders on the potential options that could be pursued to manage these issues. We also describe the interim steps we have taken to address market data fee issues described in detail in Part VI – Regulatory Actions Taken to Date.

We emphasize that this Consultation Paper is not a position paper. We are not advocating or taking a position on any of the options presented for discussion. We are interested in hearing industry feedback on the feasibility and effectiveness of the proposed options. Any regulatory proposals would be published for comment.

II. THE PURPOSE, SCOPE AND STRUCTURE OF THE CONSULTATION PAPER

The purpose of this Consultation Paper is to present our understanding of the real-time market data environment in Canada, to discuss issues related to the cost of real-time market data and to seek stakeholder input on the options proposed to address these issues. This Consultation Paper does not address issues related to fees charged for access, trading, routing or co-location fees. The paper also does not address any potential issues associated with differences in how real-time market data is distributed³ by the various marketplaces.

This Consultation Paper is focused on data fees charged to professional users. We did review and analyze the fees charged to non-professional users by marketplaces in Canada. However, since their needs and uses of market data are significantly different,⁴ we felt that we would be unable to adequately address concerns raised by both types of market data users within one paper. We will examine issues relating to market data fees for non-professional users at a later date.

This paper is organized as follows:

- Part III: Real-Time Market Data Environment
- Part IV: Issues Relating to the Cost of Real-time Market Data
- Part V: Analysis of Market Data Fees
- Part VI: Regulatory Actions Taken to Date
- Part VII: Options to Address Market Data Fee Issues
- Part VIII: Request for Comments

This Consultation Paper also contains a number of appendices that provide additional information on the content of the paper and our review of market data fees.

III. REAL-TIME MARKET DATA ENVIRONMENT

Real-time market data plays a key role in the price discovery process and provides vital information on the trading activity on a marketplace. Canada's multiple marketplace structure and the regulatory framework governing it means that fair access to real-time market data has become both a business and regulatory compliance necessity.

This part of the Consultation Paper sets out our definition of real-time market data, provides an overview of the parties that produce, sell, distribute and buy market data, the types of market data available to buyers and the pricing of those products. It also describes the current regulatory environment in Canada as it pertains to the dissemination and use of real-time market data.

¹ The IP charges its customers an administration fee and each marketplace charges its regular subscriber fee for the data included in the IP's feeds.

² CSA Staff Notice 21-309, Subsection 4.c.

³ The distribution of data is subject to the fair access requirements in sections 7.1 and 7.2 of National Instrument 21-101 – Marketplace Operation (NI 21-101). In addition, in complying with sections 7.1 and 7.2 of NI 21-101, a marketplace should not make any real-time market data available on a more timely basis than it makes the same data available to the IP or an information vendor.

⁴ Currently, only a small percentage of retail investors are active traders. According to Investor Economics, 76.2% of retail accounts never carry out a single trade in a quarter. Additionally, only 1.6% of retail brokerage accounts carry out more than 30 trades per quarter. Non-professional users do not pay directly for data, and the type of data they receive depends on their trading activity. For example, we understand that the typical retail client is offered the ability to request individual quotes, which are paid for by the dealer on a per-quote basis. Retail clients that trade frequently may have access to trading tools that incorporate real-time streaming data, which might be provided for a fee or at no additional charge if certain trading thresholds are met.

1. Definition of Real-time Market Data

Real-time market data consists of pre- and post-trade data that is distributed immediately after an order has been entered, amended or cancelled or a trade has been executed. It is used by marketplace participants to make trading and order routing decisions. Pre-trade data provides details of orders entered on a marketplace and identifies the price and volume associated with each order. Post-trade data provides details of executed trades in a security. Throughout this Consultation Paper, all references to market data refer to real-time market data unless noted otherwise.

2. Producers of Market Data

Marketplaces are the sole producers of market data for their own markets. The data consists of order information sent by marketplace participants to marketplaces as well as information about trades that occur when those orders are executed on the marketplace. Because each marketplace is the only source of order and trade information sent to and transacted on its facility, each controls the production and initial distribution of its own market data.

3. Sellers of Market Data

Market data is sold to marketplace participants and other entities directly by the marketplaces and through third-party vendors, including the IP.

Data purchased from a third-party vendor rather than directly from a marketplace provides a single point of access to data from multiple marketplaces. In addition, third-party vendors often provide analytical tools that are a value added to their customers. However, data bought through a third-party vendor will typically have additional latency compared to direct feeds from marketplaces.

Marketplace participants who buy their data directly from marketplaces are usually highly latency sensitive, not only for their own trading, but also because they often offer specific services to their customers that require low-latency data, such as smart order routers⁵ (SOR) and direct electronic access⁶ (DEA). Generally, receiving low-latency data directly from marketplaces is more costly due to the need to establish dedicated, high-speed telecommunication connections to each marketplace.

Canadian market data can also be purchased from the IP.⁷ The IP supplies both individual feeds from each marketplace and consolidated order and trade data from all marketplaces through a single point of access.

4. Buyers of Market Data and the Use of Data

A variety of market participants purchase real-time market data. The largest group of customers are dealers, who buy the data for use in their systems and for use by their employees and clients (such as high frequency traders or DEA clients). The most important use of real-time data from a dealer's perspective is to inform trading and order routing decisions for the firm's proprietary and agency trading. Dealers also purchase data for regulatory compliance - such as the Order Protection Rule (OPR) and best execution requirements - and risk management, but on a limited basis since only a small portion of these activities require access to real-time data from all marketplaces.

Another group of customers are institutional investors, such as pension funds. Institutional clients' cost of market data is often absorbed by the dealers as part of soft-dollar agreements; however, there are institutional clients who buy their own real-time feeds to use in proprietary trading algorithms, for trading as DEA clients and for compliance and risk management purposes.

Third-party vendors also purchase real-time data directly from marketplaces. They mostly re-distribute this data to their clients in real-time, but also use it for other purposes (e.g., to create reference databases) as a value added service offered for their clients.

Deciding where to purchase real-time data depends on several factors, some of which are directly related to the marketplace participant's activities, while others are related to the regulatory environment. For example, as discussed above, dealers

⁵ An SOR is a technological tool that scans multiple marketplaces for the best displayed price and routes orders to that marketplace for execution. This helps traders comply with OPR and achieve better-priced executions, as well as save time and effort trying to manually locate the most appropriate execution venue.

⁶ In proposed National Instrument 23-103, direct electronic access is proposed to mean the access provided by a person or company to a client that permits the client to electronically transmit an order relating to a security to a marketplace, using the person's or company's marketplace participant identifier, (a) through the person's or company's systems for automatic onward transmission to a marketplace; or (b) directly to the marketplace without being electronically transmitted through the person's or company's systems.

⁷ Marketplaces are required under NI 21-101 to provide accurate and timely order and trade information to an information processor, as required by the information processor. Companion Policy to NI 21-101 (NI21-101CP) interprets requirements regarding the timeliness as including that a marketplace should not make the required order and trade information available to any other person or company on a more timely basis than it makes that information available to the information processor or information vendor.

engaged in trading strategies that are highly latency sensitive will purchase data directly from the marketplaces and do their own consolidation of data, while dealers and other marketplace participants that are less driven by execution speed will generally purchase their data through third-party vendors or from the IP. Marketplace participants often purchase data from a variety of sources, both as a back-up in case of a system failure and as a means of verifying their own in-house consolidated feed to ensure data integrity.

5. Pricing of Market Data

With one exception,⁸ all marketplaces charge market data fees. One marketplace charges different fees for TSX- and TSXV-listed securities that are traded on its facilities.⁹ Other marketplaces charge a single fee for both sets of data.¹⁰ Marketplaces generally charge a prescribed fee for each “use” of their data. While each marketplace has its own definition of a “single use” of data, typically it will include a data feed to a single screen or to a trading algorithm or SOR. Some marketplaces charge different fees based on the type of use, with non-professional users typically charged a lower fee per use than professional users. In addition, prior to July 2012, one marketplace offered enterprise agreements to large data consumers. This type of agreement allowed these users to receive discounts on market data fees when compared with the fees calculated on a per user basis.

Market data fees per user are set based on a number of factors, including: the amount of data, the type of user and the intended use of the data.

- Amount of data - Marketplaces generally offer at least two levels of data – top-of-book and depth-of-book. Top-of-book data (TOB) consists of information on the last sale of a security, the best bid and offer, and the aggregate volume available for purchase and sale at those prices. Depth-of-book data (DOB) consists of information on all visible orders in the marketplace (price and volume) and all trades. DOB data is usually more expensive than TOB data, but some marketplaces offer both TOB and DOB data for one fee.¹¹
- Type of user – As mentioned above, marketplaces may further differentiate their fees based on whether the product will be used by a professional or non-professional user. These user fees are known as subscriber fees. Professional users are individuals or organizations that use market data for business purposes (for example, dealers and their employees). Non-professional users are individuals that use market data for personal use. There is also a third category of usage-based users, who may either be professional or non-professional, who pay for data on a per-quote basis.¹²
- Use of data - Marketplace participants may purchase data for use within their firm (internal distributors) or to re-distribute to their customers (external distributors) or for both internal and external distribution. Some marketplaces charge a *distribution fee* for the internal and external distribution of data. Marketplaces may also charge a *licence fee* for data that is not displayed to users, but is instead fed directly into trading applications such as those used for algorithmic trading.

In addition, the fees paid for market data are also dependent on the source of the data.

- When data is purchased directly from a marketplace, the marketplace participant pays several fees. While the method of charging fees varies by marketplace, the data fees charged may include fees to receive a feed, subscriber fees charged per user or per device and distribution fees where the purchaser redistributes the data internally or externally to third parties.
- There are two elements to the fees charged by third-party vendors: (i) vendor fees and (ii) marketplace subscriber fees, which may be paid directly to the marketplace or indirectly through the vendor. When the fees are paid through the vendor, the vendor may charge a mark-up for this service. In addition, the third-party data vendor pays a distribution fee to the marketplace for its own use of the marketplace’s data.
- When data is purchased through the IP, the marketplace participant pays an administration fee to the IP and the professional subscriber fees to each marketplace.

