TRANSPARENCY OF CORPORATE BOND MARKETS

REPORT OF THE TECHNICAL COMMITTEE OF THE INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS

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A. INTRODUCTION

IOSCO Principle 27 states that "regulation should promote transparency of trading."[1] IOSCO has stated that "ensuring timely access to information is a key to the regulation of secondary trading...Timely access to relevant information about secondary trading allows investors to better look after their own interests and reduces the risk of manipulative or other unfair trading practices."[2] IOSCO has explored this Principle in relation to equity securities, but not corporate bonds. There are a number of reasons for this. They include the fact that, historically, equities have been traded on organized markets servicing a large number of retail investors and corporate bonds have not; and whereas a high level of transparency of trading information is key to price discovery and the efficient functioning of the equity market, this information has been less available in the corporate debt market.

However, the corporate bond market is evolving. The structure of bonds has become more varied and often more complex. Bond issuance continues to increase. Electronic order-routing and electronic trading platforms now play a larger role in the trading process. There are some indications that retail participation in the secondary market is greater than commonly perceived, and that it may increase further. Some investors have developed more complex trading strategies involving an issuer's corporate bonds, other debt instruments and equities.

In light of Principle 27 and the evolution of the corporate bond market, the IOSCO Technical Committee (TC) considered that it would be useful and timely to review present trading methodologies and transparency arrangements in the corporate bond market. To implement its review, the TC mandated its Standing Committee on Secondary Markets (SC2) to conduct a fact-finding survey of corporate bond markets in SC2 member countries.[3] The surveyed information included trading methodologies, transparency arrangements and regulatory frameworks for corporate bonds, including reporting requirements. SC2 has used this information to compare differences in transparency arrangements among SC2 jurisdictions and assess the principal issues that arise in respect of corporate bond market transparency. The report proposes a number of core measures directed at the implementation of Principle 27. The core measures relating to regulatory reporting are also of relevance to Principle 28 (the detection and deterrence of manipulation and other unfair trading practices).[4]

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[1] See *IOSCO Objectives and Principles of Securities Regulation* (September 1998, as amended October 2003) at page 40, available at: http://www.iosco.org/pubdocs/pdf/IOSCOPD82-English.pdf.

[2] *Ibid,* see note 1, at section 13.6.

[3] The SC2 member countries are Australia, Brazil, Canada (Ontario and Quebec), France, Germany, Hong Kong, Italy, Japan, Malaysia, Mexico, Singapore, Spain, Switzerland, United Kingdom, United States.

[4] *Supra,* see note 1. This principle sets out the importance of regulators having access to complete information to be able to assess the need for any derogation from transparency and, if necessary, prescribe alternatives (section 13.5). It also highlights the need for regulators to ensure that there are in place arrangements for the continuous monitoring of trading (section 13.6).

A.1 Scope and Structure of the Report

This Report focuses on corporate bond[5] markets and complements other Technical Committee papers addressing market transparency issues[6] The Report considers the trading of listed corporate bonds traded on an exchange, listed corporate bonds traded off-market and unlisted bonds traded over-the-counter. The Report also considers corporate bonds, whether listed or unlisted, trading on alternative trading systems (ATSs). In addition, the Report refers to government bond markets where relevant.[7] However, since some members of SC2 do not have specific jurisdiction in the area of treasury bonds and because it is mainly regulated by the treasuries and central banks, SC2 has not provided any recommendations or guidance in this area.

The rest of the paper is structured as follows:

Section B discusses the main characteristics of the corporate bond market, including types of corporate bonds, market participants, price formation, market structure, trading venues and execution methodologies.

Section C describes present transparency arrangements for corporate bond markets in SC2 member countries, including any arrangements for the consolidation of trade information, and includes a description of the transparency model used in the United States called the "Trade Reporting and Compliance Engine" (TRACE).

Section D summarizes the findings of the fact-finding conducted by SC2 and provides an assessment of existing transparency requirements.

Section E describes the regulatory reporting regimes in SC2 jurisdictions and provides an assessment of the existing requirements.

Section F sets out conclusions and recommendations, including core measures related to transparency and reporting requirements for trading of corporate bonds.

A.2 Definitions

Countries use the term "over-the counter," or "OTC," in different ways. Some use it to refer mainly to trading listed securities away from exchanges. Others also use this terminology to define (or describe) trading in unlisted securities. For the purposes of this paper, "off-market" or "off-exchange" will refer to the execution of trades of corporate bonds listed on an exchange occurring off of that exchange and "OTC" will refer to over-the-counter, bilateral trading of unlisted corporate bonds. Further, "OTC securities" refers to unlisted corporate bonds.

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[5] The fact-finding mandate undertaken by SC2 examines "corporate bonds" defined as ordinary corporate bonds, convertible bonds or debentures, bonds with embedded options, and asset-backed bonds. The paper does not distinguish between different coupon structures and does not analyze government bonds, municipal bonds, Pfandbriefe, or commercial paper. Please see Appendix A for a summary of possible coupon rate structures and embedded options for corporate bonds.

[6] See, e.g., *Report on Transparency of Short Selling*, Report of the Technical Committee of IOSCO (June 2003); *Transparency and Market Fragmentation*, Report of the Technical Committee of IOSCO (November 2001).

[7] In many SC2 member countries, the securities regulator has no, or only limited, jurisdiction in the regulation of government bond markets.

B. CHARACTERISTICS OF THE CORPORATE BOND MARKET

In general, the corporate bond market provides companies with capital at a predictable cost over fixed periods of time. Corporate bonds offer investors a high level of capital security and predictable cash flows. This appeals in particular to investors who can match these cash flows to future liabilities or who seek (or are required) to hold assets offering greater security and less volatility than equities.

Trading in many corporate bond issues has tended to remain predominantly bilateral between dealers and their clients. Even when bonds are listed, the majority of trading frequently occurs off-market. These factors have contributed to a slower evolution of transparency in corporate debt markets than in some other asset classes.

B.1 Types of Corporate Bonds

The characteristics of corporate bonds are varied and, in recent years, structures have become more complex.

Corporate bonds are debt instruments denoting the obligation of an issuer/company to satisfy a holder's claim to capital repayment and interest (and/or any other commitments entered into by the issuer). Each bond has three basic features: the par value (which will normally be the redemption value); the coupon/interest rate; and the maturity period. The characteristics of corporate bonds are varied and, in recent years, structures have often become more complex.[8]

Most bonds are unsecured. In these cases, the holders, like other creditors, have a claim over the company's general pool of assets. However, some bonds are secured on specific assets of the issuer or benefit from credit enhancements, such as third party guarantees or letters of credit. Bondholders may have other protections as a result of specific covenants entered into by an issuer, and/or as a result of being specifically ranked ahead of other bondholders or creditors. A significant feature of recent years has been the growth in bonds secured on domestic mortgages and future income streams, such as credit receivables or specific future sales income (e.g., highway tolls, sport stadia ticket sales).

