Trading Fee Models and their Impact on Trading Behaviour

Final Report

GENERAL SECRETARIAT
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Contents

The purpose of this report is to provide a summary of the work conducted by Committee 2 regarding trading fee models and trading fees.

I. BACKGROUND

Globally, securities regulators have introduced regulatory frameworks that have fostered competition among trading venues. In addition, advances in technology have played a critical role in enhancing competition among trading venues by reducing the cost of establishing new trading venues and providing access to new pools of liquidity. The result is trading that is fragmented with multiple venues trading the same instruments and competing both within a jurisdiction and across jurisdictions (for example, where securities are cross-listed). Competition has provided investors and intermediaries with greater choice as to where and how they trade. These venues compete with respect to trading systems and technology, market models and trading fees, including trading fee structures. A more competitive market forces venues to be innovative and provide services that are faster, less expensive, and/or that address the needs of a niche market.

Efficient markets need a proper balance between participants that supply liquidity with those that demand liquidity. These participants may respond differently to changes in trading fees. To succeed, venues must attract sufficient numbers of both types of market participants while recognizing that the level of activity on a trading venue may be impacted by both the level and structure of trading fees (i.e., how the fee is split between both groups). This complicates the fee setting process for trading venues and the regulator's oversight of trading fees.

Importantly, competition in the market means that trading fee structures are sometimes more complex and more frequently reviewed by trading venues than was the case in the past. In many cases, increased competition has resulted in a decrease in fees charged (whether charged on a per share / contract or per transaction basis). In addition, questions have been raised about the impact of trading fee structures on the efficiency of the price formation process. For instance, it has been suggested that maker-taker fee structures may lead to trading strategies aimed at optimizing rebates received for providing liquidity. In such cases, the price formation for a security may also incorporate activity designed to make money from liquidity rebates rather than the supply and demand for the security based on its fundamentals. Other issues related to trading fee models include:

- The degree to which these structures influence the decision to connect to a particular trading venue;
- The degree to which incentives provided by these structures (including shareholder trading incentive arrangements) impact the type of participant in the market and influence behaviour of those participants or others;
- The need for and relevance of publication of fee schedules;
- Whether the structures raise issues associated with fair (or non-discriminatory) access to the venue or its services; and
- The role that markets authorities should play in this area.

II. PURPOSE AND SCOPE OF THE PROJECT

The focus of the work conducted by C2 members was to:

- Summarise the regulatory framework that different jurisdictions have in place to regulate trading fees and structures in equity and exchange-traded derivatives markets;
- Describe the different trading fee models and structures used by different trading venues;
- Identify the potential impact of different fee models on trading behaviour[1] and examine academic literature available on the subject; and
- Determine if additional principles need to be added to the *Principles of Securities Regulation* relating to the regulation of secondary markets (Principles 33-38).

The project was limited to focusing on the impact of trading fee models. There may be other fees that impact participant behaviour, for example, clearing costs; however, an examination of these or other fees was not in the scope of the project.

III. APPROACH

In order to obtain an understanding of the fee models currently in use and the approaches taken by various regulators to regulate them, a short questionnaire was developed for regulators and trading venues. It included questions regarding:

- What types of fee models are currently being used;
- How fees and fee models are being regulated; and
- Views on, or research done to identify, any potential or actual impact of trading fee models.

This report is intended to provide a summary of the responses received to the survey. Twenty-two jurisdictions responded to the survey, and approximately 70 trading venues either responded themselves or were reflected in the responses provided by the C2 members.[2]

Part IV of this report provides a high-level summary of the key findings from the responses to the survey, with more focus on the incentives and effects of trading fee models and trading fees. Part V sets out the conclusion.

A detailed summary of the responses to the survey can be found in Appendix A to the report.

The questionnaire was not sent to market users, such as market participants and fund managers. Therefore, this report does not reflect their views.

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1 For example, do higher taker fees present a risk that dealers will internalize more order flow or increase their use of dark liquidity to minimize the impact of these fees?

2 Not every jurisdiction answered all parts of the survey. Regulators of 2 jurisdictions did not submit responses to this survey (Nigeria, Saudi Arabia).

IV. SUMMARY OF KEY FINDINGS

A. Context of C2 Markets

The first two parts of the survey sent to the C2 regulators were intended to provide context for the examination of trading fees and trading fee models. Specifically, the survey asked about the existence of competition, whether order handling rules exist and how they are interpreted, and what regulation or regulatory processes exist with respect to fee setting by trading venues. The purpose of these questions was to better understand the environment in which the trading fees and fee models exist, and the factors that might influence either the level of trading fees charged or the fee models used.

From these parts of the survey, there were a number of key findings with respect to competition and the regulatory environment.

Competition

- There is competition among markets trading the same securities in a number of jurisdictions, including Europe, Australia, Japan, the US, and Canada.

- Views on the impact of competition on trading fees and trading fee models indicate that in jurisdictions where competition exists, it has resulted in a lowering of fees charged, changes in fee models (e.g., move away from symmetrical pricing), and/or differentiation between or within trading venues of: (i) fees that create incentives for liquidity provision, and/or (ii) fees for different types of securities or types of trades.

Regulatory environment

- Two jurisdictions where there is competition have rules preventing the execution of orders that are inferior to other displayed orders (*i.e.*, Order Protection Rules), but most have best execution requirements that require at a minimum, *consideration* of some of the venues displaying best price.

- Some regulators have direct and specific authority over trading fees and fee models of trading venues. Amongst them, some approve the fees of trading venues, but few are involved in the setting of fees or fee models. However, many do review fees on either a pre- or post-implementation basis in the context of other requirements such as those pertaining to fair access or orderly markets – the most common consideration being whether the fees are unreasonably or unduly discriminatory.

- Transparency of the trading fees and trading fee models is generally the norm, whether as a result of requirements for transparency or industry practice.

- Restrictions imposed by regulators on fees do not generally prohibit the provision of discounts, tailored or negotiated fees / fee models, or the differentiation of fees between members and non-members (or between types or classes of members – for example, market makers or supplemental liquidity providers), but any instances of these would generally be subject to overarching principles of fairness.

B. Description of Trading Fee Models and Trading Fees

To obtain an understanding of the nature of trading fees and trading fee models, C2 jurisdictions sent the survey to a number of trading venues operating in their jurisdiction. The various trading fee models are defined in the survey as follows:

- Maker-taker pricing model – where the provider of liquidity (maker) receives a rebate and the taker of liquidity (taker) pays a fee;

- Inverted maker-taker pricing model – where the provider of liquidity (maker) pays a fee and the taker of liquidity (taker) receives the rebate;

- Symmetrical pricing model – where both the active and passive side of a trade pay the same fee; and

- Asymmetrical pricing model – where both the active and the passive side of a trade pay a fee, but the fee paid is not the same.

From this part of the survey, the following points represent the key findings:

- The trading venues represented in the responses reflect various types of regulated entities and business models:

    - Exchanges / regulated markets (approx. 65%) vs. ATSs / MTFs (35%);

    - Lit (90%) vs. strictly dark (10%) markets (note: lit includes those venues also offering dark order types – 25%); and

    - Cash products only (60%) vs. derivatives only (20%) – remainder 20% trading both instruments.

- Except for two trading venues, all represented are operated as for-profit businesses.

- The survey responses show that there is not one predominant trading fee model used. Further, responses show that many trading venues use more than one type of fee model. Specifically, the survey responses revealed that approximately 80% of responding trading venues use an element of symmetrical pricing, 70% of responding trading venues use an element of asymmetrical pricing, and 20% use an element of maker-taker or inverted maker-taker pricing.

- Survey responses reveal that generally the maker-taker or inverted maker-taker fee model is being applied for equities trading and not for derivatives trading. These fee structures are relatively new, with responses indicating that they were first introduced in 2006 by responding trading venues in North America and in 2010 in Europe and Asia.

- For derivatives markets, it appears that the most common form of pricing model is a symmetrical pricing model.