The pricing model that is used by third-party vendors and the IP is called a pass-through pricing model. Under this model, the marketplace subscriber fee is paid by the end user regardless of which entity the end user buys the data from.

Marketplaces have told us they consider one or more of the following factors in setting their fees:¹³

- the fees charged by competitors and peer marketplaces,

⁸ TMX Select does not charge any market data fees.

⁹ Alpha Exchange charges different market data fees for TSX- and TSXV-listed securities.

¹⁰ Chi-X, Omega and Pure charge one data fee for both TSX- and TSXV-listed securities.

¹¹ Omega charges one fee for its TOB and DOB data for both TSX- and TSXV-listed securities.

¹² See Appendix B for a complete view of marketplace fees.

¹³ In addition, marketplaces likely consider the maximization of their revenue from market data when setting their data fees; however, this was not mentioned in the responses to our request for information.

- its market share,
- the development and operating costs associated with market data, and
- the views of clients and data vendors.

6. The Regulatory Framework

The regulatory framework in Canada impacts the manner in which marketplaces conduct their business and set fees, and how marketplace participants buy and use real-time data. This framework includes rules relating to the provision of data, the regulation of data fees and order handling requirements, including best execution and order protection obligations.

Two National Instruments, National Instrument 21-101 *Marketplace Operation* (NI 21-101) and National Instrument 23-101 *Trading Rules* (NI 23-101) set out the regulatory framework for marketplace trading. NI 21-101 sets out the rules governing the operations of marketplaces, the provision and dissemination of market data and market data fees. NI 23-101 provides the framework that marketplaces and marketplace participants must comply with when carrying out their trading activities. Together, these two National Instruments are referred to as the Marketplace Rules. The specific requirements of these rules are discussed in detail below.

(a) Rules Governing Market Data

Part 7 of NI 21-101 sets out the information transparency requirements for marketplaces trading exchange-traded securities.¹⁴ These requirements ensure transparency of trading and mitigate the effects of a competitive environment for trading over multiple marketplaces by requiring the transmission of data from each marketplace to a central entity (e.g. the IP) for consolidation and public dissemination.

Under Part 7, transparent marketplaces are required to provide details of all orders and trades to the IP for exchange-traded securities and to an information vendor for foreign exchange-traded securities.¹⁵ Dark marketplaces¹⁶ must provide details of executed trades to the IP (for Canadian exchange-traded securities, other than options) or an information vendor (for foreign-exchange listed securities).

NI 21-101 requires the IP to consolidate and disseminate order information from all transparent marketplaces and trade information from all marketplaces. The TMX IP¹⁷ acts as the IP for all exchange-traded securities other than options, and is subject to certain requirements under Part 14 of NI 21-101. These requirements include provisions relating to the manner in which real-time data is collected, processed, distributed and published. In addition, the IP is required to provide prompt and accurate order and trade information and cannot unreasonably restrict fair access to such information.

While the requirements create a regulatory structure for the IP, they do not preclude other entities from creating and disseminating consolidated data feeds. This allows for others to compete with the IP's product offering.

(b) Regulatory Requirements Governing Market Data Fees

The initial and ongoing information reporting requirements for marketplaces are found in section 3.1 and 3.2 of NI 21-101.¹⁸ Under Section 3.1, exchanges and ATs are required to disclose the fees charged for their services, including their market data fees. Currently, market data fees are reviewed by some jurisdictions¹⁹ when initially filed. In addition, all subsequent fee amendments are required to be filed with the appropriate CSA jurisdiction(s) for review and approval. Market data fee amendments are not currently published for comment.

When setting and varying their fees, marketplaces must comply with the "fair access rule" in subsection 5.1(1) of NI 21-101 which requires that marketplaces not unreasonably prohibit, condition or limit access to their services. This requirement applies to all services offered by marketplaces, including execution, routing and data services.

¹⁴ An "exchange-traded security" means a security that is listed on a recognized exchange or is quoted on a recognized quotation and trade reporting system or is listed on an exchange or quoted on a quotation and trade reporting system that is recognized for the purposes of NI 21-101 and NI 23-101.

¹⁵ A "foreign exchange-traded security" means a security that is listed on an exchange, or quoted on a quotation and trade reporting system, outside of Canada that is regulated by an ordinary member of the International Organization of Securities Commissions and is not listed on an exchange or quoted on a quotation and trade reporting system in Canada.

¹⁶ Dark marketplaces are marketplaces that do not provide pre-trade transparency of orders.

¹⁷ The TMX IP was recognized under the Quebec *Securities Act* and is subject to various undertakings in other CSA jurisdictions.

¹⁸ The information is contained in Form 21-101F1 (Form F1) for an exchange and Form 21-101F2 (Form F2) for an ATS.

¹⁹ The OSC reviews all exchange and ATS filings, including all fee amendments as described in Part VI.1.

One of the factors, amongst others, that is considered by marketplaces in setting their fees and by staff of the Ontario Securities Commission (OSC) when evaluating these fees is the size of the fee relative to a marketplace's market share of trading activity.²⁰

(c) Order Protection Rule (OPR)

Contained in Part 6 of NI 23-101, the OPR requires that a marketplace establish, maintain and comply with policies and procedures reasonably designed to prevent the execution of an order at a price that is inferior to better-priced orders displayed on any Canadian marketplace. This is a policies and procedures obligation that is not enforced on a trade-by-trade basis. Compliance with this rule necessitates that policies and procedures contemplate the consideration of prices across all transparent marketplaces.

OPR puts the onus for compliance on marketplaces. However, many dealers, particularly those that are latency sensitive, use directed action orders (DAOs) to direct their order flow.²¹ These orders are often sent via a SOR that reads the data from all marketplaces and sends tradeable orders to the marketplace showing the best price at the time the SOR receives the order. Dealers may use a proprietary SOR, an SOR provided by the marketplace or one provided by a third-party vendor. The OPR requires dealers using DAOs to have policies and procedures reasonably designed to prevent trade-throughs.²²

(d) Best Execution

The dealer's obligation to obtain best execution for its clients' orders is derived from agency law.²³ In Canada, NI 23-101 and the Investment Industry Regulatory Organization of Canada's (IIROC) Universal Market Integrity Rules (UMIR) codify this obligation. These rules²⁴ require that dealers (other than dealers carrying on business as an ATS) must make reasonable efforts to achieve best execution²⁵ when acting for a client. Dealers must regularly assess order and trade information from all relevant marketplaces in deciding how to manage client orders. Like OPR, best execution is not assessed on a trade-by-trade basis but in the context of the dealer's overall policies and procedures. Subsection 4.1(5) of Companion Policy 23-101CP states:

In order to meet best execution obligations where securities trade on multiple marketplaces in Canada, a dealer should consider information from all appropriate marketplaces (not just marketplaces where the dealer is a participant). This does not mean that a dealer must have access to real-time data feeds from each marketplace. However, its policies and procedures for seeking best execution should include the process for taking into account order and/or trade information from all appropriate marketplaces and the requirement to evaluate whether taking steps to access orders is appropriate under the circumstances. The steps to access orders may include making arrangements with another dealer who is a participant of a particular marketplace or routing an order to a particular marketplace.

Similarly, Part 2 of UMIR Policy 5.1 states that dealers "should consider orders on a marketplace that has demonstrated a reasonable likelihood of liquidity for a specific security relative to the size of the client order," but does not necessarily require access to real-time data feeds from each marketplace.

IV. ISSUES RELATING TO THE COST OF REAL-TIME MARKET DATA

We have grouped the issues relating to data fees into three themes. The first relates to concerns that data fees charged by marketplaces are too high, either individually or in aggregate. The second relates to the view that marketplace participants are required to purchase data because of regulatory requirements and are therefore captive to the fees charged. The third relates to the transparency of fee proposals and changes to fee models. This part of the Consultation Paper describes these three themes.

1. Market Data Fees Are Too High

Marketplace participants have raised the issue of increasing market data costs and high market data fees. Concerns have been expressed that the cost of obtaining data for Canadian equity markets has increased substantially. They argue that the fees charged by marketplaces are too high individually and in the aggregate (i.e., the fees collectively charged by all marketplaces in Canada) particularly when compared to the aggregate fees (i.e., consolidated fees) charged by all marketplaces in the United States (U.S.).

²⁰ Subsection 7.1(5) of the Companion Policy to NI 21-101 (NI 21-101CP) outlines the minimum factors that marketplaces should consider to ensure fair access to their services, including to their market data services.

²¹ A DAO signals to the marketplace that the dealer has assumed responsibility for compliance with the OPR and the marketplace should execute an order notwithstanding any apparent trade-through. The dealer using a DAO order will also send an order to any marketplace displaying a better price to prevent a trade-through.

²² A requirement to have compliance policies and procedures is also contained in Part 6 of NI 23-101.

²³ See J. Macey & M. O'Hara, *The Law and Economics of Best Execution*, 6 J. of Fin. Intermediaries 188 (1997).

²⁴ Part 4 of NI 23-101, Universal Market Integrity Rules (UMIR) 5.1 and 7.1. Dealers who are subject to and comply with UMIR are exempt from NI 23-101.

²⁵ Because best execution is for the benefit of the client, it can be waived by the client, unlike OPR, which protects better-priced orders.

On an individual marketplace basis, many marketplace participants feel that the fees charged by the smaller marketplaces are high in relation to their share of trading activity. Market data from the smaller marketplaces is, in the words of some marketplace participants, of “little to no value” in terms of price or liquidity discovery, because of the marketplace’s small share of the total trading activity. In addition, for dealers, the marketplace practice of charging for each use of the same data feed in different trading and order management systems contributes to additional costs.

While dealers are concerned about the level of fees charged by marketplaces, they are willing to pay for data if:

- the data they receive enables them to successfully execute trades, and
- the trading profit they make from trading using the data exceeds the cost of buying that data.

While not widespread, a few marketplace participants viewed market data fees as just “the cost of doing business.”