Issuers generally pay a fixed rate of interest, but a significant minority of bonds offer a floating rate that adjusts in line with a reference interest rate. Interest is normally paid at fixed intervals, which can be monthly, semi-annually, quarterly, annually or upon maturity. Some companies also issue zero coupon bonds, where investors receive no interest during the life of the bond but instead subscribe for the bonds at a substantial discount to the bond's par value.

In general, bonds have an original maturity of at least one year. Very often, bonds of less than 5 years' original maturity are issued as programmes of medium term notes (MTNs). At the other end of the spectrum, maturities may range up to, but seldom exceed, 30 years. Some

[8] For example, bonds may contain call provisions, embedded options, or conversion rights. See Appendix A.

bonds have put or call options attached that provide for the possibility of early redemption at the election of the investor or issuer, respectively.

In addition, bonds convertible into preferred or common shares of the issuer (or, sometimes, of another issuer) are a significant element in most markets.

Corporate bonds may be offered publicly or privately placed. In most SC2 member countries, corporate bonds are unlisted securities, but in Europe, the majority of corporate bonds are listed on an exchange.

B.2 Investors in the Market

Institutional and/or sophisticated investors appear to be the predominant investors in corporate bonds in most markets. However, retail investors appear to be participating in greater numbers than in the past.

In most SC2 countries, institutional and/or sophisticated investors have been the predominant investors in corporate bonds. Providers of medium and longer-term savings schemes (i.e. pension funds) generally hold a significant part of their assets in bonds, both government and corporate. Bonds, in particular investment grade bonds,[9] offer them both high levels of security and predictable cash flows that they can match to their liabilities. In most cases, bonds are a natural choice for these kinds of investors, but the decision may be partially made for them as often public regulators require these investors to hold minimum (and often significant) proportions of their assets in bonds.

The extent of retail participation in the corporate bond market varies among SC2 jurisdictions. In many countries, particularly those with longer-established equity cultures, both shorter and longer-term retail investment has tended to focus heavily on shares. However, in some countries, retail investment in the bond market has been increasing and may be higher than previously recognised. Particularly interesting in this respect has been the data collected by TRACE, the trade reporting and dissemination system recently introduced by the National Association of Securities Dealers (NASD) in the United States.[10] The data shows that, although representing less than 2% of total value, 65% of the trades in reportable corporate debt transactions are valued at less than $100,000, the NASD benchmark value for retail trades.[11] This data suggests that despite the perception that the corporate bond market is mainly an institutional market, retail investors in the United States are participating in greater numbers.

Increased retail participation in the corporate bond market may reflect a greater investor interest in spreading risk following the 2001/02 sell-off in equity markets, as well as attempts to find relatively high income with low capital risk at a time of low inflation and low interest rates. Easier access to the market and increased transparency due to new technology, including electronic systems and internet access, may also be factors in some countries.

[9] Investment grade bonds are those given a rating that is defined as "investment grade" by a commercial credit rating agency.
[10] See section C.4 for a detailed description of the TRACE system.
[11] The $100,000 benchmark represents the consensus of the securities industry from informal polling by the NASD.

While there is no way of knowing with certainty how retail investor interest in bonds will develop, there is some speculation that the demographic shift towards an 'ageing' population in many economically developed countries will lead to increasing demand for more stable income streams. On the "supply-side," a number of issuers actively target the retail market and there have been initiatives in some countries to make the primary market more readily accessible to retail investors.

B.3 Size of the Market

The perception of most SC2 members is that the corporate bond market is growing, both in terms of the number of issues and the value of trading, though not necessarily on a year to year basis or across all jurisdictions.

Overall, corporate bond markets have continued to grow in recent years. Figures on debt markets published by the Bank for International Settlements (BIS) indicate that the size of outstandings for financial institutions (largely private sector corporates) and other corporates has approximately doubled since 1995. See Table 1 for a summary of amounts outstanding as provided by the BIS.

Table 1 - Domestic and International Debt – Amounts Outstanding ($US billions)[12]

	Domestic				International				
	Government	Financial Institution (FI)	Othercorporations (Corps)	Total	Government	FI's	Corps	International organizations	Total
1995	12,364	9,942	2,693	25,000	485	1,224	544	296	2,549
2000	13,380	12,927	3,959	30,266	627	3,993	879	374	5,873
2001	13,489	13,133	4,134	30,756	693	5.307	1,124	383	7,506
2002	15,756	14,336	4,456	34,548	867	6,623	1,268	437	9,195
2003	18,135	15,451	4,879	38,466	1,062	7,769	1,398	489	10,718

As part of its fact-finding research, SC2 sought detailed statistical information from members on various aspects of their bond markets. However, relatively few members were able to access much information relating to off-market and OTC trading in their countries, making it difficult to decipher the specific trends in the corporate bond markets in either a local or global context. However, based on available and anecdotal evidence, the perception of most SC2 members is that corporate bond markets are growing, both in terms of the number of issues and the value of trading, though not necessarily on a year to year basis or across all jurisdictions. Of particular interest from a regulatory viewpoint is the confirmation that off-market and OTC trading forms the major part of trading in many jurisdictions (discussed further below), that the number of exchange listed issues appears to be declining in some

[12] Figures are derived from BIS statistics. These may be accessed at www.bis.org/statistics/secstats. The figures for 2003 are the figures at the end of September. The figures for both financial institutions and other corporations include some (but relatively small) amounts for non-private sector issuers and, similarly, for short-term tradable debt. Translation of all figures into US$ means that the figures do not give a precise picture of underlying annual growth as they do not take currency fluctuations into account.

countries and, from the data from the United States, that overall trading activity in corporate bond markets may be higher and have greater retail involvement than once perceived.

B.4 Secondary Market Structure

In many SC2 jurisdictions, a majority of corporate bond trading occurs off-market and bilaterally, over-the-counter.

A particular feature of the global corporate bond market is the variety of regulatory environments in which bonds are traded. In many SC2 jurisdictions, corporate bonds are predominantly unlisted securities, traded OTC. In other SC2 countries, particularly in Europe, most corporate bonds are listed on an exchange, although in many of these countries, a significant proportion of the trading nonetheless occurs off-market. For instance, the Societè de la Bourse de Luxembourg S.A (Bourse de Luxembourg) lists more than 20,000 corporate bonds (including MTNs), but most of the trading takes place away from the exchange, and much of it outside Luxembourg.[13] These listings are generally to enable institutional investors and fund managers that are subject to certain investment restrictions, to purchase the bonds. There may also be other reasons for listing corporate bonds, including favourable tax treatment.

In respect of trading methodology, a majority of bond trading in most SC2 jurisdictions occurs bilaterally, dealer-to-client. This trading is normally dominated by large bond dealers, many of whom are also significant players in the primary markets. Much of this bilateral dealing takes place by telephone, but a growing number of dealers are providing electronic order routing and order-execution facilities. Liquidity is often enhanced by inter-dealer brokers,[14] who enable the dealers to trade anonymously among themselves, to lay off or take on positions.