- Where discounts are provided (other than where it is part of the application of the maker-taker model or asymmetrical pricing model to a trading venue's member /

subscriber base), the discounts often appear to have been created with the objective of creating incentives to attract order flow. Examples of discount programs described by trading venue respondents included those designed specifically for market makers or other forms of liquidity providers if certain criteria are met, or through the use of tiers based on higher levels of trading activity.

- Regardless of the type of pricing model employed, trading venues most commonly apply trading fees to trades and not to orders. The more prevalent basis for levying trading fees for cash equities was a value-traded variable fee basis (*i.e.*, basis point fee applied to value traded). For derivatives markets, the most common basis was a per-contract fixed charge.

C. The Incentives and Effects of Trading Fee Models and Trading Fees

Part of the survey asked questions relating to incentives and possible effects of trading fee models and trading fees on trading behaviour. The following section reflects the key findings from the responses received.

We note that most of the answers provided were based on anecdotal evidence; the reviewed academic literature did not reveal a clear consensus regarding the overall impact of trading fee models. A short summary of related academic literature is included in Appendix B.

Incentives

In terms of the incentives, many responses stressed that trading fees or trading fee models are structured by the trading venues in order to attract order flow or increase trading volumes, and are often structured to reward participants that provide liquidity to the market. The majority of trading venues also indicated that there is evidence showing that providing incentives to market makers and supplemental liquidity providers has encouraged participants to increase both quotes and traded volumes.

Despite this, various jurisdictions raised concerns about the potential conflicts of interest it may create – for example, by providing incentives to enter into transactions for improper purposes (such as increasing trading volumes solely for the purposes of achieving volume-based incentives) or by impacting routing decisions based on earning a rebate or discount for the participant at the expense of the quality of best execution for its client.

Several responses noted that other contemporaneous factors can also incentivize or affect trading behaviour and strategies. For example, other possible factors include the structure of the market, the degree of fragmentation, market quality (whether broadly or in terms of execution quality at a particular trading venue), regulatory requirements, as well as technology and other service offerings of the marketplaces that enable or assist trading strategies.

Effects

With respect to the effects of trading fees and trading fee models, responses were generally not unanimous; and the views relating to the effects varied widely. Further, some respondents suggested that it could be very difficult to isolate the effect of changes in trading fees from the effects of other changes (similar to those affecting incentives noted above).

Generally, however, the responses suggest that in those jurisdictions where either a fee model such as maker-taker or asymmetrical pricing are widely employed (whereby the liquidity providing side of the trade received a discount or volume-based incentives exist), it is generally believed that the result has been an increase in trading volumes, narrowing of spreads, and greater liquidity (although possibly not across the board – large caps may have benefitted the most, and the increase in liquidity might be at the top-of-book only).

Other possible effects suggested in the survey responses include:

- Increased competition in liquidity provision / market making strategies;
- Fee models / fees being used to increase a trading venues' market share;
- Conflicts of interest in order routing decisions, including in jurisdictions with order protection requirements; and
- Potential impact of rebates on the financial position of a trading venue.

Mixed views were expressed regarding the effects on price discovery, with some of the view that rebates are potentially harmful to the price discovery process. Also, there was no consensus on the possible impact on volatility, with many indicating that it is impossible to isolate the impact of fees or trading models.

Beneficiaries of incentives and effects

In terms of the beneficiaries of the incentives and effects, market makers and liquidity providers were most frequently mentioned as the participants incentivized by and benefitting from trading fee models that provide for fee discounts and/or rebates.

The type and degree of impact on investors were not as clear. Many cited benefits to investors resulting from the narrow spreads and increased liquidity reported as the general benefits from trading fee models involving discounts, rebates or volume-based incentives. The responses indicated, however, that where the benefits were derived from the fee itself (e.g., a discount) the benefit would only accrue to the investor if passed down by the participant, which is not usually the case according to the results of the survey.

V. CONCLUSIONS

The information gathered through this initiative provides a comprehensive picture of trading fees and trading fee models that are used globally. It also provides detailed information about the applicable regulatory environment. The important conclusions that can be drawn from this work are described in this section.

A. Competition

Impact of Multiple Venues

As noted earlier, securities regulators globally have introduced regulatory frameworks designed to promote competition. In addition, advances in technology have enhanced competition among trading venues. Competition between trading venues now exists in many jurisdictions; and the survey responses indicate clearly that this competition has had an impact on the level and structure of fees and fee models. Trading venues that are facing competition must compete to attract order flows. They do so in a variety of ways – services, technology, products and now fees and fee models. In competitive markets, there has been a move away from basic symmetrical pricing models to more multifaceted pricing structures that include fees that provide incentives for the provision of liquidity. These are both asymmetrical models where discounts are offered and maker-taker models where rebates are paid. Although certain fee models have, in some circumstances, been observed to reduce spreads and increase liquidity and trading volumes, there is a tension between the need to balance the benefits of trading fee models and the potential for incentives to distort the market, for example, where trading is based on the differential between fees and rebates, rather than the pricing of a security.

Best Execution and Conflicts of Interest

Most C2 member jurisdictions have best execution obligations for intermediaries executing client orders. However, with multiple marketplaces potentially charging differing fees, it is important to highlight the potential for conflicts of interest in regard to routing decisions. Directing order flow to a particular venue with the aim of reducing costs for the intermediary may not necessarily be consistent with the best interest of the client.

B. Regulation of Fees and Fee Models

Some regulators have direct and specific authority over trading fees and fee models of trading venues. Among them, some approve the fees of trading venues, but few are involved in the setting of fees or fee models. Regulators generally review the trading fees or trading fee models of exchanges, while some review or approve trading fees for both exchanges and other types of trading venues. This is typically done on either a pre- or post-implementation basis in the context of other requirements such as those pertaining to fair access or orderly markets – the most common consideration being whether the fees are unreasonably or unduly discriminatory.

Non-Discriminatory Fees

In those jurisdictions that review trading fees, a common standard of review is through an assessment of whether the fees are non-discriminatory in nature. Although not every respondent regulator elaborated on the process by which a fee is reviewed, some provided insight into the consideration of fees in this regard.

Most jurisdictions who examine fees in this context do so through a consideration of whether the fee or fee model:

- Unreasonably restricts access to a particular trading venue; and/or
- Discriminates against a particular class of market participant utilizing a trading venue.

Some jurisdictions examine the level of fees using criteria such as market share of the venue, or a comparison to other venues' fee levels either locally or across jurisdictions. Others judge a fee or a fee structure on the basis that it must be available to all, either on equal terms or at least on terms that do not make an unfair differentiation.

Transparency of Fees

In regard to transparency, even though many jurisdictions do not have any requirements for the transparency of fees and fee structures, the responses to the survey indicated that fees are generally transparent to the public. This is largely the case with respect to exchange fees, but does apply to other trading venues in some jurisdictions. Where transparent, fees and fee models can help to ensure that information regarding the operation of the trading venue provides an understanding of the venue and the services it offers. Transparency also enables users to assess the costs associated with accessing these services. Further, the information about fees, including rebates, can help support investor confidence. Respondents noted that the most common method for trading venues to be transparent about exchange fees and rebates was to publish them on their websites.

According to the responses received, fees generally appear to be transparent to the public, due to commercial concerns or regulatory requirements. Given this common degree of transparency in many jurisdictions, regulators may wish to consider the value of that transparency to the market and its participants. This consideration may be influenced by factors such as a regulatory framework that distinguishes between exchanges and non-exchange trading venues, or specific characteristics of market structure.

C. Next Steps

The collection and analysis of the data through the comprehensive survey provided meaningful information in a number of areas. The process was useful for gaining global insight into the structure of fee models in use, the extent to which regulators are involved and, in many cases, the standards used by regulators when oversight is performed.

The data collected did not provide clear evidence that would permit us to draw definitive conclusions about the impact or effect of trading fees or trading fee models on trading behaviours on the capital markets. An examination of academic work in this area also provided mixed conclusions. It is not within the mandate or the expertise of the C2 members to conduct an extensive quantitative analysis across jurisdictions and market structures, which

would require significant resources. At this point, no issues have been specifically identified that exist across multiple jurisdictions and, consequently, C2 does not propose any new recommendations or principles. Nor does it recommend undertaking further work on the topic at this point. We will continue to monitor trading fee models and trading fees and, if issues arise that warrant further investigation, further work will be considered.