2. Participants Are a “Captive Market”

Marketplace participants have noted two factors that have contributed to high data fees. First, they noted that marketplaces control the production and pricing of their own market data products both on an individual marketplace basis and collectively for all marketplaces. The second factor noted relates to the regulatory environment which, many dealers believe, requires them to have access to data from all transparent marketplaces. Dealers indicate that in complying with the OPR from a practical perspective, they need real-time DOB data from all marketplaces for every trade. Some dealers feel that marketplaces are taking advantage of this situation by charging fees above a level that would exist if marketplaces were subject to competitive forces in the production and pricing of their market data products.

3. Transparency of Fee Proposals and Changes to Fee Models

Some data consumers have raised questions regarding the regulatory review of data fees charged by marketplaces. They have also questioned whether the review process itself should be more transparent and whether the fee models and proposals should be published for comment.

V. ANALYSIS OF MARKET DATA FEES

As noted in the previous Part, concerns about data fees were grouped into three themes: (i) market data fees are too high, (ii) dealers are a captive market due to the regulatory requirements for market data, and (iii) there should be greater transparency of fee proposals and changes to fee models.

This Part of the Consultation Paper presents the analysis of the fees charged by marketplaces in Canada and how these fees compare to those charged by exchanges²⁶ in the U.S. and other international jurisdictions.²⁷

The second theme captures the fact that some of the issues associated with market data fees are related to the realities of complying with best execution obligations and the OPR in a multiple marketplace environment. In our view, these rules are the foundation of trading in the Canadian capital market. However, recognizing the consequences of these rules in the context of competitive markets, we commit to examining the guidance surrounding these rules and the purchase of market data. We have not done so in this paper because in our view, the importance of these rules necessitates a separate and thorough review.

The third theme will be addressed through one of the proposed options in Part VII of the Consultation Paper.

1. Comparison of Fees Amongst Canadian Transparent Marketplaces

(a) Method of Analysis

Our approach in analyzing market data fees in Canada is based on the regulatory framework governing market data fees. Specifically, the fair access rule requires marketplaces to not unreasonably prohibit, condition or limit access to the fees charged for their services, including market data fees. The guidance provided for this rule states that one of the factors, amongst others, considered by staff when evaluating these fees is the size of the fee relative to a marketplace’s share of trading activity.

²⁶ The analysis was restricted to major exchanges as we were not able to obtain sufficient information on data fees charged by smaller foreign exchanges, electronic communication networks and ATSS from the public sources available to staff.

²⁷ When we compared TSX’s fees with those charged by its peers, whether in the U.S or E.U., we did not assess whether or not the fees charged by these peers were fair and reasonable in relation to their domestic market share. We simply compared the data fees charged in absolute and relative dollar value. We acknowledge that, more recently, market participants in E.U, have become more vocal about the cost of market data in Europe.

Our review was limited to the professional subscriber fees²⁸ that each transparent marketplace charged for TOB and DOB data in 2011. We analyzed each marketplace's fees, in absolute and relative dollars, against its trading activity in 2011, to ensure an unbiased and consistent approach in analyzing the fees. Generally, the analysis was completed using the per subscriber fee charged by each marketplace for the data covering trading in all listed securities on that marketplace. In cases where different fees are charged depending on the listing venue, as is the case for TMX and Alpha Exchange, we also considered those fees in our analysis. The trading activity metrics used in our analysis were per million shares traded, per \$100 million in trade value and per 10,000 trades. Appendix A presents our methodology for calculating TOB and DOB market data fees for each transparent Canadian marketplace.

When viewed in isolation, each measure of trading activity can under- or over- report a marketplace's fees relative to its peers.²⁹ Nonetheless, we focused on the volume metric, i.e., per million shares traded, because this metric reflects and is consistent with industry's measurement of trading activity. However, to provide readers with a complete picture of how each marketplace's fees rank for all three trading metrics, we have presented our full analysis in Appendix B.

(b) Findings

There is a wide range in the fees charged by marketplaces for TOB and DOB data (see Table 1).

Table 1 – Fees Charged by Each Transparent Marketplace, 2011

Fee Per Subscriber	TSX	TSXV	CNSX	Alpha (TSX)	Alpha (TSXV)	Chi-X	Omega	Pure
TOB	\$38/\$32 ³⁰	\$25	\$9.00	\$15.00	\$7.50	\$12.00	\$2.85	\$11.00
TOB & DOB	\$88/\$82	\$51	\$9.00	\$48.00	\$24.50	\$30.00	\$2.85	\$16.50

Source: Information provided by marketplaces and marketplaces websites.

For TOB data, the fees range from \$2.85 to \$38 and for DOB data the fees range from \$2.85 to \$88.³¹ Overall, the TSX is the most expensive marketplace for both TOB and DOB data, Omega is the least expensive and the remaining marketplaces fall within these two extremes. TOB data from the TSX costs between 1.5 and 13 times more than the other marketplaces.³² For DOB data, the TSX's fees are between 1.7 and 31 times more than the other marketplaces.³³

When we examine each marketplace's fee in relation to its trading activity,³⁴ the picture of which marketplace has the highest or lowest fee changes significantly. With two exceptions, the TSX had the lowest fee for each of the trading activity metrics we examined for TOB data. Conversely, CNSX had the highest fees. CNSX's relative TOB fees were approximately 30 to 2,000 times greater than those of the TSX. This observation holds true for DOB data fees as well, although the magnitude of the difference is not as great (see Table 2 and Appendix B).

Table 2 - Scaled Comparison of Relative Fees for Each Transparent Marketplace, 2011

	TSX	TSXV	CNSX	Alpha (TSX)	Alpha (TSXV)	Chi-X	Omega	Pure
Scaled comparison of fee per million shares traded (scaled to TSX fee)								

²⁸ Marketplace participants do not employ a uniform definition of market data costs. Some marketplace participants have a narrow definition of market data costs, which is limited to subscriber fees, while others employ a broader definition that takes into account fees related to connectivity, co-location and vendor costs. We limited our analysis to professional subscriber fees since this is a type of fee incurred by all marketplace participants and subscriber fees account for a significant share of marketplace participants total market data costs.

²⁹ For instance, if a marketplace has a high volume of shares traded, but trades in relatively low-priced shares, it will show a lower relative fee when the volume metric is used and a higher relative fee when the value metric is used. Similarly, if a marketplace has a high number of trades, but a low average trade size, then it will show a lower relative fee when the number of trades metric is used but a higher relative fee when the total volume metric is used. The dollar value traded, on the other hand, has the advantage of taking only the value of the transactions into account, which tends to avoid the biases present in the volume and trade metrics.

³⁰ The first fee shown, i.e. \$38 was the effective fee from January to September 2011 and the second fee shown, i.e., \$32 was the effective fee at the start of October 2011.

³¹ Please refer to Appendix A for a full explanation of our fee calculation methodology.

³² Analysis is based on the TSX's \$38 fee.

³³ Analysis is based on the TSX's \$88 fee.

³⁴ For marketplaces that charge different market data fees for TSX- and TSXV-listed securities, we separately assessed their relative TSX and TSXV fees based on their trading activity in TSX- and TSXV-listed securities. For marketplaces that charge one market data fee for both TSX- and TSXV-listed securities, we assessed their relative fee based on their total trading activity, regardless of whether they traded TSX- or TSXV-listed securities.

TOB	1.0	1.1	29.8	1.1	1.6	2.2	1.8	3.5
DOB	1.0	0.9	12.6	1.5	2.3	2.3	0.7	2.2
Scaled comparison of fee per \$100 million traded (scaled to TSX fee)								
TOB	1.0	23.9	2,018.0	1.5	36.3	2.0	2.3	5.9
DOB	1.0	19.9	939.6	2.2	55.3	2.4	1.1	4.1
Scaled comparison of fee per 10,000 trades (scaled to TSX fee)								
TOB	1.0	10.8	1,144.4	1.2	9.6	1.0	1.9	4.5
DOB	1.0	9.0	531.6	1.8	14.6	1.2	0.9	3.1

Data sources: IIROC Marketshare by Marketplace Report, information provided by marketplaces, marketplaces websites, OSC calculations.

Our findings were expected given the significantly higher trading volume on the TSX compared to the other marketplaces. To some degree the TSX's lower relative fees may reflect lower production costs that arise due to economies of scale in the TSX's operations. When we remove the highest and lowest relative fees charged by marketplaces (i.e., CNSX, Alpha (TSXV) and TSXV), we find that the fees that the other marketplaces charge are in many cases equal to or slightly higher than the TSX's. In other cases, smaller marketplaces are charging, at most, 6 times more than the TSX for TOB data and, at most, approximately 4 times greater than the TSX for DOB data. All these marketplaces have a smaller share of the total trading activity than the TSX (see Table 3).

Table 3 - Market Share of Trading Activity on Transparent Marketplaces, 2011

	TSX	TSXV	TMX Select	CNSX	Alpha	Chi-X	Omega	Pure
Volume	41.5%	26.0%	0.5%	0.3%	20.1%	6.2%	1.8%	3.6%
Value	63.9%	1.8%	0.5%	0.0%	17.9%	10.4%	2.2%	3.3%
Number of Trades	53.9%	3.4%	0.7%	0.0%	18.5%	17.7%	2.2%	3.6%

Data sources: IIROC Marketshare by Marketplace Report, OSC calculations.

One marketplace charges a separate fee to access data based on the listing markets. Specifically, Alpha Exchange charges a separate fee to access data for TSX and TSXV-listed securities. To evaluate marketplace participants' view that the TSXV fees charged by the TMX Group are too high relative to the trading activity for TSXV securities, we analyzed the fees that both marketplaces charge for TSXV data³⁵ relative to their trading activity in TSXV securities. For TOB data, we found Alpha's relative TSXV fee to be 1.5 times greater than those of the TSXV. For DOB data, we found Alpha's relative fee to be 2.4 times greater than those of the TSXV. In 2011, the TSXV dominated trading in TSXV securities, accounting for 80% of trading volume. In contrast, Alpha had a 16% share in trading of TSXV-listed securities.

2. Comparison of Consolidated Fees in U.S. and Canada

This section examines the claim that the cost of consolidated data is lower in the U.S. than it is in Canada by comparing the cost of buying consolidated data in both countries.