Over the last decade, the rapid evolution of electronic order-handling technology has not only enabled dealers to improve client access and automate some trade execution, but has also led to the launch of a number of fully electronic trading platforms for corporate bonds.[15] A number of exchanges have adopted these systems, but in some countries, this type of trading system has more commonly been offered by ATSs. ATSs offer a variety of trading methodologies and target different types of participant. Dealer-based systems generally provide for dealers to display quotes or enable users to request quotes from multiple dealers, and negotiate electronically with the dealer that provides the best price. User-to-user systems enable users, who may include investors and/or dealers, to trade with each other (usually on an anonymous basis) through a cross-matching system. Execution on a cross-matching auction system may be on a continuous or periodic basis. Where these cross-matching systems provide for buy-side/investor participation, they may not only enable users to trade more advantageously, but also allow a wider range of market participants to contribute price-making liquidity to the market. ATSs providing trading in corporate bonds have been very

[13] See European Securities Exchange Statistics, December 2003, published by the Federation of European Securities Exchanges (www.fese.be).
[14] Inter-dealer bond brokers play a more significant role in the government bond market than in the corporate bond market.
[15] See Appendix B for discussion of cross-matching systems.

popular in Canada and in the United States since the mid-1990's. Italy,[16] Hong Kong and the United Kingdom also have such ATSs.

The volume of trading in corporate bonds that is conducted away from exchanges appears to reflect both the historical development of the market in different countries and the continued large volume of bilateral dealing. This contrasts strongly with equity markets, which are generally structured as order-driven, central auction markets and are mostly electronic.

B.5 Price Formation and Price Discovery

Historically, the price of a corporate bond has been generally determined by the fair value and the interest rates of sovereign bonds. The reliance on macro-economic factors and spreads to sovereign debt is decreasing as corporate bonds become more complex in structure and perceptions of credit risk become more active factors in their valuation.

Prices for securities traded on open and organized markets are generally set by the *efficient market theory*, which states that prices are determined by all available information. Prices fluctuate in response to new information regarding the issuer, changing expectations of the participants of the market, and changes in supply and demand. Price discovery[17] using publicly disseminated information on trades and trading interest is key in the determination of prices.

In contrast, the price of corporate bonds traded bilaterally and without the benefit of competitive pricing information has historically been determined by a narrow, less market-informed view of fair value.[18] Moreover, the prices investors pay different dealers for similar amounts of the same bond may vary materially because the pricing is fragmented and because benchmark government debt pricing is itself not centralized.

The value of pricing corporate bonds using benchmark government debt prices has diminished as bonds have become more complex. The importance of the wider range of factors influencing prices seems likely to grow in line with the general increase in the availability (and timelines) of potentially relevant information. The more that it grows, the more desirable widespread availability of trading information will become.

[16] Italy views single-dealer systems, as well as multilateral systems, to be ATSs.
[17] Price discovery can be defined as the interaction of buy and sell orders to determine a price.
[18] The "fair value" of a corporate bond traded OTC may be defined as the present value of the bond's expected, determinable cash flows, including the principal and coupons. However, there may be variations in the calculation of the "fair value" because cash flows may be uncertain as the appropriate interest rates used to discount the cash flows might need to be derived from other market interest rates.

Table 2 Characteristics of the Corporate Bond Market in SC2 Jurisdictions

Country	Trading Venue	Earliest Year of Operation	Execution Methodology	Direct Participants	Electronic or by Phone
Australia	OTC market	1980's	Bilateral	Dealers Institutions	Electronic or by phone
	Australian Stock Exchange	1999	Cross-matching Order-driven	ASX Broker Participants	Electronic
	Yieldbroker	2001	Bilateral	Dealers	Electronic
Brazil	BovespaFix (Sao Paulo Stock Exchange)	2001	Cross-matching Order-driven	Exchange members (brokerage houses)	Electronic
	CETIP (OTC market)	1986	Bilateral	Dealers	By phone
Canada	Inter-dealer bond brokers (4 IDBs)	1975	Bilateral Order-driven	Dealer-to-dealer	Electronic or by phone
	ATS (3 systems)	2001	(i) Cross-matching (ii) Request for Quote - dealers acting as liquidity providers (iii) Order-driven, anonymous trading	Dealer-to-institution Institution-to-institution Retail investors can access one system indirectly through dealers	Electronic
	OTC market		Bilateral Principal market	Dealers Institutional investors Retail investors	By phone Fax Electronic (dealer systems)
	Toronto Stock Exchange	1987 (first trades of corporate bonds on the exchange)	Cross-matching Continuous auction market	Participating organizations (dealers) Institutions and retail investors access the exchange indirectly through dealers	Electronic access to the exchange Orders may be called in to the dealer
France	Euronext	1990 (first year of electronic bond trading)	Cross-matching Auto-matching Order-driven	Exchange members	Electronic
	OTC market		Bilateral	Dealers Institutions	Electronic or by phone
Germany	Frankfurt Stock Exchange	Frankfurter Wertpapierbörse: 1585; Deutsche Börse AG (operator holding): 1993	Order-driven	Exchange participants	Floor trading and electronic
	OTC market		Bilateral	Dealer-to-dealer	By phone
Hong Kong	Stock Exchange of Hong Kong	1986	Cross-matching Auto-matching Order-driven	Dealers (exchange participants)	Electronic
	Bloomberg	1999	Multi--dealer auction	Dealer-to-dealer	Electronic
Italy	Italian Stock Exchange	1994	Cross-matching Order-driven	Dealer-to-dealer Retain investors can access indirectly through dealers	Electronic
	MITS	1988	Quote-driven	Dealer-to-dealer Retain investors can access indirectly through dealers	Electronic
	TLX	2003	Cross-matching Order-driven	Dealer-to-dealer Retain investors can access indirectly through dealers	Electronic
	ATS		Cross-matching Multi-dealer Order-driven	Dealer-to-dealer Retail investors can access indirectly through dealers	Electronic
	OTC Market		Bilateral	Dealers	By phone
Japan	Stock Exchanges	1966	Auction	Authorized intermediaries	Electronic
	OTC market ATS[2]	1948	Bilateral Multi-dealer	Dealer-to-client Multi-dealer	Electronic or by phone
Malaysia	OTC market	1989	Bilateral	Dealers	Electronic and By phone
	Kuala Lumpur Stock Exchange (KLSE)	1989	Order-driven	Exchange members	Electronic
Mexico	BMV[3] (Mexican Stock Exchange)	1975	Cross-matching Order-driven	Dealer-to-dealer	Electronic
	Brokers	1998		Dealer-to-dealer	Electronic or by phone