We do believe however, that our work on this mandate was worthwhile, particularly with respect to informing future policy work in those jurisdictions where it is argued that regulatory intervention regarding trading fees is required. The survey:

- Highlighted certain aspects of fees and fee models that could be considered further (for example, fair and non-discriminatory application or transparency of fees and fee models);

- Provided insight on the potential impact of competition on fees and fee models; and

- Described the experiences of jurisdictions operating in a competitive environment.

As a result, we conclude that this has been a very useful fact-finding exercise.

APPENDIX A – DETAILED SUMMARY OF RESPONSES

The following is a more detailed summary of responses to each of the sections of the survey.

A. Context of C2 Markets

The first two parts of the survey sent to the C2 regulators[3] were intended to provide context for the examination of trading fees and trading fee models. Specifically, the survey asked questions regarding the existence of competition, whether order handling rules exist and how they are interpreted, and what regulation or regulatory processes exist with respect to fee setting by trading venues. The purpose of these questions was to better understand the environment in which the trading fees and fee models exist, and the factors that might influence either the level of trading fees charged or the fee models used. The following summarises these broad environmental factors.

1) Existence of Competition

The existence of a competitive environment where multiple trading venues offer trading in the same securities could influence the level of fees or how fee models are structured to enhance a trading venue's competitive positioning. Alternatively, in the absence of competition and/or regulation, there might not be any constraints on the level of fees charged or the fee models used by a trading venue – for example, in the absence of competition there is no pressure on a trading venue to find ways to use its fees and fee structure to attract liquidity away from other venues.

From the survey responses, 11 jurisdictions responded that securities or exchange-traded derivatives trade on multiple trading venues within their jurisdiction.[4] Within 11 respondent-jurisdictions, trading of a security or exchange-traded derivative takes place on one single venue.[5] Seventeen out of the 22 jurisdictions[6] that responded to the survey stated that securities or exchange-traded derivatives are also traded outside their jurisdiction (depository receipts not included).

Regarding views on the impact of competition on trading fees and trading fee models, in a number of jurisdictions it was noted that there is either no competition in trading and therefore no effect on trading fees, or the respondents indicated that competition has either no or limited effect.[7] The primary reason for these outcomes appears to be that the securities / products are not traded on other venues or are sufficiently unique (e.g., derivatives created by and only traded on a particular exchange for which there is no reasonable proxy) such that there is no direct competition. For most jurisdictions, the responses indicate that competition

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3 Not every jurisdiction answered all parts of the survey. Further, 2 jurisdictions did not submit responses to this survey (Nigeria, Saudi Arabia).

4 Australia, Canada, France, Germany, India, Italy, Japan, Netherlands, Singapore, UK, US.

5 Brazil, China, Hong Kong, Ireland, Malaysia, Mexico, Turkey, Romania, Spain, Switzerland, South Africa.

6 Canada, France, Germany, Hong Kong, India, Ireland, Italy, Japan, Malaysia, Netherlands, Turkey, Singapore, Spain, Switzerland, South Africa, UK, US.

7 Brazil, Canada (derivatives venue - Bourse de Montreal), China, France (venues – MATIF, MONEP and BONDMATCH), Germany (venue – Tradegate Exchange), Hong Kong, Mexico. Singapore, South Africa, Switzerland (venue – Scoach Schweiz).

has affected trading fees in some manner, most notably by resulting in a lowering of fees charged and/or changes in fee models (e.g., move away from symmetrical pricing). Others identified that competition has led to greater segmentation of fees, including through the creation of programs that provide additional incentives for supplemental liquidity provision, or through providing greater differentiation of fee schedules based on type of security traded or type of trade. At a minimum, it appears that the existence of competition requires that venues engage in an ongoing review of their trading fees to ensure the fees remain competitive. In Europe, based on the survey responses, the primary driver for competition that impacted those fees appears to have been the implementation of MiFID and the entry of user-owned MTFs or broker crossing networks.

2) Regulation of Order Handling

In the context of examining trading fees and trading fee models, the existence of order handling rules in competitive markets could impact participants' decisions on where to send orders for execution. Therefore, we asked for information about order handling rules in each jurisdiction.

a) Order protection rules

Brazil, Canada and the United States (US) each have a rule preventing the execution of orders that are inferior to other displayed orders.[8] Some jurisdictions indicated that, in practice, their best execution rule framework is designed to achieve similar results for investors so there is no need for an order protection rule.

b) Best execution requirements

All of the responding jurisdictions except for China, Malaysia, Mexico, Turkey and Singapore have best execution regulations in place.[9] Where best execution obligations apply in a jurisdiction, these typically also apply cross-border. Respondents also indicated that best execution requirements would not preclude intermediaries from executing orders only on a single venue, and that a client could instruct an intermediary to execute orders on a specific venue regardless of trading conditions on that venue. Further, the responses provided by European Union (EU) jurisdictions indicate that MiFID would not prohibit a firm from selecting only one execution venue for its trading if the firm could show that by doing so, it is able to obtain the best possible result on a consistent basis. One of these jurisdictions noted that this might only be reasonable, however, in the case of intermediaries executing trades on behalf of an institutional / professional client, whereby the non-price factors (e.g., speed, certainty) associated with achieving the best outcome for the client would outweigh the importance to the client of achieving best price. Another of these jurisdictions suggested that executing on only one venue might be reasonable where the order flow of the firms' clients

8 In Brazil, there was only one trading venue at the time of the survey. We also note that the Order Protection Rule in the US applies to the top-of-book whereas the Canadian rules apply to the full depth-of-book. As a result, there is more flexibility in the US than in Canada to route orders that need more depth than are shown at the top-of-the book.

9 In China, this relates to the market structural characteristic that securities typically only have one dedicated trading venue. Malaysia, Mexico, Turkey and Singapore are single venue jurisdictions. The survey answers of Malaysia and Singapore referred to other regulatory arrangements governing trading standards such as conflict management obligations applying to financial intermediaries when processing client orders.

was reasonably homogenous and the firm had considered the other trading venues and determined it was not necessary to trade on those others to achieve the best results on a consistent basis.

3) Regulation of Trading Fees and Trading Fee Models

The role exercised by the regulator will typically depend on their express or implied authority over trading fees.

a) Authority to set or cap trading fees to be charged by a venue

The survey included a question regarding the authority to set or cap trading fees. This was intended to address situations where there is some authority to directly set or cap fees, for example by directly establishing the trading fees or by implementing rules setting or capping the fees. This does not include where the regulator can review fees or approve them, or where restrictions can be imposed if the fees are found to violate certain principles.

Only one jurisdiction indicated an express authority to set the trading fees to be charged by a venue – the CSRC in China, together with the National Development and Reform Commission, sets exchange handling fees for stock exchanges.

One other jurisdiction, the SEC in the US, can specifically cap trading fees to be charged by venues as is evidenced through the caps on trading fees for protected quotes imposed in connection with its order protection regime.[10]

b) Authority of regulator to regulate trading fees and trading fee models set by trading venues

The questions asked about the authority to regulate trading fees and the trading fee models set by trading venues were intended to identify the authority of regulators over trading fees proposed or implemented by venues on a venue-by-venue basis (i.e., the broad authority to make decisions with respect to a particular venue's fees, the authority to review and/or approve a venue's fees, or the ability to intervene and cause changes to a venue's fees).

Most jurisdictions did not identify any express authority pertaining to the direct regulation of trading fees, although most indicated some form of authority that would have similar effect.

More specifically, three jurisdictions noted a broad authority to regulate the trading fees of a particular venue through powers to make or require amendments to the by-laws or requirements of a trading venue,[11] although for two of these, indications were either that the jurisdiction did not use that authority to regulate trading fees,[12] or that it was generally left to the trading venue to determine fees in the context of issued guidance.[13]

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10 More specifically, Rule 610(c) of Regulation NMS prohibits a trading centre from imposing or permitting to be imposed access fees for orders against a trading centre's protected quotations in excess of $0.003 per share, or for stocks priced under $1.00, that exceed or accumulate to more than 0.3% of the quotation price per share.