A detailed discussion of the U.S. market structure and regulatory framework for market data is set out in Appendix C, however, the following differences are of note.

- Trading in the U.S. is subject to a best execution obligation that is similar to that in Canada. U.S. trading is also subject to an OPR, but unlike Canada's depth of book obligation, the U.S. requirement only applies to TOB orders.
- Although U.S. exchanges are required to provide their data to a consolidator (called a "securities information processor" or "SIP") similar to the IP, they only have to provide TOB data and the consolidated data feed does not show the full depth of the market.
- There are two SIPs, one for NYSE and NYSE MKT (Amex-listed securities) and one for NASDAQ-listed securities. In Canada, the IP consolidates data for all exchange-listed securities other than options.

³⁵ We have not analysed other marketplaces trading in TSXV-listed securities because they do not charge marketplace participants a separate fee for accessing TSXV data on their markets.

- The Consolidated Tape Association (CTA) and UTP SIP Plan, which oversee the SIPs, do not use a pass-through pricing model for the consolidated data distributed by the SIPs. They establish their own price for this data and compensate the participating marketplaces by sharing the SIP's revenues on a prescribed basis.³⁶
- The total subscriber fees for Network B (NYSE MKT) and the NASDAQ UTP (NASDAQ-listed securities) are lower than the cost of purchasing data from each individual marketplace. Furthermore, Network A (NYSE-listed securities) uses a sliding scale for subscriber fees that declines rapidly after the first user.³⁷ We estimate that the Network A fee for a single subscriber is actually higher than the cost of purchasing the data from individual marketplaces.
- The U.S. ATSS are not required to provide data to a SIP until they reach a certain market share threshold, but many choose to do so in order to participate in sharing the SIP's revenues, by sending their data to an exchange that is a CTA participant.
- None of the current U.S. ATSS charges users for data obtained directly from the ATS. However, this is a business decision rather than a regulatory requirement.

(a) Method of Analysis

To compare the cost of consolidated TOB data in Canada to the cost of consolidated TOB data in the U.S., we calculated the total cost of accessing real-time TOB market data from all marketplaces trading TSX-, TSXV- and CNSX-listed securities in Canada, and all CTA and UTP participants in the U.S. To allow for an equivalent comparison of DOB consolidated data costs, we examined the market data fees charged for accessing both TOB and DOB data in the U.S. and Canada. A complete description of our methodology and calculations can be found in Appendices D and E.

(b) Findings

The total cost of accessing TOB data in Canada directly from the marketplaces or through the IP is \$118.85 CAD per month. In the U.S., the total SIPs's fee is \$173.99 CAD³⁸ per month. In absolute dollar terms, consolidated TOB data is less expensive in Canada; however, when scaled for trading volume, Canadian TOB data is approximately seven times more expensive than equivalent U.S. consolidated data.

Table 4 – Absolute and Relative TOB Fee for Consolidated Data in Canada and the U.S., 2011

	Consolidated Canadian Marketplaces	Consolidated U.S. Marketplaces
<i>Professional TOB - Monthly Fee</i>	\$118.85	\$173.99
Per 1 Million Shares	\$0.0201	\$0.0027

Data sources: IIROC Market Share by Marketplace Report, World Federation of Exchanges, information provided by marketplaces, marketplace websites, OSC calculations.

The total cost of accessing DOB data in Canada, whether in consolidated form or individually from each marketplace is \$268.35 CAD per month. The aggregate cost of accessing DOB data for the U.S. marketplaces that are CTA and UTP participants, is \$285.17 CAD per month. When scaled for the trading volume, the relative fees for DOB market data in Canada are approximately 10 times more expensive than equivalent data in the U.S.

Table 5 - Absolute and Relative DOB Fee for Consolidated Data in Canada and the U.S., 2011

	Consolidated Canadian Marketplaces	Consolidated U.S. Marketplaces
<i>Professional DOB - Monthly Fee</i>	\$268.35	\$285.17
Per 1 Million Shares	\$0.0454	\$0.0044

Data sources: IIROC Market Share by Marketplace Report, World Federation of Exchanges, information provided by marketplaces, marketplace websites, OSC calculations.

These findings are expected, given the greater scale of trading and number of professional data users in the U.S. The total transparent consolidated trading volume in the U.S. is approximately seven times greater than the total transparent trading

³⁶ The formula for the revenue sharing model is set by the Securities and Exchange Commission (SEC).

³⁷ The rate for a single user is \$127.50 per month per subscriber whereas a firm with three users would pay \$58.25 per month per subscriber.

³⁸ \$ 1USD = \$ 0.9971CAD as of February 1, 2012.

volume in Canada.³⁹ Additionally, the U.S. has 10 times more professional data subscribers.⁴⁰ The greater size of the U.S. market allows for greater economies of scale, and the associated cost savings may be passed to marketplace participants. In addition, the higher volumes generate more trading revenue and may make an exchange more attractive to companies seeking to list, which will positively impact listing revenue and this means that U.S. marketplaces are less reliant on data fee revenue to sustain their operations.

Another reason for lower consolidated fees in the U.S. relates to the framework governing the setting of consolidated data fees and the SIP revenue sharing model. In the U.S., the CTA establishes the fee for the consolidated TOB data and the marketplaces are compensated by sharing in the SIP's revenue. Each marketplace's share of the SIP's revenue is calculated based on a formula developed and approved by the SEC. This formula is also included in the CTA plan. Any change to a CTA's plan, including fees changes, requires a change to the plan agreements by participating marketplaces, and also an agreement by all the participants in the plan and approval by the Securities Exchange Commission (SEC). Agreement to change this structure is difficult. Inertia is arguably a key factor in keeping the fees for consolidated data in the U.S. relatively low. For instance, the fees for consolidated data for Networks A and B have remained unchanged since 1994 and for the UTP Plan since 1998.

3. Comparison of TSX Fees with International Peers

This section assesses how TSX fees compare to the fees charged by its international peers, in relative and absolute dollar value.

A discussion of the E.U. market structure and regulatory framework for market data is set out in Appendix F. We note that there is no mandated consolidated tape in Europe. In addition, European markets are not subject to an OPR and best execution obligations are interpreted differently than they are in Canada. Appendix G gives a brief overview of the Hong Kong and Brazil markets.

(a) Method of Analysis

We compared the TSX's TOB and DOB data fees to comparable international peers. To make this comparison we selected a number of comparable exchanges to the TSX, including NYSE Euronext (U.S.), NYSE Euronext (Europe), NASDAQ OMX, NASDAQ OMX Nordic, London Stock Exchange (LSE), Australian Stock Exchange (ASX), Hong Kong Stock Exchange (HKSE) and Brazilian Stock Exchange (BM&FBOVESPA). The trading activity metrics used in our analysis were per million shares traded, per \$100 million in trade value and per 10,000 trades.

As mentioned in our analysis of the Canadian marketplaces' fees, when viewed in isolation each measure of trading activity can under- or over-report a marketplace's fees relative to its peers. As with our analysis of domestic marketplaces we focused on the volume metric, i.e., per million shares traded.

(b) Findings

Table 6 - Summary of Absolute and Relative Fees Per 1 Million Shares Traded for The TSX and Its International Peers, 2011

Monthly Average	TSX	LSE	ASX	NYSE Euronext (Europe)	NASDAQ Nordic	NYSE Euronext (U.S.)	NASDAQ (U.S.)	BM&FBOVES PA	HKSE
Trade Volume (billion)	9	72	51	10	6	48	76	73	246
Professional TOB									
Monthly Fee Per Subscriber ⁴¹	\$38/\$32 ⁴²	\$65.19	\$54.16 ⁴³	\$94.27	\$53.15	\$154.95 ⁴⁴	\$20.06	n/a	\$15.43
Per 1 Million Shares	\$0.0042	\$0.0009	\$0.0011	\$0.0094	\$0.0082	\$0.0032	\$0.0003	n/a	\$0.0001

³⁹ OSC Calculations based on data obtained from Thomson Reuters and IIROC's Marketshare by Marketplace Report. The total transparent trading volume is calculated as the sum of trading volume on all transparent marketplaces.

⁴⁰ OSC Calculations based on information provided by marketplaces and publicly available from NYSE Euronext's website.

⁴¹ Fees were converted into Canadian dollars using the following exchange rates: \$1USD = \$0.9971 CAD, \$1 EUR = \$1.3164 CAD, \$1 AUD = \$ 1.0698 CAD, \$1BRL = \$0.5755 CAD, \$1 HKD = \$0.1286 CAD.

⁴² The first fee shown was the effective fee from January to September 2011 and the second fee shown was the effective fee as of October 2011. TSX fees have been weighted in our calculations to account for fee changes that took place on October 2011.

⁴³ ASX fees include both TOB and DOB data.

⁴⁴ The NYSE Euronext (US) TOB fee includes the fees for data from Network A (priced for 1 user) and Network B (Last Sale and Bid/Ask).

Professional DOB										
Monthly Fee Per Subscriber	\$88/\$82 ⁴⁵	\$268.78 ⁴⁶	\$54.16	\$130.38 ⁴⁷	\$132.38 ⁴⁸	\$150.44 ⁴⁹	\$136.39 ⁵⁰	\$54.10 ⁵¹	\$51.44 ⁵²	
Per 1 Million Shares	\$0.0100	\$0.0037	\$0.0011	\$0.0130	\$0.0205	\$0.0031	\$0.0018	\$0.0007	\$0.0002	

The TSX's TOB fees are comparable to those charged by a number of European exchanges, both in dollar terms and when scaled by the volume traded. In contrast, European exchanges tend to charge more for DOB data than TOB data on an absolute dollar basis. Relative to the volume of trading activity, the TSX falls within the middle range of fees charged by European exchanges.

As indicated above, when compared to the U.S. exchanges, TSX TOB fees are in line with those charged by NYSE and NASDAQ in absolute dollar value. Relative to the volume of trading activity, both TOB and DOB data from the two U.S. exchanges is considerably less expensive than that from any of the other exchanges examined.