Country	Trading Venue	Earliest Year of Operation	Execution Methodology	Direct Participants	Electronic or by Phone
Singapore	Singapore Exchange Securities Trading Limited (SGX-ST)	1998	Cross-matching Order-driven	Dealer-to-dealer Institutions and retail investors access the exchange indirectly through dealers	Electronic
	OTC market		Bilateral	Dealers Institutional investors Retail investors	Electronic or by phone
Spain	AIAF market	1991	Bilateral	Dealer-to-client Dealer-to-dealer	By phone
	Madrid Stock Exchange	1993	Cross-matching Order-driven		Electronic
		1993	Bilateral		Electronic
Switzerland	Swiss Exchange	1996	Cross-matching Auto-matching, Order-driven but also offer order books such as bilateral trade matching		
United Kingdom	London Stock Exchange		Market maker	Exchange members	Electronic or by phone
	ATS		(i) Multi-dealer (ii) Order-driven	Dealers, fund manager and other investment firms	Electronic Electronic
	OTC Market		Bilateral	Dealer-to-institution Dealer-to-dealer	Electronic or by phone
United States	Multi-dealer alternative trading systems (2 systems)	1999		Dealers Institutions	Electronic
	Inter-dealer broker alternative trading systems (2 systems)	2000	Order-driven	Dealer-to-dealer Dealer-to- institutions	By phone
	Single dealer trading system	1999	Automated limit order book	Dealers Institutions	Electronic
	Alternative trading systems (3 systems)	2000	Cross-matching	Dealer-to-institution Retail and institutions through dealers	Electronic
	Auction – alternative trading system	2000	One-sided Bids-wanted	Dealers Institutions	Electronic
	New York Stock Exchange's Automated Bond System	1977	Cross-matching Order-driven	NYSE members	Electronic

(1) N/A means "not applicable".
(2) Securities companies may conduct business as an ATS in the OTC market in Japan.
(3) Bolsa Mexicana de Valore, S.A. de C.V (BMV) is the only exchange in Mexico.

B.6 Government Debt Securities

Government debt pricing creates the yield curve against which corporate bond prices may be set and judged. The pricing of government debt securities is therefore important to pricing of corporate bonds.

Corporate debt markets have strong pricing linkages with the government debt markets. Government securities prices form a country's "risk-less" yield curve, against which higher

risk forms of debt can be priced. Corporate bond yields are often referenced, whether in a real or descriptive sense, to government bond yields.[19]

The secondary market in government debt securities is broadly similar in structure to that in corporate debt. It is generally an institutional market, with dealers selling government bonds as principal to their clients. This trading is normally conducted by telephone and/or through electronic dealer systems. Additionally, there are a number of electronic marketplaces and trading platforms operated by both exchanges and ATSs. Some of these systems have captured material market shares in certain government bond markets. In most government debt markets, inter-dealer brokers also play a significant role. In some countries, the debt issuance/management authorities operate special facilities to enable retail investors to buy and sell government securities directly, rather than through the open market.

In general, government securities markets are considerably more liquid and active than the corporate bond market. This greater activity reflects a number of factors. Most important of these are the relatively large size of many government issues and the function of government debt, as the highest quality credit, to provide a core solvency/liquidity management and collateral asset for financial institutions and the financial system generally.

C. TRANSPARENCY

Transparency can generally be defined as "the widespread availability of information relative to current opportunities to trade and recently completed trades."[20] Transparency supports market efficiency, fosters investor confidence and strengthens investor protection. In turn, this should encourage greater participation by investors, leading to increased trading and increased liquidity. However, it has also been suggested that attempts to enforce excessive transparency, especially on dealer markets, may serve to deter dealers from committing capital to trading and result in lower liquidity.

Transparency is relevant to both pre-trade and post-trade information. Pre-trade information relates to the posting of firm bids and offers, in both quote- and order-driven markets. It enables market participants and investors to know, with some degree of certainty, whether and at what prices they can trade. Post-trade information relates to the prices and the volume of all individual transactions actually concluded. It provides investors with information about the most recent trading in the market and will assist them in assessing the quality of execution they have obtained for their trade compared with others.

Also important, in the case of markets with multiple trading venues, is the effectiveness of the market's processes for making all significant trading information readily available to market users in an easily useable form. This is normally referred to as data consolidation. Effective consolidation mechanisms can help to reduce search costs for individual participants and provide them with a complete view of trading interest and/or completed transactions.

[19] Corporate bonds are priced or traded at a certain number of basis points over an equivalently dated government bond. The number of basis points may vary over time.
[20] *Supra,* see note 4.

C.1 Main Determinants of Transparency in SC2 Jurisdictions

Transparency arrangements for the trading of corporate bonds differ considerably among SC2 jurisdictions. Major determinants of transparency arrangements, the importance of which varies between jurisdictions, include:

- whether the bond is listed,
- where the bond is traded (i.e. trading venues),
- who the participants are (in particular, how much retail participation),
- whether the bond is investment grade, and
- the size of the issue.

See Tables 3 and 4 for a summary of the transparency arrangements in SC2 jurisdictions.

C.2 Transparency of Listed Corporate Bonds

In most SC2 jurisdictions, pre- and post-trade transparency requirements for bonds listed on an exchange, both for the exchange participants and the public, are broadly similar to those for other securities traded on the exchange. However, in several SC2 jurisdictions, there is less information available when the listed bonds are traded off-market, including on ATSs.

(a) Listed Bonds Traded On-Exchange

(1) Transparency to Participants of the Exchange

The way transparency requirements are set for exchange trading varies across SC2 jurisdictions. While some regulatory authorities explicitly require transparency, others expect exchanges to set appropriate transparency standards, which they may review and/or approve.

Most exchanges provide their participants with real-time order and/or quote information, including bid and ask prices and quantities. Some exchanges show the entire depth of the market (e.g. SWX in Switzerland, BovespaFix in Brazil, Madrid Stock Exchange in Spain) while others do not. Some exchanges provide broker identity (e.g. SEHK in Hong Kong, TSX in Canada) and others provide for anonymous orders (e.g. NYSE in the United States[21]).

In addition, most exchanges provide detailed post-trade information to their participants, including transaction prices and volumes. In the United Kingdom, post-trade transparency provides for the publication of prices, but not volumes for risk trades involving a market maker.

[21] The TSX in Canada also provides the option to participating organizations to enter orders onto the exchange anonymously.

(2) Transparency to the Public

Almost all SC2 jurisdictions expect exchanges to disclose order and trade information to the public. In some cases, such disclosure is part of the regulatory requirements, but in others, there may be reliance on the commercial incentive for exchanges to make information widely available. In almost all SC2 jurisdictions, pre- and post-trade information on the exchange is available to the public in real-time for a fee via a proprietary feed from the exchange and/or through an information vendor, such as Bloomberg or Reuters. Information is also available at no cost from most exchanges, market participants or other entities on their websites on a delayed basis.

In some SC2 jurisdictions, the information available to the public is a subset of the information available to the participants of the exchange (Brazil, Italy, Singapore, and Switzerland). In other SC2 jurisdictions, the public has access to the same information available to the participants of the exchange for a fee (Canada, France, Hong Kong, and Singapore). In Spain, the consolidated trading information from four exchanges is disseminated free of charge to the public by a market operator through its website on a delayed basis (15 minutes).

Many exchanges also provide summary information at the end of the day, week or month, which includes information such as the trading activity, the total volume traded, the daily high, low, average and closing price for each issue, and the number of transactions. In Brazil, the exchange puts out a "reference prices" list that contains theoretical prices for each bond.