11 Canada, India, Singapore.

12 Singapore.

13 India.

In addition, eight jurisdictions indicated an ability or authority to approve new fee models / fee changes through requirements or processes imposed on venues to obtain approval for fee / fee model changes.[14] One jurisdiction noted the presence of a self-certification or similar pre-implementation filing process that allowed the regulator an opportunity to review and challenge the fees, which could therefore result in the trading venue not being permitted to implement those fees (including through formal disapproval).[15] It was typically not clear from the responses whether the authority to formally review and/or approve was limited to the fees charged by exchanges or whether it also extended to fees charged by ATSs. It was noted, however, that for Canada (Ontario Securities Commission ("OSC)), a formal review and approval process for trading fees and trading fee models had been imposed on both exchanges and ATSs. For the SEC in the US and for the JFSA in Japan, it was noted that their authority related only to exchanges and not to ATSs (or proprietary trading systems in Japan).

Finally, eight jurisdictions[16] indicated an ability to intervene (e.g., require amendments) with respect to the fees of a trading venue in certain circumstances in the absence of some sort of formalised approval process. For these jurisdictions, the ability arose if the fees charged or the models employed were found to violate requirements centred on certain core principles. The most common principle cited in these eight cases was that fees should not be discriminatory.

Out of all jurisdictions responding, only China indicated that it had taken action outside of a review and/or approval process to intervene in relation to fees charged by trading venues.[17]

c) Standards for the review and approval of trading fees

As noted earlier, eight jurisdictions indicated an ability or authority to approve fee changes / new fee models, while one jurisdiction noted the presence of a self-certification or similar pre-implementation filing process through which the regulator could review and challenge fees (see footnotes 14 and 15, respectively). Each of these jurisdictions, in exercising its authority, will review the fees prior to approval (or in the case of self-certification or pre-implementation filing, before implementation). Further, an additional seven jurisdictions suggest that fees are reviewed on either a pre or post-implementation basis, but are not subject to a formal approval / non-disapproval process.[18]

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14 Australia, but only with respect to fees contained in the operating rules of a market operator, in which case the Minister may approve or disallow the fees within 28 days of filing; fees contained instead in the underlying procedures to avoid this process, in which case they are subject to ASIC's review but not approval, Canada - OSC, China, Hong Kong, Japan in the context of fees for exchanges but not for proprietary trading systems (PTS), Malaysia, Turkey, UK.

15 US - The response from the SEC noted that its ability to disapprove proposed fees were limited to the fees of an exchange. ATSs are not subject to the filing and review process.

16 Brazil, Germany, Ireland, Italy, The Netherlands, Romania, Spain, Switzerland.

17 In 2012, CSRC coordinated Shanghai Stock Exchange, Shenzhen Stock Exchange and China Securities Depository and Clearing Corporation to cut trading fees for A-share transactions twice.

18 Australia (only with respect to fees contained in the procedures underlying the operating rules of the market operator – see footnote 14 for more details), Brazil, Canada – AMF with respect to Bourse de Montreal, France, The Netherlands, Romania, Spain.

The survey results reveal that jurisdictions require a range of information in connection with their review of trading fees. Some require trading venues to perform benchmarking analysis and/or impact analysis,[19] while others explicitly require trading venues to set out the reasons for any changes to trading fee models and trading fees.[20] Two jurisdictions require stakeholder consultation;[21] in other jurisdictions, this is done as a matter of practice.

Where fees or fee models are reviewed and/or approved, there are a number of approaches taken in relation to the standard of that review. The standards include:

- Consideration of the financial health and sustainability of the trading venue;[22]
- Whether the structure of the model or the fee is fair or unduly discriminatory;[23]
- Consideration of the impact on financial markets;[24] and
- The reasonableness of the fee models and trading fees by evaluating service provided vs. fees charged, operational cost, value added, comparable fees of other trading venues and competition factors.[25]

d) Transparency of fees

For either regulatory or commercial reasons, it appeared that trading venues in all jurisdictions provide transparency regarding their fees and fee structures. While some jurisdictions explicitly referred to specific requirements for the transparency of trading fee models and trading fees charged by a trading venue,[26] others have no specific requirements, but indicated that trading venues generally make their fees transparent.[27]

Only one jurisdiction indicated a requirement for trading venues to publish proposed fees for comment. It was noted by the SEC that, in the US, proposed fee changes of exchanges, as rule changes, are to be made public on the website of the exchange at or shortly after being filed. Further, these proposals may become effective immediately, but must be published for public comment, and any comments received are also made publicly available. Comments from the public may influence the regulator's decision to suspend the effectiveness of a proposal, in which case the proposal could not become effective without formal approval.[28]

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19 Canada, China, Hong Kong, Japan, Malaysia, Spain, South Africa.

20 Canada, Romania, Spain, US – SEC.

21 Malaysia, Singapore.

22 Australia, Spain, UK.

23 Australia, Brazil, Canada, Japan, Malaysia, The Netherlands, Romania, Spain, UK, US – SEC.

24 Australia, Japan, The Netherlands, Spain, US – SEC.

25 Australia, Brazil, China, Hong Kong, Japan, Malaysia, US – SEC.

26 Australia, Canada, Malaysia, Singapore, US – In the US, it was noted by the SEC that exchanges, but not ATSs, are subject to transparency requirements for trading fee models and trading fees.

27 France, Germany, Japan (no requirement for trading in PTSs), The Netherlands, Turkey, UK.

28 This does not apply to ATSs.

e) Limitations on trading fees and trading fee models in practice

Questions were also asked regarding limitations on trading fees and trading fee models in the context of payment for orders and the provision of discounts, tailored or negotiated fees, and whether there can be differences in fees charged to different parties (i.e., members vs. non-members).

Payment for order flow / providing discounts – Only one jurisdiction indicated any prohibitions or restrictions on paying for order flow or providing discounts.[29] [30] Where it was noted that discounts were permitted, in most of those jurisdictions, these discounts would be subject to overarching principles of fairness.[31]

Tailoring of fees – Only two jurisdictions do not permit tailored/negotiated fees,[32] while one jurisdiction will allow this only for market makers.[33] In many jurisdictions, while there is no express prohibition on tailored / negotiated fees or fee models, requirements are that access to those fees and models must be fair and/or non-discriminatory.[34] Any tailored fee program would be subject to those standards, whether as between those that qualify and those that do not, or within the class of those that qualify.[35]

Differentiation of fees between members and non-members – Generally, it appeared that this was mostly not applicable due to the fact that typically only participants (i.e., members, subscribers, etc.) are generally allowed access to a trading venue and are therefore responsible for the payment of fees to the trading venue.[36] One jurisdiction indicated that it allowed different trading fees for orders received from "non-members", but had not yet seen such arrangements being applied,[37] while another three indicated that fees for orders received

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29 The US CFTC stated that no specific regulations exist, but that "in reviewing market marker programs that are certified to the CFTC, staff does not allow payment for order flow on the basis that such payments would be inconsistent with Core principles 12- protection of markets and market participants". While the Australian Securities and Investment Commission has not explicitly prohibited these payments, it has said publicly that it believes maker–taker and other incentive-based pricing models, where the market operator makes a net payment to market participants, do not promote market quality or market integrity.

30 A number of jurisdictions do impose inducement rules on intermediaries, but not on trading venues, when the intermediary is providing an investment service to a client.

31 Numerous jurisdictions permit trading venues, to various extents, to provide discounts on trading fees - Australia, Brazil, Canada, China, France, Germany, Ireland, Malaysia, The Netherlands, Romania, Singapore, Spain, South Africa, UK, US.

32 Hong Kong, Spain.

33 Turkey

34 Australia, Canada, Germany, Malaysia, Singapore, Spain, The Netherlands, UK, US.

35 In the US, the SEC specifically noted that unlike national securities exchanges, ATSs may enter into negotiated or tailored trading fees with individual participants or classes of participants, and until it reaches 5% or more of the daily trading volume in a particular security, is not subject to the fair access requirements of Regulation ATS.