The ASX does not charge separately for TOB and DOB data. Relative to trading activity, the combined TOB and DOB data from ASX is slightly less costly than equivalent data from the TSX and the TSX and TSXV combined.⁵³ While the Australian market is similar in structure to the Canadian market,⁵⁴ we note that the comparison between the TSX and ASX relative fees may be distorted. Securities listed on the ASX are more diluted than securities listed on the TSX⁵⁵ and, as a result, the trading volume on ASX is significantly higher than the trading volume on the TSX. The difference accounts for the ASX's lower relative fee.

BM&FBOVESPA and HKSE have lower absolute and relative fees compared to those of TSX. The relative fee comparison is made difficult by the structure of the markets in which these exchanges operate. Canadian markets are competitive and securities listed on TSX are traded on multiple marketplaces. BM&FBOVESPA and HKSE are monopolies and their securities can only be traded on their markets. As a result a direct comparison is not meaningful.

4. Conclusions - Canadian Market Data Fees

Based on our analysis, we have concluded the following:

- a. There is no conclusive evidence that the fees charged by the TSX and the TSXV are unreasonable.
 - While the TSX and TSXV market data fees are the most expensive in Canada, in absolute terms, we could not find any conclusive evidence that these marketplaces were abusing their dominant position by charging fees that are high in relation to their market share of trading.
 - The TSX's data fees were comparable to those charged by many of its European peers, but higher than its U.S. peers. This seems to support the view that TSX fees are not unreasonable, as they fall between the fees charged in Europe and those charged in the U.S.
- b. There is evidence to support the view that in Canada, marketplaces with a smaller market share are, in some cases, charging fees that are high in relation to their market share of trading activity.
 - This finding does not necessarily mean that these marketplaces are charging fees that violate the fair access provisions of NI 21-101 and represent an unreasonable condition or limit on accessing their data services.
 - While we have not been provided with cost information, it is possible that the higher "per volume" fees charged by smaller marketplaces may reflect the fact that these marketplaces' cost of providing data for each user may be higher. Smaller marketplaces may have similar infrastructure costs as large marketplaces and the higher "per-volume" fees may reflect the fact that they need to recover those costs. In addition, higher "per-volume" fees may reflect the fact that these markets are in a start-up phase of operation and have not yet reached their expected outcomes.

⁴⁵ This is the TSX's effective DOB fee. See Appendix B for the TSX's listed DOB fee calculation.

⁴⁶ Fee for LSE Level 2 product.

⁴⁷ Fee for NYSE Euronext (Europe) Cash Full Order Book.

⁴⁸ Fee for NASDAQ OMX Nordic Equity TotalView.

⁴⁹ Fee for NYSE Euronext (US) NYSE OpenBook, NYSE Market OpenBook, NYSE ArcaBook

⁵⁰ Fee for NASDAQ Total View (for NASDAQ issues), NASDAQ BX Total View, NASDAQ PSX Total View.

⁵¹ Fee priced for access via terminal, internet and extranet.

⁵² Fee for Full Book product.

⁵³ The weighted combined TSX and TSXV TOB and DOB fees are \$0.009 and \$0.0197 per million shares.

⁵⁴ ASX-listed securities are traded on a competing marketplace, i.e., Chi-X Australia.

⁵⁵ On the ASX, the average number of outstanding shares for listed issuers with a market capitalization of at least \$1B was 991 million. On the TSX, the average number of outstanding shares for listed issuers with a market capitalization of at least \$1B was 287 million. Calculations based on data obtained from Capital IQ.

- c. There is some evidence that the cost of consolidated data in Canada is relatively higher than in the U.S.
- The U.S. SIP program has resulted in consolidated data fees that, based on trading volumes, are much lower than those in Canada.
 - We acknowledge the view held by marketplace participants in Canada that the data fees charged by Canadian and U.S. marketplaces should ideally be closer. However, differences in the regulatory environment, industry structure, scale and size of the two markets may explain the cost differential and arguably make such an outcome unrealistic.

As a result of our initial analysis, it is our view that while the amount of some of the data fees charged is not unreasonable, the quantum of some fees may result in a high fee for consolidated data. A high fee for consolidated data may introduce inefficiencies and hamper the ability of market participants to fulfill their regulatory obligations. As a result, we believe that further steps should be considered to address the fees charged for market data on an individual marketplace and/or aggregate basis.

VI. REGULATORY ACTIONS TAKEN TO DATE

This Part of the Consultation Paper describes the steps various CSA jurisdictions have taken to examine and manage issues relating to market data fees.

1. Review of Fees Charged by Canadian Marketplaces

Issues about market data fees first arose during the selection of an IP in 2009. CSA staff Notice 21-309 *Information Processor for Exchange-Traded Securities other than Options* acknowledged issues raised at the time and CSA staff made a commitment to review these issues at a future date, including:

- reviewing the regulatory requirements for data fees collectively charged by all Canadian marketplaces,
- looking at fee models used by data consolidators, vendors and marketplaces, and
- understanding what actions securities regulators in other jurisdictions have taken to ensure the costs and benefits of market data are balanced, and what options are available to mitigate and correct potential abuses of market data fees.

As part of the current review, CSA staff requested fee information from all transparent marketplaces and reviewed and analyzed this information. From this review, it was determined that market data fees warranted further research and analysis, which we have presented in this Consultation Paper.

Over the past few years both OSC and British Columbia Securities Commission (BCSC) staff have been reviewing proposed fee changes⁵⁶ by marketplaces with greater scrutiny, as part of their on-going oversight of marketplaces. Details are discussed below.

(a) OSC Staff Review

For the last few years OSC staff have placed greater emphasis on the review of proposed amendments to fees set out under Form F1 and Form F2 regarding fees, including data fees. When submitting proposed fee changes, marketplaces are asked to provide justification for their proposed changes, including an analysis of how the proposed fees comply with the fair access requirements. The information provided is used to assess whether the proposed fee changes would constitute a barrier to access to a marketplace's services. OSC staff's review of the proposed fees has relied mostly on post-trade statistics, provided either by the marketplaces or by IIROC.⁵⁷ The approach taken by OSC staff to review data fees to date is rooted in the fair access rule and the guidance provided in NI 21-101CP to the fair access requirements.

(b) BCSC Staff Review

BCSC staff have also placed a greater emphasis on the review of proposed amendments regarding fees, including data fees, in recent years. BCSC also requests that marketplaces submitting proposed fee changes provide a business case justifying their proposed changes and an analysis of the proposed fees and how the fees comply with the fair access requirements and, in the case of the TSXV, comply with provisions in that exchange's recognition order requiring fees to:

- be allocated on an equitable basis,
- not have the effect of creating barriers to access,

⁵⁶ OSC staff review all fee changes filed by the TSX, CNSX, Alpha and ATs and BCSC staff review fee changes filed by the TSXV.

⁵⁷ http://www.iiroc.ca/news/Documents/MarketplaceStatisticsReportHistorical_en.pdf

- be balanced with its need to have sufficient revenues to satisfy its responsibilities and,
- be fair, reasonable and appropriate.

2. Transparency of Enterprise Agreements Offered by Marketplaces

One issue raised in the past by the Investment Industry Association of Canada (IIAC) was the lack of transparency surrounding enterprise agreements for large data consumers. The CSA considered the issue of bringing transparency to enterprise agreements to help buyers of market data understand the criteria they would have to meet in order to be considered a candidate for an enterprise agreement. Amendments to NI 21-101 implemented on July 1, 2012 now require transparency of these agreements⁵⁸ and the basis on which fee discounts or rebates are set.

3. Further Research and Analysis of Market Data Fees

As part of the information gathering stage of this consultation, CSA staff conducted a series of interviews⁵⁹ with a representative cross-section of marketplace participants to further explore their market data fee concerns. The discussions with marketplace participants were focused on understanding the types of market data used and for what purpose, as well as the cost management and procurement controls they have in place to manage data costs. We also solicited feedback on potential solutions we could pursue in addressing their issues with market data fees.

We also researched and analyzed the regulatory frameworks governing market data fees in the United States and the European Union (EU), market data pricing, pricing theory and profitability analysis of the securities dealer industry. Appendix H presents a list of the literature we reviewed as part of our research and analysis activities.

4. Seek Industry Input on Proposed Approach to Data Fee Issues

The next phase of our work was the development and publication of this Consultation Paper. After we receive industry input for our proposed approach, we will determine whether further actions are appropriate or necessary.

VII. OPTIONS TO ADDRESS MARKET DATA FEES ISSUES

This Part of the Consultation Paper describes possible approaches to managing the issues associated with the cost of market data. We grouped these options into two categories based on the issues we are trying to address: high market data fees and transparency of proposed fees and changes to fee models. These options are described below.

1. Options to Address High Market Data Fees

The options in this category, if implemented, would regulate data fees through a number of means. Specifically, the approaches include: (i) capping fees for “core data”, (ii) capping fees for marketplaces, (iii) capping fees for data sold through the IP, (iv) regulating consolidated data fees charged by the IP and/or, (v) mandating a data utility to operate on a cost-recovery basis. These options are described below.

Option 1: Cap fees for “core data”

This option would consist of defining a set of data, known as core data that would be necessary to comply with regulatory requirements. The regulatory authority would then regulate the distribution of the fees applicable to this core data, whether distributed through the IP or through the marketplaces. Since core data would not necessarily need to include all data elements that are currently in market data feeds, it could be available at a lower price.

Marketplaces would be free to set fees for non-core real-time data products, subject to the normal fee review and approval process. To prevent marketplaces from bundling core data with other data as a way to circumvent the pricing restrictions, marketplaces would be required to offer core data as a stand-alone product.

Question 1: *Are there unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes of firms be more impacted than others?*

Question 2: *What are the competitive and business impacts of the proposed option?*

Question 3: *Would the proposed option be effective in addressing market data fee issues? Would this option be more effective if pursued with an additional option? If yes, which one(s)?*

⁵⁸ Section 10.1 of NI 21-101 and section 12.1 of NI21-101CP.

⁵⁹ OSC and Alberta Securities Commission (ASC) staff conducted interviews and BCSC staff discussed market data fee concerns with local investment dealers.