(b) Listed Bonds Traded Off-Market

In some SC2 jurisdictions, the transparency arrangements for listed bonds also provide for the publication of post-trade information when the bonds are traded off-market.[22] Some SC2 jurisdictions require the trades to be reported to the market upon which the debt security is listed within a prescribed period of time. The trade information is then disseminated to the public in the same manner as if the trade had been executed on the exchange (Canada, Hong Kong, Italy, Mexico, Singapore, and Switzerland). In two SC2 jurisdictions, such off-market trades are reported to a non-exchange self-regulatory organization (SRO) or industry organization involved with OTC markets and are subject to the same transparency regime as unlisted corporate bonds (Australia, Japan). In some of these jurisdictions, the reporting requirement applies only if the trade is executed by or between exchange participants (Canada, Hong Kong, Italy, and Singapore). In many SC2 jurisdictions, this reporting requirement is imposed by the exchange upon which the bonds are listed.[23]

(c) Listed Bonds Traded on an ATS

In a number of SC2 jurisdictions, ATSs may trade listed and/or unlisted corporate bonds (Canada, Hong Kong, Italy, Japan, the United Kingdom, and the United States). Malaysia is in the process of developing a regulatory framework that would facilitate the introduction of multi-lateral corporate bond trading systems.

[22] This is not true for all SC2 jurisdictions. For example, in the United Kingdom, the transparency requirements adopted by exchanges for corporate bonds do not apply to such securities if they are traded off-market.
[23] In France, the requirement is a regulatory requirement that applies to all authorized firms.

Although the amount of pre-trade transparency that any ATS provides to its users depends on the nature of the trading methodology used,[24] few SC2 jurisdictions have considered it necessary to prescribe detailed pre-trade transparency standards for such systems.[25]

By contrast, in most SC2 jurisdictions, ATSs may be subject to more extensive post-trade disclosure requirements, even though some ATSs make post-trade information available on a commercial basis.[26] Regulatory requirements operate in a variety of ways, and the requirements may apply to all securities or sub-sets of securities. In some cases, the requirements attach specifically to the ATS (Canada, Hong Kong, Italy, and the United Kingdom). In others, disclosure requirements stem from wider disclosure rules attaching to all firms trading in certain securities. For example, in the United States, transactions executed on ATSs are reported to TRACE by the ATS itself or the parties to the transaction, depending on the structure of the ATS and whether the parties to the transaction are broker-dealers. Although there may be different entities that report the trade, all listed corporate bond transactions that are TRACE-eligible securities are reported to TRACE.

[24] The transparency provided by an ATS to its subscribers depends on the structure of the ATS. For example, the pre-trade transparency for a request-for-quote system is different from a system that executes trades in a continuous auction market.

[25] Regulatory requirements for transparency on ATSs vary. In Canada, requirements provide for pre-trade transparency, however, the detailed requirements applicable to all marketplaces, including ATSs, have not been prescribed. In the cases of Hong Kong and the United Kingdom, the requirements are imposed on a case-by-case basis. In France, the five best bids and asks must be made public by all ATSs trading in listed securities.

[26] In Canada, a number of the ATSs provide information to newspapers and information vendors for dissemination.

Table 3 **Transparency for Listed Bonds**[1]

Country	Information disseminated to exchange users about trades on the exchange			Information disseminated to the public about trades on the exchange				Listed Bonds traded off-market	Listed Bonds traded on ATS Information disseminated to the public			
	Pre-trade	Post-trade	Set by[2]	Pre-trade	Post-trade	Set by	Disseminated by	Dissemination	Pre-trade	Post-trade	Set by	Disseminated by
Australia	Real-time	Real-time	Exchange	Real-time	Real-time Market statistics in June and December	Exchange	Exchange and information vendors	Reported to industry body and disseminated at end of day	N/A[3]	N/A	N/A	N/A
Brazil	Real-time	Real-time	Exchange	Real-time	Real-time	Regulatory authorities	Exchange and Information vendors	Reported to exchange and disseminated in real-time	N/A	N/A	N/A	N/A
Canada	Real-time	Real-time	Exchange	Real-time for a fee Delayed for free	Real-time Monthly bulletin	Regulatory authorities and exchange	Exchange and information vendors	Reported to exchange and disseminated in real-time[4]	Real-time, if otherwise displayed[5]	Real-time	Regulatory authorities	Information vendor
France	Real-time	Real-time	Regulatory authority and exchange	Real-time	Real-time	Regulatory authority and exchange	Exchange and information vendors	Reported to regulator or to the market operator / operator of the payment and settlement system Not disseminated	N/A	N/A	N/A	N/A
Germany	Real-time	Real-time	Regulatory authorities and exchange	Real-time	Real-time	Regulatory authorities and exchange	Exchange and information vendors	Reported to regulatory authorities but not disseminated	None	None	N/A	No transparency requirements
Hong Kong	Real-time	Real-time	Exchange	Real-time for a fee Delayed for free	Real-time for a fee Delayed for free	Exchange	Exchange and Information vendors	Reported to exchange and disseminated in real-time	(6)	(6)	Regulatory authorities[6]	ATS and/or information vendors
Italy	Real-time	Real-time	Regulatory authorities and exchanges	Real-time for a fee Delayed for free	Real-time for a fee Delayed for free	Exchanges and regulatory authorities	Exchanges and information vendors	Reported to exchange and disseminated in 1 hour	Real-time	Real-time	Regulatory authorities	ATS
Japan	Real-time	Real-time	Exchange	Real-time	Real-time	Exchange	Exchange and information vendors	Reference price information of certain issues[7]	None	Reference price information [7]	JSDA	JSDA and information vendors
Malaysia	Real-time	Real-time	Exchange	Real-time	Real-time	Exchange	Exchange (primary source) and information vendors (secondary	Reported to exchange and disseminated	N/A	N/A	N/A	N/A

Country	Information disseminated to exchange users about trades on the exchange			Information disseminated to the public about trades on the exchange				Listed Bonds traded off-market	Listed Bonds traded on ATS Information disseminated to the public			
	Pre-trade	Post-trade	Set by[2]	Pre-trade	Post-trade	Set by	Disseminated by	Dissemination	Pre-trade	Post-trade	Set by	Disseminated by
							source)					
Mexico[8]	Real-time	Real-time	Regulatory authorities and exchange	Summary information in a daily report		Exchange	Exchange	Reported to exchange and disseminated daily	N/A	Summary information	Exchange	Exchange
Singapore	Real-time	Real-time	Regulatory authorities and exchange	Real-time	Real-time	Regulatory Authorities and exchange	Exchange and information vendors	Reported to exchange and disseminated in real-time	N/A	N/A	N/A	N/A
Spain	MERF - Real-time	Real-time	Exchange and regulatory authority	Real-time	15 minute delay	Regulatory authorities and exchange	Exchange and information vendors	Reported to the exchange and disseminated the same day (if they are reported before closing time) or the following day (if reported after the market is closed)	N/A	N/A	N/A	N/A
	AIAF - At request	Volumes, no prices	Exchange and regulatory authority	At request	Volumes, no prices	Exchange and regulatory authorities	Exchange and information vendors	N/A	N/A	N/A	N/A	N/A
Switzerland	Real-time	Real-time	Exchange	Real-time	Real-time	Exchange	Exchange and information vendors	Reported to exchange and disseminated		Real-time	Exchange	Exchange
United Kingdom	Real-time	Real-time for agency trades Delays for principal trades No volumes for dealer trades	Exchange	Market maker quotes	Prices only	Exchange and information vendors	Exchange and information vendors	Reported to regulatory authority but not disseminated	None	Benchmark bonds Within 60 minutes, size cap on volumes disclosed	FSA	ATS and information vendors
United States	Real-time	Real-time	Exchange	Real-time	Real-time	Exchange	Exchange and information vendors	The following reported to TRACE: Investment grade bonds with sufficiently large initial issuance size and sufficiently high credit rating, and 50 high-yield bonds	None	TRACE	NASD	NASD and information vendors