36 Australia, Brazil, Canada, China, France, Germany, Hong Kong, Japan, Malaysia, Turkey, Romania, South Africa, UK.

37 Ireland.

from members vs. "non-members" could be differentiated so long as the pricing was not inconsistent with certain general standards such as fair and orderly trading.[38]

B. Description of Trading Fee Models and Trading Fees

1) Description of Trading Venues

To obtain an understanding of the nature of trading fees and trading fee models, the survey was sent by each C2 jurisdiction to certain trading venues operating in their jurisdiction.

Approximately 70 trading venues were represented through the responses. Of these:

- Approximately 65% were exchanges/regulated markets with the remainder being ATSs/MTFs;
- In terms of whether the responding markets were lit or dark venues:
    - Approximately 65% were lit markets not accepting dark order types,
    - Approximately 25% were lit markets which accept dark order types (including iceberg orders), and
    - Approximately 10% were dark venues;
- In terms of products traded, approximately 60% traded cash products only, 20% traded derivatives only, and the remaining 20% traded both instrument categories.

It was also noted that only two trading venues that responded to the survey were not-for-profit,[39] while the remainder indicated they operated as for-profit businesses.[40]

Questions were also asked about the percentage of total revenue attributed to trading in order to understand the proportional significance of trading fee revenue. Most of the trading venues answered this question on a confidential basis. We note that the results were difficult to compare for various reasons. Despite these limitations, as expected, the analysis suggests that trading fees are generally an important source of income.

2) Trading Fee Models

Many of the trading venues employed more than one trading fee model within their trading fee schedule. For example, the same trading venue may employ a maker-taker pricing model for stocks, symmetrical pricing model for notes and debentures, and asymmetrical pricing for rights and warrants (all of which are trading through and on the same platform). From our review, it appeared that the trading fee models of approximately 55 trading venues (80%)

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38 Singapore, The Netherlands, US - SEC.

39 SSE and SZSE in China.

40 Two of the German venues participating indicated not to be a for-profit institution but to be operated for-profit. Japan's Financial Services Agency advised that there are both types of venues (for-profit and not-for-profit), while the three trading venues in Japan that responded to the survey and are reflected in this summary identified themselves as for-profit entities.

included an element of a symmetrical pricing model,[41] approximately 50 trading venues (70%) included an element of an asymmetrical pricing model,[42] and 15 (20%) included an element of a maker-taker or inverted maker-taker pricing model.[43]

Breaking this down further based on the pre-dominant fee model used by each trading venue, it appeared that the trading fee models of approximately 45 trading venues (65%) were primarily symmetrical, approximately 15 (20%) were primarily asymmetrical, and 12 were primarily maker-taker (15%).

a) Symmetrical pricing model

Approximately 55 trading venues had fee models that included symmetrical pricing, and this model was also the predominant pricing model employed by the majority of trading venues (approximately 45 venues or 65% of all trading venues). Of particular note is that for those trading venues where the symmetrical pricing model was the predominant pricing model, approximately 60% had components of asymmetrical pricing models that were directed towards market makers or supplemental liquidity providers. Also noted was that symmetrical pricing appeared to be the predominant model for trading in derivatives and dark pools.

b) Asymmetrical pricing model

Approximately 50 trading venues had fee models that included asymmetrical pricing. Where an asymmetrical pricing model is used, the norm is that the active side of the trade pays a higher fee, with the passive side either paying a lower fee or paying no fee (free to post). In many cases, the asymmetrical pricing models appeared to be available only under market maker or supplemental liquidity provider programs, and again, the passive side of the trade benefitted from a lower or no fee.[44] It was noted that for one trading venue, the response indicated that for trades in stocks from certain countries, rebates at differing levels were paid to both sides of the trade, with the passive side benefitting from the higher rebate.[45]

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41 See page 4 of the report for definition.

42 See page 4 of the report for definition. For the purposes of this document, an asymmetrical pricing model will also include one where one side pays a fee and the other side does not pay (e.g., a free-to-post model) – some jurisdictions considered this to fall within the meaning of a "maker-taker pricing model", but the definition for that model made reference to the payment of a rebate to one side of the trade, and so were reclassified as asymmetrical pricing models.

43 See page 4 of the report for definitions.

44 For example, the responses provided by the NYSE Euronext family of venues indicate the existence of an asymmetrical pricing model that results from preferential fees available under a "Supplemental Liquidity Provider" program. Admittance to this program is subject to certain eligibility criteria and obligations on the liquidity provider. The preferential fees available to the liquidity provider result in either a lower fee or no fee being charged to the liquidity provider relative to other participants.

45 NYSE ARCA Europe.

c) Maker-taker or inverted maker-taker fee model[46]

A total of 15 trading venues (across seven jurisdictions) indicated that some form of maker-taker or inverted maker-taker pricing model is included as part of their fee model.[47] It appears that, generally, these fee models only extended to trading in equities (i.e., did not typically extend to trading in debt or derivatives).[48]

Of those 15 trading venues identified as employing some form of maker-taker or inverted maker-taker pricing model, the responses from three jurisdictions indicated that the availability of maker-taker pricing extended only in certain circumstances – in connection with a specific supplemental liquidity provision program, or when volume thresholds have been reached.[49] It was also noted in the responses by three of the venues that their fee models included inverted maker-taker pricing.[50]

For 13 of the 15 venues, the fees collected per trade exceed the rebate paid leaving a net fee collected by the trading venue per trade.[51]

For 13 of the 15 venues, where there is a net rebate to a participant (i.e., the excess of rebates earned by the participant over fees charged to the participant), the excess is paid out to the participant whereas for the other two venues, the rebates will only be applied against the fees until the fees are reduced to zero.[52] As for the passing on of rebates by participants to their

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46 Only trading venues that offer some form of maker-taker or inverted maker-taker pricing models (i.e., the fee for one side of the transaction is actually a rebate) are discussed in this section. Trading venues using models where a discount or rebate is applied to the fees on one side of the transaction or to a particular participant / type of participant that have the effect of reducing the fees to a value greater than or equal to zero are included in the preceding summaries of responses regarding the offering of discounts to participants and asymmetrical pricing.

47 Canada – Alpha Exchange, Chi-X Canada, CNSX Markets, TSX, TSXV; Germany – Xetra, as far as trading members operate as liquidity providers; The Netherlands – NYSE ARCA Europe, TOM MTF (cash market); Romania – the ATS operated by BVB; Singapore – SGX-DT; UK – Bats Trading lit market, Turquoise equities lit market, Turquoise derivatives; US – SEC provided response indicated maker-taker pricing models for Exchange #1 and Exchange #3.

48 Maker-taker pricing as the primary pricing model or as a component of the pricing model for trading in derivatives was noted in Singapore – SGX-DT and in the UK – Turquoise derivatives.

49 Germany – Xetra; The Netherlands – NYSE ARCA Europe; Romania – the ATS operated by BVB.

50 Canada – Chi-X Canada for trading in TSXV-listed securities; US – SEC provided response indicated that "Business segment #1" for Exchange #1 employed an inverted maker-taker model, as does "Business segment #1" for Exchange #3.

51 For Xetra in Germany, in the case of rebates paid to "Liquidity Providers" who meet the respective obligations of their program and in relation only to international securities traded on the venue (XIM), the rebates paid will be higher than the fee collected. The rationale provided was that the participation of the Liquidity Provider in XIM attracts trading activity of standard trading members and results in many other trades. For the US – SEC provided response for Exchange #1, it indicated that for "Business segments" #'s 1 and 2, there are instances where a participant qualifies for the highest rebate or lowest fees and the fee charged is equal to or less than the rebate paid, and instances for "Business segment #3" where the rebate could be equal to or greater than the corresponding fees paid where a participant qualifies for a higher rebate on a "Customer Order".