- Question 4:** *What elements should be included in core data? Why?*
- Question 5:** *How should the cap be set? Please provide as much detail as possible.*
- Question 6:** *Should there similarly be caps applied to non-core data? If so, how should the caps be set? Alternatively, what should staff consider when assessing the fees to be charged for non-core data?*

Option 2: Cap data fees charged by a marketplace until it meets a *de minimis* threshold

This option would impose a cap on the fees that a marketplace could charge for its market data until it reaches a *de minimis* threshold for a period of time. This threshold could be based on market share or market share combined with some other metric. The cap could be set at zero or at a nominal amount until the threshold is met. If a marketplace falls below the *de minimis* threshold for a certain period of time, its market data fees would be subject to the cap until the marketplace moves above the *de minimis* threshold again.

The cap would not apply to marketplaces that are above the *de minimis* threshold. Marketplaces in this situation would be able to set fees, subject to the approval process in place.

- Question 7:** *Are there any unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes of firms be more impacted than others?*
- Question 8:** *What are the competition and business impacts of the proposed option?*
- Question 9:** *Would the proposed option be effective in addressing market data fee issues? Would this option be more effective if pursued with another option? If yes, which one(s)?*
- Question 10:** *What factors could be considered in establishing the *de minimis* threshold? What could be the appropriate measure and measurement period? Please provide as much detail as possible.*
- Question 11:** *What factors could be considered in setting the cap? Please provide as much detail as possible.*

Option 3: Cap all data fees for all marketplaces starting at a *de minimis* threshold and gradually increasing the threshold and the applicable caps

This option would limit the level of market data fees individually charged by all marketplaces. Similar to the previous option, the *de minimis* threshold could be based on market share or market share combined with some other metric. We have not decided what the *de minimis* threshold metric could be; however, to facilitate an understanding of this option we will use market share as the *de minimis* metric. Whereas option 2 only contemplates a single market share threshold and fee cap, this option would create a matrix with a cap level for each threshold interval.

The cap for the *de minimis* threshold could be set at zero or at a nominal amount until the *de minimis* threshold is met. The cap would increase when a marketplace moves beyond the *de minimis* market share threshold and into a higher market share threshold. Conversely, the cap would decrease to a lower level if a marketplace regresses back to a lower market share threshold. Similar to option 2, a marketplace must remain above a set threshold for a certain period of time before it can increase its fee up to a level that corresponds to the threshold tier it is in.

This option would prevent any marketplace from charging fees that are not reflective of its market share. Additionally, the tier fee caps and market share thresholds structure would keep fee increases in check by tying them to a marketplace's market share.

- Question 12:** *Are there any unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes of firms be more impacted than others?*
- Question 13:** *What are the competition and business impacts of the proposed option?*
- Question 14:** *Would the proposed option be effective in market data fee issues? Would this option be more effective if pursued with another option? If yes, which one(s)?*
- Question 15:** *What factors could be considered in establishing the *de minimis* threshold and the successively higher thresholds? What could be the appropriate measure and measurement period?*
- Question 16:** *What factors could be considered in setting the gradually increasing caps? What could be an appropriate approach in setting these caps? Please provide as much details as possible.*

Question 17: *Should the caps for fees be waived when a certain threshold is met? Please provide as much detail as possible.*

Option 4: Cap fees for data sold through the IP

This option would cap the fees that marketplaces charge buyers who purchase their data from the IP. All marketplaces would be subject to a cap, although not necessarily the same one (as in option 3). This model preserves the pass-through model but caps the costs that could be passed through. The cap could be set by the regulators and implemented through a rule. The marketplaces would still be free to set fees for direct subscribers and vendors, subject to the normal fee review and approval process. This option would create a lower-cost consolidated data feed from the IP. As many users do not need to purchase data directly from marketplaces (e.g., users that are not latency sensitive) this option could address their concerns. Users whose business models require them to purchase data directly from the marketplace or from third party vendors would not necessarily see a direct benefit in terms of lower costs, but the existence of a lower-cost alternative may impose some market discipline on data prices generally.

Question 18: *Are there any unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes of firms be more impacted than others?*

Question 19: *What are the competition and business impacts of the proposed option?*

Question 20: *Would the proposed option be effective in addressing market data fee issues? Would this option be more effective if pursued with another option? If yes, which one(s)?*

Question 21: *What factors could be considered in establishing the caps?*

Option 5: Regulate consolidated market data fees charged by the IP

This option is similar to option 4, except that it would directly regulate the fees charged by the IP for consolidated data rather than the fees charged by marketplaces. Unlike option 4, this model would eliminate the pass-through model but would necessitate creating a different fee and compensation model for the data fees. Like option 4, this option would not regulate fees for data sold directly by marketplaces.

In this option, the IP and not the marketplaces would set the fee for its consolidated data, subject to approval by the regulatory authority. The fee could be determined by a rule of the regulatory authority, the IP independently or co-operatively by the marketplaces, as is done with consolidated data in the United States. Marketplaces would share in the IP's revenue on a pre-determined basis, either by agreement or rule or as approved by the regulatory authority. Under this option, marketplaces would be free to set fees for direct subscribers and vendors, subject to the fee review and approval process.

This approach is similar to the approach taken in the United States, where the revenue from the consolidated data distributed by the SIPs is allocated by a set formula.

This option requires legislative amendments to the securities regulatory authorities jurisdiction to specifically regulate the operations of the IP and the fees charged for its products.

Question 22: *Are there unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes of firms be more impacted than others?*

Question 23: *What are the competitive and business impacts of the proposed option?*

Question 24: *Would the proposed option be effective in addressing market data fee issues? Would this option be more effective if pursued with another option? If yes, which one(s)?*

Question 25: *How should the fee be set and by whom?*

Option 6 – Cap consolidated data fees sold by marketplaces to all data vendors, not just to the IP

This option is also similar to option 4, however, instead of capping the fees that marketplaces charge buyers who purchase their data directly from the IP, the fees that marketplaces charge buyers of consolidated data from all data vendors would be capped. Marketplaces would be free to charge whatever fees they determine appropriate for non-consolidated data whether distributed by vendors or by the marketplaces directly. This will allow all data vendors to distribute the consolidated data at the same lower, capped rate to marketplace participants as the IP.

- Question 26:** *Are there unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes benefit more than others?*
- Question 27:** *How does this option compare with option 4? What costs and benefits arise from offering regulated fee consolidated data through competitive data vendors rather than a single regulated IP?*
- Question 28:** *What advantages, if any, would result from being able to receive consolidated data from a number of data vendors?*
- Question 29:** *How should the fee be set and by whom?*
- Question 30:** *Should data vendors distributing aggregated data under this model be subject to regulation by the CSA?*

Option 7: Mandate a data utility to operate on a cost-recovery basis

Concerns about the costs of market data have led some marketplace participants to suggest the creation of a “public utility” source of consolidated market data in Canada.

A mandated data utility could be funded by marketplaces and/or data customers and would operate on a cost-recovery basis. Any revenue generated from the selling of the consolidated data would be divided amongst the utility participants based on a revenue sharing model agreed upon by all parties involved. The amount of revenue that each participant receives would be proportionate to their contribution to price discovery and liquidity. This utility would have to be overseen by the regulatory authority as it would be providing a service critically important to the capital markets.

This option is similar to Option 5, except that it would be developed by the industry rather than imposed by the regulatory authority. Legislative amendments and an overhaul of the transparency requirements would be needed if a public data utility was created.

- Question 31:** *Are there unintended consequences at the industry, marketplace or firm level that could result if this option is pursued? Would these consequences be evenly distributed across the industry or will certain types or sizes of firms be more impacted than others?*
- Question 32:** *What are the competitive and business impacts of the proposed option?*
- Question 33:** *Would the proposed option be effective in addressing market data fee issues? Would this option be more effective if pursued with another option? If yes, which one(s)?*
- Question 34:** *Is it sufficient to create a utility, or must its prices also be regulated?*
- Question 35:** *Should there be any restrictions on the data to be provided by marketplaces to this utility – e.g., should this data be limited to core data?*

2. Option to Address Transparency of Fee Proposals and Changes to Fee Models

Option 8: Publish amendments to market data fees and fee models for comments

This option would require a marketplace to publish for comment any amendments to its market data fee schedule. We could require marketplaces to also publish the rationale for amending the fees and a pre-implementation impact analysis at the time their proposed fee changes are filed with the regulatory authority for approval. This would impose some discipline as marketplaces would have to publicly justify any changes to fees and/or fee models.

- Question 36:** *Are there any unintended consequences at the industry, marketplace or firm level that could result if this option is pursued?*
- Question 37:** *What are the competition and business impacts of the proposed option?*
- Question 38:** *Would the proposed option be effective in addressing market data fee issues? Would this option be more effective if pursued with another option? If yes, which one(s)?*
- Question 39:** *Would the rationale and the pre-implementation impact analysis be sufficient in assessing whether the proposed fees do not constitute an unreasonable condition on accessing a marketplaces data services? If no, what other requirements should be considered?*

VIII. REQUEST FOR COMMENTS

We seek comments on all issues raised in this CP, including the options identified, as well as the specific questions posed within it.

You must submit your comments in writing by February 8, 2013. If you are sending your comments by email, you should also send an electronic file containing the submissions (in Windows format, Microsoft word).

Please address your comments to the CSA member commissions as follows:

Alberta Securities Commission
British Columbia Securities Commission
Manitoba Securities Commission
Autorité des marchés financiers
New Brunswick Securities Commission
Superintendent of Securities, Newfoundland and Labrador
Registrar of Securities, Department of Justice, Northwest Territories
Nova Scotia Securities Commission
Registrar of Securities, Legal Registries Division, Department of Justice, Nunavut
Ontario Securities Commission
Registrar of Securities, Prince Edward Island
Saskatchewan Securities Commission
Registrar of Securities, Government of Yukon Territories

Please send your comments [only] to the address(es) below. Your comments will be forwarded to the remaining CSA jurisdictions.