(1) Details of transparency requirements are available in the summary of the survey results attached as an appendix.
(2) Information to exchange users is disseminated by the exchange in all SC2 jurisdictions.
(3) N/A means “not applicable”.
(4) Large trades of listed bonds can occur in the “upstairs market” where dealers can negotiate the trade and then report it to the exchange. There are a few issues that have received an exemption from the exchange to trade off-market without reporting the trade to the exchange.
(5) Pre-trade transparency for listed corporate bonds is only required if the marketplace displays the orders other than to employees of the marketplace or persons or companies that assist in the operation of the marketplace.
(6) General principles of transparency requirements are prescribed in the ATS Guidelines published by the SFC. The transparency requirements (including the dissemination of trading information) depend on the nature of the ATS and are determined on a case-by-case basis.
(7) Corporate bond information is not reported as independent information, but as part of the OTC market information. Securities companies appointed as a reporting member by the Japan Securities Dealers Association (JSDA), an SRO, report indications of selected bonds with a face value of 500 million yen as of 3 pm every business day. There are 22 securities companies and one bank appointed by the JSDA as of February 2004. The JSDA calculates the high, low, mid and average prices based on the indication reported and publishes them as the “reference price of bonds”. The JSDA also publishes indications of retail target corporate bonds with a face value of 1 million yen as of 3 pm every business day.
(8) All transactions of debt, whether listed or not, are reported to the exchange.

C.3 Transparency of Unlisted Corporate Bonds

In most SC2 jurisdictions, there are fewer transparency requirements applicable to trading in unlisted corporate bonds than for listed corporate bonds. In many instances, there is very little information available on a market-wide basis regarding OTC trading interest or trades. However, this has started to change in some jurisdictions, partly as a result of the greater transparency brought about through the development of ATSs but, also in the case of Canada and the United States, through a more systematic regulatory approach to corporate bond transparency.

Transparency of unlisted corporate bond transactions refers here to the public dissemination of information about bilateral, OTC transactions or transactions through ATSs in unlisted corporate bonds. It should be emphasized that it means general dissemination to parties other than the counterparties to the trade. In many SC2 jurisdictions, there are fewer transparency requirements for orders and trades of unlisted corporate bonds that trade OTC or on ATSs than for listed corporate bonds. See Table 4 for a summary of the transparency requirements for unlisted corporate bonds.

(a) Unlisted Corporate Bonds Trading OTC

Very few SC2 jurisdictions impose pre-trade transparency requirements in the OTC corporate bond market.[27] Those that do so require disclosure of either quotes or indicative prices (Japan, Malaysia). Although pre-trade transparency may not be mandated, there may be varying amounts of price information available to the public through inter-dealer systems or from dealers' websites.[28]

Mandated publication of post-trade information is more widespread, though this requirement is far from universal. The SC2 jurisdictions that require dissemination of post-trade information about OTC trades use a variety of approaches. The information may be reported to and disseminated by the regulatory authority (Malaysia), a non-exchange SRO (Japan, the United States), an industry body (Australia), private organizations approved by the regulatory authorities (Brazil, Canada) or an exchange (Mexico).

The types of information that may be disseminated include the transaction price and time of execution, the volume for each issue, the total daily volume, and the high, low, average, closing and reference price. In a number of jurisdictions, the volume information that is disseminated is determined by the liquidity or the quality of the corporate debt security or the size of the trade.[29] The dissemination of information may be close to real-time (Canada, Malaysia, United States), or published in summary reports at the end of the day (Japan,

[27] This is also true in most SC2 jurisdictions of unlisted equities traded outside organised marketplaces.

[28] The pre-trade corporate bond market in the United States is somewhat transparent to broker-dealers who have access to inter-dealer systems that report trading interest, which does not usually include a true "quote" but is a solicitation to deal with another member of the trading system. In Canada, inter-dealer bond brokers disseminate order information voluntarily through the information processor for unlisted corporate debt securities.

[29] In Canada, volumes are disseminated subject to volume caps. For certain, designated investment grade corporate debt securities, the cap is set at $2 million and for certain, designated non-investment grade, it is $200,000. For the United States, see the discussion about the TRACE Model in section C.4 for a description of the volume caps.

Mexico) or the next day (Brazil). In Canada, Japan and the United States, the information that is disseminated does not include trades of all corporate bonds but a subset that is selected based on the liquidity/quality of the bond and (in the case of the United States), the issuance size of the bond.

(b) Unlisted Corporate Bonds Traded on an ATS

Canada, Italy, Hong Kong, Japan, the United States, and the United Kingdom have ATSs that execute trades of unlisted bonds. In Canada, the regulatory authority requires ATSs to provide post-trade information regarding certain corporate bonds to an information processor for dissemination to the public. In both the United Kingdom and the United States, the reporting requirements for trades in unlisted corporate bonds that occur on an ATS are the same as for listed corporate bonds. See Tables 3 and 4 for a summary of the transparency requirements applicable to trades of corporate debt securities traded on an ATS.

C.4 The TRACE Model

In the United States, the NASD launched a trade reporting and trade publication system – known as TRACE – in July 2002. The programme has been progressively increasing the number of securities subject to post-trade publication and currently provides post-trade information on bonds accounting for almost 75% of total trading volume in investment grade corporate bonds and 50% of the more liquid high-yield bonds.

Following regulatory concerns in the United States regarding the lack of transparency in the corporate bond market, the NASD launched the TRACE system for reporting and dissemination of last sale information on corporate bonds on July 1, 2002. TRACE is a system that provides post-trade transparency and disseminates trading information to market users, but does not provide pre-trade transparency. TRACE is being implemented in phases. NASD rules require dealers to report trades on all eligible U.S. corporate bonds to the NASD within 45 minutes. While liquidity of a corporate bond is not a factor in deciding whether a transaction is reported to TRACE, it currently disseminates transaction information to the public on

(i) investment grade corporate bonds with initial issuance size of $1 billion or greater,
(ii) investment grade corporate bonds rated "A3" or higher by Moody's Investors Service, Inc., and "A-" or higher by Standard & Poor's, with initial issuance size of $100 million or greater,
(iii) 120 bonds designated by the NASD that are rated "Baa/BBB" at the time of designation, and
(iv) approximately 50 high-yield debt securities

(together, "TRACE-eligible" debt securities).