52 Romania – BVB limits the rebates to a participant to the amount of fees incurred in the month. SGX-DT limits the aggregate repaid paid to a participant to the size of the aggregate clearing fees charged to that participant.

clients, indications are that this possibly occurs in Canada and Singapore; however, it is unclear from the responses if it occurs elsewhere.

In Canada, the model was first introduced in 2006, while for the two US exchanges with maker-taker pricing models that responded to the survey, the earliest introduction of the model by one of those venues was also 2006. In Europe and Asia where it has been introduced, it has been over the last couple of years (starting in 2010) that venues have begun using the model.

3) Basis for levying trading fees

Regardless of the type of trading fee model employed, trading venues typically apply trading related fees to trades and not orders entered.

For the venues represented in the responses, it appeared that the more prevalent basis for levying trading fees for cash equities was on a value-traded variable fee basis (i.e., basis point fee applied to value traded), including variants where a small fixed transaction fee is added to the variable value-traded fee. In cases of value-traded variable fees, the total amount to be charged would often be capped, resulting in a maximum fee per trade. For cash equities, the next most common model was a trading fee charged based on the number of trades, followed by a charge based on the number of shares traded which appeared to be a model mostly used by North American trading venues. In addition, various Canadian and US trading venues indicated different fee levels for high or low-priced equities.[53]

For derivatives markets, it was noted that a per-contract fixed charge was the predominant basis for levying trading fees. Less common was a value-traded based charge, whether charged as a percentage of contract value on a per contract traded basis, or as a percentage of total value per trade.

In terms of charges for fees levied on orders generally (as opposed to fees on trades), 15 venues across nine jurisdictions charge a fee for excess messaging over and above some specified threshold,[54] while five venues across three jurisdictions imposed a fee relating to order entry.[55]

4) Additional means of differentiating or segmenting trading fees

Questions were also raised to understand how trading fees are differentiated or segmented other than through the implementation of specific models (e.g., differentiation by product or by trading session). The following summarises the level of differentiation / segmentation of trading fees exhibited through the responses.

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53 Canada – Alpha, CNSX, TSX, TSXV, TriAct; US – Exchanges #1, #2 and #3.

54 Brazil – BM&FBOVESPA; France – Euronext Paris, Alternext, Marche Libre; Germany – Tradegate Exchange, Xetra; Hong Kong – HKEx; India – BSE, NSE; Italy – Borsa Italia; The Netherlands – Euronext Amsterdam; UK – LSE, Liffe A&M; US – CME, Exchange #2.

55 Response for Euronext Paris / Alternext / March Libre indicate the existence of order entry fees for warrants, certificates, structured notes, investment funds and bonds, noting that modifications to orders are treated as cancellations followed by newly inserted orders meaning the order is counted twice, once at first insertion and again at the new insertion. The same applies for Euronext Amsterdam. In Japan, the TSE charges a fee based on the number of accesses per month (each entry, change and cancellation of an order is considered an "access").

The majority of venues do not have different trading fees or trading fee models for different trading sessions.[56] Of those venues that indicated they did have different fees/models, all differentiated based on opening and/or closing sessions.[57]

The majority of venues indicated that they do have different trading fees or trading fee models dependent on various categories / classifications of venue offerings. Fees or fee models were most commonly differentiated by type of product traded and/or type of order or trade. The categories of differentiation by product included equities, ETFs, debentures/notes, rights/warrants, and class of derivative or underlying asset. In these categories, most indicated that the models were the same, but the fee levels were different. Differentiation by type of order or trade included different fees or models for dark liquidity / dark order types, iceberg orders, block trades, crosses, and between open-outcry vs. electronic trades.

Again what appeared to be unique to North America was the concept of differentiation based on the price of the security traded and applied to the number of shares traded. Other less common differentiations included by listing market or listing country,[58] by liquidity[59] and whether the trade was executed on or off-market.[60]

Some marketplaces also indicated that fees might vary based on participant or order flow type – most commonly involving discounts or rebates for market makers and/or liquidity providers, which were most often based on quoting obligations, spread goals, and/or volume requirements, and differences in fees between member flow and client flow. Also noted were a number of jurisdictions that offer discounts or special pricing to new participants.[61]

In terms of broadly applicable discounts, a number of venues offered discounts or rebates to participants generally, based on volume or value of security.[62] Other less common programs in place included discounts/rebates/special pricing, orders that establish best price across markets,[63] orders that add liquidity for customers vs. non-customers,[64] new or lagging

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56 Affirmative responses included: Australia – ASX, Canada – Alpha, TSX, TSXV; France – Euronext Paris; Japan – SBI JNX, The Netherlands – Euronext Amsterdam; US – The SEC's provided response for ATS #1 appeared to have some form of differentiation based on trading within or outside of normal trading hours / trading within and outside of auctions.

57 Japan – SBI JNX refers to day and night sessions.

58 Canada – Chi-X; Germany – Equiduct; The Netherlands – NYSE ARCA Europe.

59 NYSE Euronext family of venues; South Africa – JSE.

60 Germany – Eurex Deutschland; Switzerland – Eurex Zurich; NYSE Euronext family of venues; South Africa – JSE.

61 France – MATIF, MONEP; Germany – Berlin, Eurex Deutschland, Xetra; Italy – Borsa Italia; Japan – SBI JNX; Switzerland – Eurex Zurich.

62 The existence of discounts generally available based on volume or value did not seem to be a facet of any particular trading fee model (i.e., did not appear to be unique to the symmetrical, asymmetrical or maker-taker pricing model).

63 As indicated by US – SEC provided response for Exchange #1.

64 US – SEC provided response for Exchange #1.

products,[65] cross platform activity,[66] or based on the liquidity or category of specific products.[67]

It was also noted that the US ATSs reflected in the response provided by the SEC indicated the presence of tailored or negotiated fees between the ATS and subscriber.

C. The Incentives and Effects of Trading Fee Models and Trading Fees

The following section of the survey reflects the responses received regarding the incentives that trading fee models and trading fees create, and the possible effects that they have on markets and behaviour. We note that most of the answers provided were based on anecdotal evidence, while academic literature indicated no clear consensus regarding the overall impact of trading fee models.

1) Incentives

C2 posed questions to both regulators and trading venues about whether trading fee models or trading fees in each respective jurisdiction incentivized particular behaviours. For example, questions were asked as to whether trading fees or trading fee models created incentives for market participants to pursue or cease engaging in any particular trading strategy.

For some jurisdictions, only trading venues answered this question.

a) General incentives

Amongst the jurisdictions and trading venues that provided an answer, many stressed that trading fees or trading fee models are structured by venues in order to attract order flow / increase trading volumes and are often structured to reward participants that provide liquidity to the market – trading venues that noted this also suggested that while rebates and the maker-taker model were designed to increase trading volumes, they were not designed specifically to affect trading strategies.

Certain jurisdictions also noted concerns about the potential negative incentives that might be created by trading fees or fee models – for example, that they might potentially encourage participants to enter into transactions for improper purposes or may impact routing decisions reflecting dealer rather than client interest. One jurisdiction referenced a study in which the conclusion was that some fee models (e.g., "cliff edge" schemes[68]) might incentivize members to trade for improper purposes in order to secure volume discounts, potentially altering the "real price" of securities. Such schemes, as well as discounts / rebates in general, might also incentivize participants to route orders to a particular trading venue in order to earn those discounts / rebates, creating a conflict of interest for the participant if the benefits

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65 Germany – Eurex Deutschland; Switzerland – Eurex Zurich; South Africa – JSE.

66 Italy – Borsa Italia & UK – LSE. A cross-venue incentive for members of both LSE and Borsa Italiana is offered.

67 NYSE Euronext family of venues. For equities, liquidity providers are classified by activity based on mid or small caps versus providing quotes on more liquid equities.