The Secretary
Ontario Securities Commission
20 Queen Street West
19th Floor, Box 55
Toronto, Ontario M5H 3S8
Fax: 416-593-2318
Email: comments@osc.gov.on.ca

and

M^e Anne-Marie Beaudoin
Corporate Secretary
Autorité des marchés financiers
800, square Victoria, 22^e étage
C.P. 246, tour de la Bourse
Montréal (Québec) H4Z 1G3
Email: consultation-en-cours@lautorite.qc.ca

Please note that all comments received during the comment period will be made publicly available. We cannot keep submissions confidential because securities legislation [in certain provinces] requires publication of a summary of all the written comments received during the comment period. We will post all comments received during the comment period to the OSC website at www.osc.gov.on.ca to improve the transparency of the policy making process.

Questions

Please refer your questions to any of the following:

Alina Bazavan
Ontario Securities Commission
416-593-8082

Myha Truong
Ontario Securities Commission
416-593-8157

Tracey Stern
Ontario Securities Commission
416-593-8167

Paul Redman
Ontario Securities Commission
416-593-2396

Serge Boisvert
Autorité des marchés financiers
514-395-0337 x 4358

Michael Brady
British Columbia Securities Commission
604-899-6561

Bonnie Kuhn
Alberta Securities Commission
403-355-3890

Doug Mackay
British Columbia Securities Commission
604-899-6609

Mark Wang
British Columbia Securities Commission
604-899-6658

Appendix A

Methodology for Calculating TOB And DOB Market Data Fees for Each Transparent Canadian Marketplace, 2011

A. Calculations of Relative Fees For All Marketplaces

The fee of each marketplace was divided by that marketplace's respective trading activity, as measured by volume, value and number of trades. The result was then scaled by an appropriate multiplier; and, these were one million shares traded, \$100 million in traded value and 10,000 trades. The example below illustrates our calculation methodology for each trading activity metric.

$(\text{Fee for Marketplace} \div \text{Monthly Average Volume in 2011}) \times 1,000,000$

$(\text{Fee for Marketplace} \div \text{Monthly Average Traded Value in 2011}) \times \$100,000,000$

$(\text{Fee for Marketplace} \div \text{Monthly Average Number of Trades in 2011}) \times 10,000$

Trading activity data were obtained from IIROC and Thomson Reuters' Equity Market Share Reporter.

B. Calculation of TOB data fees

We used the listed fee for TOB data in our analysis, with the exception of the TSX's and CNSX's fee. The TSX had a fee change for TOB data in October 2011. We weighted the TSX's TOB data fee to capture this change. CNSX bundles its TOB and DOB data as a single product and a single fee is charged to access both levels of data. Our analysis used this bundled fee.

C. Calculation of DOB data fees

TSX

Users are required to purchase TOB data in order to buy DOB data. To reflect the true cost of purchasing DOB data, we used an aggregate fee for DOB data, by adding together the fee for TOB and DOB data. The TOB data fee was weighted to reflect a fee change that took place in October 2011.

TSXV

Users are required to purchase TOB data in order to buy DOB data. To reflect the true cost of purchasing DOB data, we used an aggregate fee for DOB data, by adding together the fee for TOB and DOB data.

TMX Select

TMX Select did not charge a fee to access its market data, in 2011. We used \$0 in our analysis. Where it made sense to do so in our presentation of the analysis, we have omitted the results for TMX Select, since all the results are \$0.

Alpha

TOB data is free with the purchase of DOB data. The listed fee for DOB data was the fee we used in our fee analysis.

CNSX

TOB and DOB data are bundled as a single product and a single fee is charged to access both levels of data. In our analysis, the same fee was used for TOB and DOB data. CNSX uses a suggested pricing schedule. We used a mid-point price that was between the suggested retail price and the dollar amount that a re-distributor must remit back to CNSX. This method controlled for the over or under-representation of fees that would occur were the lowest/highest price method were used.

Pure

TOB data is free with the purchase of DOB data. The listed fee for DOB data is the figure that is used in our analysis. Pure uses a suggested pricing schedule. We used a mid-point price that was between the suggested retail price and the dollar amount that a re-distributor must remit back to Pure. This method controlled for the over or under-representation of fees that would occur were a lowest/highest price method were used.

Omega

Omega currently has a fee holiday for DOB data. In order to access DOB data, users are required to buy TOB data. The price for DOB data is listed as \$0 in our tables. We, however, used the TOB fee in our analysis to capture the true cost of accessing DOB data.

Chi-X

TOB data is free with the purchase of DOB data. The listed fee for DOB data is the figure that was used in our analysis.

Appendix B

Summary of Absolute and Relative Fees by Trading Activity, 2011

2011 Monthly Average	TSX	TSXV	TMX Select	CNSX	Alpha (TSX)	Alpha (TSX-V)	Chi-X	Omega	Pure
Volume (billion)	8.6	5.4	0.2	0.1	4.2	1.1	1.3	0.4	0.7
Value (\$ billion)	123.3	3.5	1.9	0.0	34.6	0.7	20.0	4.2	6.3
Number of Trades (million)	17.5	1.1	0.4	0.0	6.0	0.4	5.7	0.7	1.2
Professional TOB									
<i>Monthly Fee Per Subscriber</i>	<i>\$38/\$32</i>	<i>\$25.00</i>	<i>\$0.00</i>	<i>\$9.00</i>	<i>\$15.00</i>	<i>\$7.50</i>	<i>\$12.00</i>	<i>\$2.85</i>	<i>\$11.00</i>
Per million share traded	\$0.004	\$0.005	\$0.000	\$0.126	\$0.005	\$0.007	\$0.009	\$0.007	\$0.015
Per \$100 million in total traded value	\$0.030	\$0.708	\$0.000	\$59.706	\$0.043	\$1.075	\$0.060	\$0.068	\$0.175
Per 10,000 trades	\$0.021	\$0.225	\$0.000	\$23.884	\$0.025	\$0.201	\$0.021	\$0.040	\$0.094
Professional DOB									
<i>Monthly Fee Per Subscriber</i>	<i>\$88/82</i>	<i>\$51.00</i>	<i>\$0.00</i>	<i>\$9.00</i>	<i>\$48.00</i>	<i>\$24.50</i>	<i>\$30.00</i>	<i>\$0.00</i>	<i>\$16.50</i>
Per million share traded	\$0.010	\$0.009	\$0.000	\$0.126	\$0.015	\$0.023	\$0.023	\$0.007	\$0.022
Per \$100 million in total traded value	\$0.064	\$1.263	\$0.000	\$59.706	\$0.139	\$3.513	\$0.150	\$0.068	\$0.262
Per 10,000 trades	\$0.045	\$0.404	\$0.000	\$23.884	\$0.080	\$0.658	\$0.052	\$0.040	\$0.141

NB: The TSX's fee calculations take into account the TSX fee changes in October 2011. Appendix A provides details of how to determine the listed vs. the effective DOB fee for each marketplace.

Data sources: IIROC Marketshare by Marketplace Report, information provided by marketplaces, marketplaces websites, OSC calculations

Appendix C

Market Structure and Regulatory Framework for Market Data in the United States

a. Market structure

In 1999, United States SEC adopted Regulation ATS to govern operations of ATSs. In the U.S, Regulation ATS, under the Securities Exchange Act of 1934 (1934 Act) imposes requirements such as fair access and transparency on marketplaces⁶⁰, but they only apply to an ATS once it reaches a certain market share threshold. Like Canada, marketplaces offer dark and transparent facilities. ATSs have been very successful in capturing market share from stock exchanges.

b. Rules governing availability of market data

In the U.S., the applicable rules governing exchanges are primarily in the 1934 Act and related SEC rules, while rules governing ATSs are primarily in the SEC's Regulation ATS.

For exchanges, a consolidated data model has been in place for some time. In 1975, the U.S. Congress amended the 1934 Act to facilitate the creation of a "national market system" (NMS) for securities, with the objectives of fostering competition in exchange-traded securities while maintaining stable and orderly markets and centralizing access to buying and selling interest so that each investor would have the opportunity for best execution of their order, regardless of where it was entered. Communications systems for market data were the backbone of this system as the display of bids and offers on a consolidated basis would allow for the best price to be determined.

In order to provide maximum flexibility, Congress did not mandate how the NMS would operate but instead allowed the SEC and the securities industry to establish the details.

The SEC in turn adopted a series of rules mandating the display of bids, offers and last sales in NMS securities (any security for which transaction reports are collected, processed and made available through a National Market System Plan (Plan) approved by the SEC). SEC rules require that exchanges make their data available to information processors on terms that are fair and reasonable, and require them jointly to ensure that consolidated information is available through the CTA Plans.

Exchanges and ATSs that are required or choose to display order information in NMS securities send details of their best bid, best offer and aggregate size on the bid and offer to one of the two SIPs, which then consolidates the data for dissemination to vendors and end-users. Trade information is provided on a consolidated tape system and bid and offer information is provided on a consolidated quote system ("consolidated tapes") pursuant to Plans. The Plans also govern the fees that are charged for market data and the sharing of fee revenue amongst participating marketplaces.

Two SIPs sell data for equity securities in the U.S. CTA Network A processes data from all marketplaces for securities listed on the New York Stock Exchange. CTA Network B does the same for securities listed on NYSE MKT and securities listed on regional exchanges that meet NYSE MKT listing standards. The NASDAQ UTP Plan processes data for securities listed on NASDAQ. Network A is administered by NYSE, Network B by NYSE MKT and NASDAQ UTP by NASDAQ.

c. Marketplace filing requirements

An exchange that wishes to register as a "national securities exchange" under the 1934 Act must file a Form 1 with the SEC. The Form requires the applicant to publicly disclose fees charged. An ATS wishing to commence operations must file a Form ATS, which does not require public disclosure of fees.

Under section 19(b) of the 1934 Act, exchanges are required to file and obtain SEC approval for rule changes. Although the term "rule" is not defined to specifically include fees, section 19(b)(3)(A) provides that rule changes "establishing or changing a due, fee, or other charge imposed by the [exchange] on any person, whether or not the person is a member of the [exchange]" become effective immediately upon filing with the SEC.