In the United States, for "TRACE-eligible" debt securities, the actual quantity of the transaction (the total par value of the bonds purchased or sold) is disseminated if the total par value of the reported transaction is $5 million or less; if the reported amount is greater than $5 million, a large volume trade dissemination cap identifier of "5MM+" is disseminated instead of the actual quantity. For non-investment grade debt securities, the actual quantity of

the transaction is disseminated if the total par value of the reported transaction is $1 million or less; if the reported amount is greater than $1 million, a large volume trade dissemination cap identifier of "1MM+" is disseminated instead of the actual quantity.

The data currently disseminated through TRACE includes transaction information on more than 4,200 securities representing about 75% of the dollar value of trading activity in investment grade bonds. The NASD makes this information available at no cost to investors on its website (on a delayed basis with a minimum four-hour time lag). Real-time price data is available from several third-party data vendors at additional cost.

The NASD, after consulting with an advisory committee of industry representatives, has been directed by the SEC to consider expanding the universe of bonds that are subject to dissemination through TRACE. The NASD Board of Directors recently approved a proposal presented by that advisory committee. That proposal would make public in near real-time 99% of trades overall, with delayed publication of trades in certain new issues and of large transactions in infrequently traded high-yield bonds. The proposal will have to be filed with the SEC. In addition, the NASD proposes to reduce the reporting period to 15 minutes once the industry acquires greater experience with reporting. Dissemination of last sale data on corporate bonds through TRACE has significantly improved the transparency of the U.S. corporate bond market. In addition, because transactions data in all eligible bonds is reported to TRACE and available to the NASD for surveillance purposes, TRACE has enhanced the NASD's ability to conduct surveillance of the market.

C.5 Transparency of the Government Bond Market

In general, there is little mandated transparency in government bond markets, especially in OTC trading. However, many markets have developed mechanisms for gathering/ disseminating selected data on a voluntary basis.

In many SC2 jurisdictions, the transparency arrangements in respect of government debt securities are generally different from those in corporate debt. This most likely reflects the limited jurisdiction that many securities regulatory authorities have in this asset class. In many countries, public authorities responsible for debt issuance have the main management (and/or oversight) role in the government debt market and they approach their role with different considerations and priorities than those of securities regulatory authorities. However, in some jurisdictions, securities regulatory authorities have jurisdiction to regulate issues relating to the structure of the market, secondary trading and sales conduct.

In general, there is little mandated transparency in government bond markets. In some SC2 jurisdictions where government debt securities are traded (at least in part) on an exchange, the transparency regime is often similar to that for other listed securities, though this is not always the case (either in respect of the on-exchange trading itself or in respect of the off-market element).[30] For the most part, there are no regulatory transparency requirements attaching to OTC trading in government securities. However, a level of transparency nonetheless exists in many government securities markets. This normally arises from

[30] For example, in Italy, unlike corporate debt securities, government debt securities traded off-market do not have to be reported to the exchange.

commercial pressures and often takes the form of information disseminated voluntarily by dealers. In addition, in Japan, as is done with corporate bonds, indications of certain government bonds are provided to the JSDA by reporting members and the JSDA calculates the high, low, mid and average prices based on the indications reported and publishes them as the "reference prices of bonds."[31] In some SC2 jurisdictions, quote and trade information regarding dealer trades through inter-dealer brokers is disseminated voluntarily.[32]

[31] See note 7 of Table 3.

[32] In Canada, inter-dealer bond brokers voluntarily provide quotation and trade information to CanPX. In the United States, all inter-dealer bond brokers (IDBs), except one, provide quote and trade information to GovPX. The remaining IDB disseminates its own quotation and trade information.

Table 4 **Public Dissemination of Information regarding Unlisted Corporate Bonds Traded Over-the-Counter and on ATSs**

Country	Unlisted bonds Traded OTC				Unlisted Bonds Traded on an ATS			
	Pre-trade	Post-trade	Set by	Disseminated by	Pre-Trade	Post-Trade	Set by	Disseminated by
Australia	N/A[1]	Summary information	AFMA[2]	AFMA	N/A	N/A	N/A	N/A
Brazil	None	Summary information	CETIP[3]	CETIP	N/A	N/A	N/A	N/A
Canada[4]	None	Only 20-30 benchmark corporate bonds Delayed reporting to CanPX[4] of one hour Volume caps	Regulator and CanPX[4]	CanPX and information vendors	Real-time, if otherwise displayed Not implemented	Only 20-30 benchmark corporate bonds Delayed reporting of one hour Volume caps	Regulatory authorities and CanPX	CanPX, ATSs and information vendors
France	None	None	N/A	Quotes from contributors are available through information vendors	N/A	N/A	N/A	N/A
Germany	(5)	(5)	N/A	N/A	None	None	N/A	N/A
Hong Kong	None	None	N/A	Information vendors (provided by financial institutions)	(6)	(6)	Regulatory authorities[6]	ATS and/or information vendors[6]
Italy [7]	None	None	N/A	N/A	Real-time	Yes Delayed summary information	Regulatory authority	ATS
Japan	None	Reference price information of certain issues	JSDA[8]	JSDA and information vendors	None	Reference price information of certain issues	JSDA	JSDA and information vendors
Malaysia	Yes	Reported to BIDS within 10 minutes of execution	Central bank	Bond Information and Dissemination System (Central bank)	N/A	N/A	N/A	N/A
Mexico	None	Summary information	Exchange	Exchange	N/A	Summary information	Exchange	Exchange
Singapore	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Switzerland	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Kingdom[9]	None	None	N/A	N/A	No specific standards	benchmark issues only Cap on disclosed volumes Within 60 minutes	Regulatory authorities	ATS and information vendors
United States	Some, but market	"TRACE eligible securities" Volume caps	NASD	NASD and information vendors	None	TRACE Investment grade bonds	NASD	NASD

Country	Unlisted bonds Traded OTC				Unlisted Bonds Traded on an ATS			
	Pre-trade	Post-trade	Set by	Disseminated by	Pre-Trade	Post-Trade	Set by	Disseminated by
	driven	45 minute delayed reporting				with sufficiently large initial issuance size and sufficiently high credit rating, and 50 high-yield bonds		

(1) N/A means "not applicable".
(2) AFMA is an industry body that is responsible for establishing industry standards for the over-the-counter debt market. It collects and publishes reference rates (intra-day, end-of-day, end-of week and/or end-of-month).
(3) CETIP is a private organization owned by financial institutions and market intermediaries, not yet an SRO.
(4) CanPX has been authorized by the regulatory authorities to act as the information processor for unlisted corporate bonds until December 31, 2006.
(5) Currently, there are no transparency requirements, but the implementation of the ISD will stipulate that banks that internalize trading for customers have to give insight into their order books to customers and other banks.
(6) General principles of transparency requirements are prescribed in the ATS Guidelines published by the SFC. The transparency requirements (including the dissemination of trading information) depend on the nature of the ATS and are determined on a case-by-case basis.
(7) Information is published in real-time, the next day and on the third day of each month. Details are available in the Appendix that summarizes the survey results.
(8) See note (7) of Table 3. Securities companies may conduct business as an ATS in the OTC market in Japan.
(9) The International Securities Markets Association (ISMA) provides subscribers with post-trade information on more liquid Eurobonds but not in real-time.