68 "Cliff edge" structures are where the participant reaches a volume threshold and then has a fee cut applied retroactively.

of such discounts are kept by the participant and not passed on to end client / investor.[69] It was also suggested that the adoption of the maker-taker model could lead certain participants who tend to trade more on the active side (e.g., retail dealers) to look for more cost-effective execution alternatives, in circumstances where their trading costs have increased and in the absence of limits on take fees.[70]

In terms of level of fees, the incentives created by lower fees on one venue over another creates similar conflicts of interest if a dealer focuses on reducing its own costs rather than execution quality (regardless of whether there is a "best price" obligation or not, and whether that obligation has been satisfied). This was noted by a number of trading venues in reference specifically to dark marketplaces offering lower fees (and price improvement), suggesting that this has impacted dealer routing decisions in a manner which was designed to reduce dealer costs, but that was potentially not maximizing the quality of execution for the investor.

b) Other factors influencing trading behaviour

Respondents were asked whether there are factors other than trading fee models and trading fees that may be influencing trading behaviour. In the view of both the regulators and trading venues, it was noted that while potentially an important driver of market behaviour, trading fee models and trading fees are not the only driver.

Other factors identified included:

- market structure;
- degree of competition / fragmentation;
- access, as not all participants have access to all trading venues;
- variety in order types and functionality (including order handling priority schemes)
- tick sizes;
- market quality (depth, liquidity, price discovery, execution quality, fill rates, speed of execution);
- messaging charges, which may create a disincentive to send large numbers of orders;
- post trade costs;
- ownership, which may cause intermediaries to route orders to venues they own;
- regulatory requirements (such as best execution);
- technological advancements;
- latency;
- quality of systems (performance, stability, responsiveness);
- technical features or products offered by the trading venues;
- macroeconomic conditions; and
- tax regimes.

69 The Netherlands, United States – ATS #3.

70 Canada.

2) Effects

The survey questioned whether there are specific effects that can be linked to particular trading fee models. Not all jurisdictions responded to these questions, and there were varying degrees of detail provided. Responses were also not unanimous and the views varied widely. Further, some respondents also suggested that for many of the possible effects, there are many other factors at play making it very difficult to separate the effect of changes in trading fees from the effects of other changes (general macroeconomic conditions, tick sizes, technological developments, competition, etc.).[71]

Generally, however, the responses suggest that in those jurisdictions where either a fee model such as maker-taker, symmetrical pricing whereby the liquidity providing side of the trade received a discount, or where volume-based incentives exist, the result has been an increase in trading volumes, narrowing of spreads, and greater liquidity.

More specific information as to the views on the effects of trading fee models and trading fees is set out in the following paragraphs.

a) Impact on trading strategies

Some respondents indicate that maker/taker models or fee discounts have encouraged the introduction of electronic liquidity providers and created increased competition in certain strategies such as market making or rebate arbitrage. In the US, Exchange #3 described different fee structures between different business lines (maker-taker versus inverted maker-taker), which has the effect of attracting different types of order flow. One venue specifically referred to a strategy under an inverted maker-taker model, whereby certain participants would pay fees for providing liquidity in order to gauge the availability of uninformed order flow.[72]

b) Impact on liquidity

The maker/taker model has been associated generally with increasing liquidity, although some argue that the effect is not observed homogeneously (increases liquidity at the top of the book only, or has no effect on instruments of limited liquidity, which could benefit the most from the increased liquidity). The predominant response was that large cap stocks benefited the most, but some respondents say that all instruments with incentives for market making/liquidity provision were positively impacted.

c) Impact on the pricing of securities

The question pertaining to the impact on pricing of securities was not widely answered in any great detail and the responses were mixed. One venue believed that due to an increase in the number of orders, price discovery had improved,[73] and another felt that in an environment where rebates are paid, liquidity providers factor these rebates into their quoted prices, which

71 FSA – UK, CONSOB – Italy and SEBI – India.

72 United States – ATS #2

73 Canada – Triact Match Now.

results in better prices for all investors.[74] Others did not think that trading fee models had any impact,[75] and some felt that it was very difficult to isolate the effect.[76]

d) Impact on spreads

Approximately 32 responses to this question were received, of which 22 indicated that trading fee models and trading fees had contributed to narrower spreads. Most commonly the respondents noted either maker-taker models or market maker/liquidity provider incentives as being responsible for this outcome.

e) Impact on volatility

The predominant answer was that the effect of trading fee models on volatility is difficult to isolate.

f) Impact on other market quality metrics

Almost all the respondents answer positively to this item in varying degrees of detail. Many trading venues observed an increase in both order-to-trade ratios and volumes. One trading venue from the US argued that higher order-to-trade ratios impact the quality of liquidity and execution performance, and that surges in message traffic could overwhelm systems, with negative consequences. However, one regulator believed that these market quality metrics may vary more directly due to the degree of fragmentation in the marketplace rather than the prevailing trading fee models. Another regulator suggested that the average trade size might also be affected by trading fee models.

g) Impact on trading venues' competitive position

Of those who provided commentary on this, most indicated that certain fee models (particularly maker-taker or those models with volume based incentives) had a positive impact on a trading venues' market share. Some argued that fee structures were an especially useful tool for smaller or new marketplaces to gain market share over larger or more established rivals.[77] France claims that in a competitive environment, fee amendments or the introduction of new programs have an immediate impact on market share.

In the response from the Canadian regulators, however, charts were provided indicating that some adjustments to fee models in use by Canadian trading venues have had the effect of moving only "marginal" amounts of market share.

h) Impact on choice of venues / routing decisions in context of best execution

Respondents from France and the UK argue that in the context of trading venues' market share trading fee models have had an important impact on where securities are traded. Alternatively, regulators in Romania argued that there is no concrete evidence that trading fee models have incentivized routing to specific trading venues.

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74 United States – Exchange #1.

75 Canada – Chi-X Canada, Germany – Stuttgart, Japan – TSE, Romania – BVB, SIBEX.

76 France – AMF, NYSE Euronext group of companies.

77 NYSE Euronext family of venues, Italy – CONSOB, TOM MTF – The Netherlands.

In the context of best execution, some jurisdictions noted that trading fee models do have an impact on best execution as firms are expected to consider trading fees in their best execution policies.[78] One jurisdiction with order protection requirements indicated that while the requirements would influence routing choices, an intermediary would still have some flexibility in routing choices in the context of best execution, all things being equal.[79]

As noted earlier, however, some jurisdictions or venues noted potential concerns that arise if trading fee models or fees create conflicts of interest between firms and clients whereby the firm places its interest in securing a discount or rebate ahead of the interests of the client who then receives an inferior quality execution – one jurisdiction that noted the existence of such conflicts (FSA in the UK) indicated, however, that no data existed with respect to the effect and extent of such conflicts. Further, some responses from trading venues in jurisdictions where there is competition between trading venues recognised the potential conflicts of interest but, in general, offer no evidence of actual harm to investors, as trading fees are a parameter used in best execution models.

3) Beneficiaries of the Incentives and Effects

It was noted that market makers, liquidity providers and high frequency traders (which might also be a 'market maker' or 'liquidity provider') were most frequently mentioned by regulators as the participants incentivized by and benefitting from trading fee models which provide fee discounts and/or fee rebates. It was argued, however that in the context of liquidity provision programs, this is not a tailored benefit as these programs are open to any participant interested and there is no discrimination.[80]

Similarly, trading venues also stated that market makers, liquidity providers and high frequency traders had benefitted from trading fee models that provide discounts and/or fee rebates. However two venues argued that the benefits from rebates or volume discounts compensate liquidity providers for the risk associated with the entry of passive orders in the visible market.[81]

In terms of benefits to investors, although there is no consensus, the majority of the respondents believe that trading fee models have different impacts on different investors. Many respondents indicated that the impact was dependent on both the nature of the investor (some incentives only apply to liquidity providers or market makers) and whether the fees associated with trading were passed on to the end investor (many retail investors are charged a flat fee and trading fee models applied by marketplaces do not have an impact). This was separate and apart from the benefits that may accrue through any liquidity attracted by trading fee models involving discounts, rebates or volume-based incentives.

78 Italy, United Kingdom.

79 Canada.

80 Canada - Montreal Exchange.

81 Canada – TSX, Singapore – SGX.

APPENDIX B – ACADEMIC LITERATURE REVIEWED

In reviewing the academic literature, no clear consensus was found regarding the overall impact of trading fee models (most specifically maker-taker, as many studies focus on this particular model). Given the differences in data sets used and the assumptions of the models themselves, this lack of consensus makes it difficult to reach conclusions based on the available research.