Fees are published for notice and comment, but they can be implemented immediately, on filing. The SEC can suspend the fee change any time within 60 days after filing if the SEC considers it necessary or appropriate in the public interest, for the protection of investors or otherwise in furtherance of the purposes of the 1934 Act, pending a hearing to determine whether the fee change should be approved or disapproved.

d. Order Protection Rule

Like the Canadian rule, SEC Rule 611 requires a marketplace to have reasonable policies and procedures to prevent trade-throughs. The rule also contains an exemption if the dealer sending the order uses a DAO, which the SEC rule calls an "inter-market sweep order."

⁶⁰ With respect to display of order information, U.S. ATSs are not required to display details of orders until they have had an average daily trading volume of 5 per cent or more for four of the preceding six months. A similar threshold applies to the requirement to provide fair access to the market.

The difference between the US and the Canadian rules are that the U.S. rule only covers the top-of-book for each marketplace, while the Canadian rule covers trade-throughs at any price level.

e. Best execution rule

The SEC has not defined best execution, so the common law agency standard applies to dealers. The SEC has enacted rules to assist clients in determining whether they received best execution. Marketplaces are required to publicly provide detailed statistics concerning order execution on a monthly basis. Dealers in turn are required to publicly disclose their order routing practices on a quarterly basis. The intent of the two rules is that clients will have the information they need to determine whether their dealer routes orders to the marketplace that provides best execution based on the factors the client considers important (e.g., speed of execution, execution at a better price than the posted bid or offer, etc).

Appendix D

Methodology For Calculating Consolidated Fees in Canada and the U.S.

Methodology for Canada

The Canadian consolidated fee was calculated for all transparent marketplaces. The calculated fee takes into account the TSX fee change in October 2011.

Top-of-book and depth-of-book fees were calculated by:

1. summing the effective fee from January to September 2011, for all transparent marketplaces, and multiplying this by 9 months,
2. summing the effective fee from October to December 2011, for all transparent marketplaces, and multiplying this by 3 months,
3. summing the totals from calculations 1 and 2 and dividing it by 12 months to find the average monthly fee in 2011.

We used weighted monthly averages of trading activity (i.e., number of trades, value of trades, and volume) to calculate the fees, since a simple average would under-report these trading activity measures and result in an over-reporting of each marketplace's relative fee.

Methodology for U.S.

The consolidated U.S. fee includes data from Networks A, B (Last Sale and Bid/Ask) and NASDAQ UTP.

For comparison purposes we calculated a fee for DOB data in the U.S. DOB fees were calculated for all CTA participants in the U.S., based on the costs for the following DOB products: NYSE ArcaBook, NYSE OpenBook, NYSE MKT OpenBook, NASDAQ TotalView (for NASDAQ listed securities), NASDAQ BX TotalView and NASDAQ PSX Total View. NYSE fee is priced for a single user because the single participant fee better reflects the incremental cost for each new marketplace participant.

We used an exchange rate where \$1 USD is equivalent to \$0.9971 CAD. This was the effective exchange rate on February 1, 2012.

Appendix E

Summary of Absolute and Relative Consolidated Fees by Trading Activity in Canada and the United States, 2011

	Consolidated Canadian Marketplaces	Consolidated U.S. Marketplaces
<i>Professional TOB - Monthly Fee</i>	\$118.85	\$173.99
Per 10,000 Trades	\$0.1026	\$0.0081
Per \$100 Million in Trades	\$0.1365	\$0.0184
Per 1 Million Shares	\$0.0201	\$0.0027
<i>Professional DOB - Monthly Fee</i>	\$268.35	\$285.17
Per 10,000 Trades	\$0.2317	\$0.0132
Per \$100 Million in Trades	\$0.3082	\$0.0137
Per 1 Million Shares	\$0.0454	\$0.0044

NB: Canadian consolidated fee calculated for all transparent marketplaces. The fee calculated takes into account the TSX fee changes in 2011. Consolidated US fees are for Networks A, B (Last Sale and Bid Ask) and NASDAQ UTP. DOB fees were calculated for exchanges that charge a fee for their DOB products. Products included in our calculations were: NYSE ArcaBook, NYSE OpenBook, NYSE MKT OpenBook, NASDAQ TotalView, NASDAQ BX TotalView (for NASDAQ-listed securities) and NASDAQ PSX Total View. Weighted monthly averages were used in calculating the fees. Exchange rate was \$1 USD = \$0.9971 CAD as of Feb. 1, 2012.

Data sources: IIROC Marketshare by Marketplace Report, World Federation of Exchange, information provided by marketplaces, marketplaces websites, OSC calculations

Appendix F

Market Structure and Regulatory Framework for Market Data in the European Union

a. Market structure

Prior to 2007, traditional exchanges in Europe (called “regulated markets” in MiFID) controlled the trading of their own listed securities. To keep pace with technological development and to foster competition in the provision of services to investors and between trading venues, the EU adopted the Markets in Financial Instruments Directive (MiFID) that became effective in all EU member states in November 2007. The new set of rules opened traditional markets to competition from new types of trading venues, most importantly multilateral trading facilities (MTF) which are similar to ATs, systematic internalizers and crossing networks.

MiFID relies on three pillars: market access, transparency and best execution. MiFID abolished the option of a so-called ‘concentration rule’, meaning that retail orders had to be executed on a traditional exchange. Today, regulated markets (i.e. traditional exchanges), MTFs, and investment firms can offer their services across borders. MTFs have successfully captured a significant fraction of trading volume from traditional exchanges.

b. Rules governing the availability of market data

Transparency obligations require regulated markets and MTFs to publish order book information and executions on a timely basis.

c. Order Protection Rule

MiFID does not prohibit trade-throughs. In addition, European regulation does not establish a single data consolidator⁶¹ to provide comprehensive consolidated market information to investors.

d. Best execution rule

The best execution rule in the EU is similar to those in Canada and the United States. Under MiFID, best execution relies on factors such as cost, speed, likelihood of execution and settlement, and order size. Intermediaries (e.g. investment firms and brokers) that execute orders on behalf of their clients have to establish a best execution policy and their best execution policies and procedures have to be reviewed at least annually. However, the application of best execution with respect to multiple marketplaces differs in Europe in that dealers may ignore better prices on a non-regulated market provided this fact is disclosed to their clients.

⁶¹ Proposed amendments to MiFID (MiFID II) contemplate the creation of a post-trade consolidated tape to provide consolidated market data to investors.

Appendix G

Market Structure in Hong Kong and Brazil

Hong Kong

Capital markets in Hong Kong are regulated by the Securities and Futures Commission (SFC) established in 1989 as the frontline regulator of the securities and futures markets in Hong Kong. SFC derives its powers from the Securities and Futures Ordinance (SFO implemented in April 2003) and some subsidiary legislation. Under the SFO, Hong Kong Exchange (HKEx) is the sole recognized exchange controller in Hong Kong that owns and operates the only equities (HKSE) and futures exchange in Hong Kong and its related clearing houses. Trades conducted over automated trading services (ATSs) are only for foreign-listed securities. ATS trading accounts for less than 3%⁶² of trading volume in Hong Kong.

SFC regulates the fees charged by the exchange operator.⁶³ In deciding whether or not to approve a fee, SFC considers: (a) the domestic level of competition (if any) for the matter of which the fee is to be imposed; and, (b) the level of the fee (if any) charged by a similar body for the same or similar matter to which the fee relates to.

Brazil

The Brazilian capital markets and financial systems are regulated and monitored by the National Monetary Council, the Brazilian Central Bank and the Brazilian Securities and Exchanges Commission (CVM).

CVM was created by Law No. 6,385 of December 1976 and has nationwide jurisdiction over the securities markets. Subject to CVM's oversight is BM&FBOVESPA that was created in 2008, through the integration between the São Paulo Stock Exchange and the Brazilian Mercantile & Futures Exchange. It is the only securities, commodities and futures exchange in Brazil. Shares of companies listed on the BM&FBOVESPA cannot be traded simultaneously on the Brazilian OTC market. BM&FBOVESPA disseminates all trading data (pre- and post-trade) in real-time. The order book is organized and executed according to best price/time priority. The market data associated with these trades is made available through BM&FBOVESPA's market data feed facility to data vendors.

⁶² Source: Celent, Evolution of ATS, PTS and Crossing Networks Market Share in the Asia-Pacific Region.

⁶³ SFO, Cap 571 s.76 Fees to be approved by the Commission.

Appendix H

Literature Reviewed

Anderson, David. "Exchange Data." 2007. ScreenMarkets.

Bakos, Y. and Brynjolfsson, E. "Bundling Information Goods: Pricing, Profits and Efficiency," *Management Science*. Dec 1999.

Boulatov, Alex and Dierker, Martin. "Pricing Prices." European Finance Association 34th Annual Meeting. Aug 2007.

Brown-Hruska, Sharon and Ellig, Jerry. "Financial Markets as Information Monopolies?" *Regulation* 23.3 (2000).

Committee of European Securities Regulators. "Impact of MiFID on equity secondary markets functioning." Jun 2009.

Emmons, Willis. "Note on Pricing and Public Policy." Dec. 1993. Harvard Business School Publishing.

European Securities Markets Expert Group. "Fact finding regarding the availability of post-trade data in equities in the EU." Mar 2009.

Hitt, Lorin M. and Chen Pei-yu. "Bundling with Customer Self-Selection: A Simple Approach to Bundling Low Marginal Cost Goods" *Management Science* 51.10 (2005). 1481-1493.

Market Data Budgets webcast hosted by Inside Market Data Magazine. Dec 2011.

Rowady, E. Paul. "Real-Time Market Data: Circus of the Absurd." Jan 2012. Tabb Group.

Securities Litigation Consulting Group. "An Economic Study of Securities Market Data Pricing by Canadian Trading Venues." Jun 2011.

Securities Litigation Consulting Group. "An Economic Study of Securities Market Data Pricing by the Exchanges." Jul 2008.

US Securities and Exchange Commission. "Regulation of Market Information Fees and Revenues." Dec. 1999.