Malinova and Park (2011) measured the impact of make-take fees by studying data from the Toronto Stock Exchange and found that spreads narrowed and quoted depth and trading volumes increased. Similarly, a study by the Johannesburg Stock Exchange examined the introduction of volume-based rebates for market makers in currency derivatives and found an increase in the number of market makers that corresponded with increased depth, narrower quotes and increased volumes. Other papers indicating similar outcomes include Brolley and Malinova (2012), Angel, Harris and Spatt (2011), and Colliard and Foucault (2012).

On the contrary, a number of researchers found no impact on spreads from maker-taker models. Berkman, Boyle and Frino (2011) used the temporary introduction of maker-taker fees on the New Zealand Stock Exchange to assess impacts. Although they did find some evidence, which indicated that quoted depth and volumes increased, they found no evidence indicating any impact on, bid/ask spreads. Lutat (2010) did similar work in his investigation of the introduction of make-take pricing on SWX Europe Exchange and no impact on spreads was observed. Research by Cardella, Hao and Kalcheva (2012) also produced similar results.

In terms of impact on investors, results also varied dependent on the study and the parameters of the model. A number of researchers (Angel, Harris and Spatt (2011) and Colliard and Foucault (2012)) assume that all make-take fees are passed through to the end investor and in these circumstances it was found that the breakdown of the make rebate and the take fee does have an economic impact on the welfare of investors, as any increase in the rebate is passed back to liquidity takers through a reduction in the spread. Other papers (Brolley and Malinova (2012)) studied circumstances where not all fees are passed on, and incorporate a model where takers of liquidity are instead charged a flat fee by their broker. They found that following an increase in the maker rebate, takers of liquidity saw their overall costs decline.

Angel, Harris and Spatt (2011) note in their paper that “the make-or-take pricing model thus would appear to accomplish nothing besides reducing quoted spreads and thereby obfuscating true economic spreads, which are the net spreads inclusive of the access fees and liquidity rebates”. Cardella, Hao and Kalcheva (2012) reach similar conclusions and find that increased take fees increase the true economic spread (defined as the quoted spread plus twice the take fee).

Lastly some researchers examine the maker/taker model in relation to the trading venue itself. In this area work by Foucault, Kaden and Kandel (2012) and Cardella, Hao and Kalcheva (2012) conclude that marketplaces can use the breakdown of maker/taker fees to influence both traded volume and thus expected profit.

A list of the academic literature reviewed is set out below:

Angel, James, Lawrence Harris and Chester Spatt, *Equity Trading in the 21st Century,* (March 2011), Quarterly Journal of Finance, Vol. 1, No. 1.

Berkman, Henk, Glenn Boyle, and Alex Frino, *Maker-Taker Exchange Fees and Market Liquidity: Evidence from a Natural Experiment*, (6 April 2011) Financial Management Association International (FMA) Asian conference, http://hdl.handle.net/10092/5693.

Brolley, Michael and Katya Malinova, *Informed Trading and Maker-Taker Fees in a Low-Latency Limit Order Book*, (19 November 2012), available at SSRN: http://ssrn.com/abstract=2178102 or http://dx.doi.org/10.2139/ssrn.2178102.

Cardella, Laura, Jia Hao, and Ivalina Kalcheva, *Competition in Make-Take Fees in the U.S. Equity Market*, (29 April 2013). Available at SSRN: http://ssrn.com/abstract=2149302 or http://dx.doi.org/10.2139/ssrn.2149302.

Colliard, Jean-Edouard and Thierry Foucault, *Trading Fees and Efficiency in Limit Order Markets* (1 March 1, 2012). Available at SSRN: http://ssrn.com/abstract=1831146 or http://dx.doi.org/10.2139/ssrn.1831146.

Foucault, Thierry and Ohad Kadan and Eugene Kandel, *Liquidity Cycles and Make/Take Fees in Electronic Markets* (14 March 2012). Journal of Finance, forthcoming; EFA 2009 Bergen Meetings Paper. Available at SSRN: http://ssrn.com/abstract=1342799 or http://dx.doi.org/10.2139/ssrn.1342799.

Lutat, Marco, *The Effect of Maker-Taker Pricing on Market Liquidity in Electronic Trading Systems – Empirical Evidence from European Equity Trading* (1 January 2010). Available at SSRN: http://ssrn.com/abstract=1752843 or http://dx.doi.org/10.2139/ssrn.1752843.

Malinova, Katya and Andreas Park, *Subsidizing Liquidity: The Impact of Make/Take Fees on Market Quality* (23 November 2011). Available at SSRN: http://ssrn.com/abstract=1823600 or http://dx.doi.org/10.2139/ssrn.1823600.

Other Research/Studies Provided by Survey Respondents:

AFM – The Netherlands - The AFM has conducted a study on so-called 'cliff edge' fee structures, wherein a trading platform provides a member the benefit of a reduced fee on all its trading in a given fee period if the member's trading reaches a set volume threshold. By analysing trading data over the period March 2012 – May 2012, it becomes evident that no empirical evidence of statistical significance was found for the effect of cliff edge fee structures on members' trading behaviour. Though it has to be noted that the available data was limited and the results do show signs, which might indicate that cliff edge fee structures do affect members' trading behaviour, albeit not significantly.

ISE – Turkey - Effective 1 November 2011, ISE introduced new order cancellation fees in an effort to provide depth improvement by raising the fees applied to order cancellations at the best bid and ask price levels 4 times. The only indication to affect the fee models is the misuse of order cancellations and its side effects to the market. The effects of this

change have not yet been evaluated but are expected to decrease the misuse and side effects of cancelled orders.

BM&FBOVESPA (Brazil) - Since the round trip cost in cash equities is ad valorem, and can be higher than the tick size of BRL 0.01, two consequences are observed:

1. Durations and price movements are higher than expected considering only the tick size; in fact, the effective tick size can be seen as approximately the maximum of the tick size and the round trip cost.

2. Lower priced stocks (round trip cost lower than the tick size) have a higher turnover relative to the market cap than higher priced stocks (spreads tend to be higher than one tick).

United States – Exchange #1 - The exchange implemented a National Best Bid and Offer setter program and a quoting incentive program to incentivize trading behaviour that would improve market quality by reducing spreads and increasing liquidity at the NBBO. The Exchange believes that these programs have improved market quality on the exchange.

United States – Exchange #2 - The exchange implemented the Message Efficiency Incentive Program to its fee schedules, which was intended to incentivize members to reduce their message-to-trade ratios by reducing rebates for those that exceeded a 100 to 1 ratio over a monthly period. However, the exchange discontinued the program in 2012 because it did not accomplish its intended purposes.

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The Bank of Japan has done a paper on alternative trading venues and fee models. http://www.imes.boj.or.jp/.

Monitoring Prices, Costs and Volumes of Trading and Post Trading Services, Report prepared for European Commission DG Internal Market and Services: May 2011, http://ec.europa.eu/internal_markets/docs/clearing/2011_oxera_study_en.pdf.

Other reports included:

Oxera and London Stock Exchange (2002) *Clearing and Settlement in Europe: Response to the First Report of the Giovannini Group.*

Lanno, K. and M. Levin (2001), *The Securities Settlement Industry in the EU: Structure, Costs and the Way Forward*, December 2001, CEPS Research Report; http://www.ceps.be/book/securities-settlement-industry-eu-structure-costs-and-way-forward.

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NERA Economic Consulting *The Direct Costs of Clearing and Settlement: an EU – US Comparison* (June 2004); http://www.cityoflondon.gov.uk/business/economic-research-and-information/research-publications/Documents/2007-2000/direct-costs-of-clearing-and-settlement-executive-summary.pdf.

Andersén, Atso. *Essays on Stock Exchange Competition and Pricing*, (2005). http://epub.lib.aalto.fi/pdf/diss/a252.pdf.

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