C.6 Consolidation

Regulators in some jurisdictions have brought about varying degrees of consolidation of post-trade data, mainly by requiring consolidated trade publication for trading in all listed bonds or, in a smaller number of cases, by requiring some form of publication of trades in OTC securities.

(a) Consolidation of Listed Corporate Bond Trades

In most SC2 jurisdictions, exchanges providing trading in listed corporate bonds consolidate the data for all trades of those securities, whether they occur on or off the exchange (Canada, Hong Kong, Italy, Mexico, and Singapore[33]).[34]

Where a listed security is traded off-market, it may be the regulatory authority or the exchange that requires the trades to be reported to the exchange and consolidated into the data feed that is disseminated to the public.

In Australia and Japan, off-market trades are reported to an SRO or industry body, rather than to the exchange. This body consolidates the trading data received and distributes a summary of information relating to off-market and OTC trades. However, neither the SRO nor the industry body consolidates the off-market information with the exchange information.

In Spain, where a security may be traded on four different exchanges, there is only one book containing consolidated information from the members of the four exchanges. The trading information is disseminated in real-time to the regulators, on a 15-minute delay to the public and in a daily report.

Trades of listed securities that occur on ATSs may be reported to, and consolidated by, the exchange (Italy), reported to TRACE (the United States), or provided to information vendors who consolidate the information with the information received from the exchanges and disseminate the consolidated information to the public (Canada).

(b) Consolidation of Unlisted Corporate Bond Trades

In a few SC2 jurisdictions, there is some consolidation of information relating to trades of unlisted bonds that occur OTC. Trades are reported to, and consolidated and published by, a regulatory authority (Malaysia), an SRO or industry body (Australia, Japan, the United States), a private organization (Brazil, Canada) or an exchange (Mexico). In Australia, there is no legal requirement to consolidate information, but it may be consolidated by an information arrangement between the exchange and the industry body. Canada requires the consolidation of trade information from ATSs trading certain unlisted corporate bonds with the trades of those bonds by inter-dealer bond brokers and dealers trading OTC.

[33] In Canada, Singapore and Hong Kong, reporting off-market trades is only required if the trade is done between two exchange participants.

[34] These arrangements generally parallel similar arrangements for listed equities.

For the most part, the dissemination of this information may be in summary form or may provide the details of all trades. What is consolidated may reflect all bonds or, as in Canada and the United States, a subset. Generally, it is not in real-time but hourly or at the end of the day. However, in some cases, the trade information, although reported after a period of time, is consolidated and disseminated as soon as it is received (Malaysia, the United States).

D. TRANSPARENCY ASSESSMENT

D.1 Survey Findings

Trading in corporate bonds on exchanges is generally quite transparent, with order and trade information easily accessible to participants, the regulatory authorities and the public. Transparency of trading in listed corporate bonds off-market varies widely. In addition, there is little, if any, transparency for OTC corporate bonds in most SC2 jurisdictions, though significant changes have recently been taking place, particularly in Canada and the United States.

The main points that can be derived from SC2's survey of transparency arrangements in member countries can be summarised as follows:

- Transparency levels vary considerably, and they vary in different ways;
- In general, where information is disseminated publicly, post-trade information is more widely available than pre-trade information;
- Transparency of exchange trading of corporate bonds is often the same as, or similar to, that of other listed securities;
- A number of jurisdictions that permit off-market trades subject those trades to post- trade disclosure requirements, but this requirement is not universal;
- In general, there is less transparency in the OTC market, although several SC2 members do require these trades to be published, and the United States, which has the world's largest corporate bond market (most of which is OTC), has been progressively extending post-trade transparency in this market; and
- The introduction of ATSs has increased transparency among participants and, in some cases, the amount of information that is available to the public regarding corporate debt securities - the latter improvement may be the result of regulatory requirements that mandate dissemination of order and trade information or from private initiatives through which ATSs sell their data to information vendors or newspapers that publicly disseminate the data.

D.2 The Trend Towards Transparency

Regulatory authorities have in the past tended to focus less on overall transparency in the corporate bond market than in the equity market given the bond market's mainly institutional participation and the fact that the implementation of transparency requirements would have been expensive due to the predominantly manual processing of orders and trades.

However, in view of the evolution of the corporate bond market, and in particular its growing complexity and broader participation, regulators have recently been reassessing the adequacy of the market's transparency. Of particular interest are the nature of pricing and the growing number of factors that may influence pricing. These seem to indicate that the information contained in trading data may be of greater importance than in the past.

It is clear from the survey that many regulators have, at least until recently, focused their interest on the adequacy of trading transparency on equity rather than bond markets. This has been logical given the role of price discovery in equity trading, price volatility and the broader participation in equity markets. Conversely, the predominantly non-retail participation in the corporate bond market, together with the market's largely bilateral and OTC nature in many countries, has led to regulators placing greater reliance on the markets to evolve their own transparency arrangements. In addition, because trades were executed by phone and processed manually, the implementation of regulatory transparency requirements would have carried high costs.

More recently, however, the continuing evolution of the corporate bond market has made regulators increasingly aware of a number of factors that they need to consider. One has been the broadening investor interest in the market. A second has been the growing complexity of the market and the trading inter-linkages with other asset classes. A third is market integrity, which is linked to the confidence investors have in a particular market, both in terms of the fairness and the efficiency of the market.

In some jurisdictions, such as Canada and the United States, regulators have taken a proactive role in improving transparency, particularly with respect to trades of OTC corporate bonds. Specifically, at the direction of the SEC, the NASD, the SRO for the U.S. OTC market, adopted rules that set out transparency requirements regarding OTC trading of corporate bonds.[35] Canada has also introduced transparency requirements regarding trades of both listed and unlisted corporate bonds. Several countries have extended post-trade disclosure requirements to specified (usually more liquid) corporate bonds traded on ATSs (Canada, the United Kingdom). Several other jurisdictions have been taking increased interest in the transparency of their bond markets, while the new Markets and Financial Instruments Directive in the European Union provides for the European Commission to review the case for extending mandatory transparency beyond equities within 2 years of the new directive coming into force.[36]

[35] See section C.4 for a detailed discussion of TRACE.

[36] Article 65 of the European Directive on Markets in Financial Instruments requires the Commission to report to the European Parliament and Council on the possible extension of the scope of the provisions of the Directive concerning pre- and post-trade transparency obligations to transactions in classes of financial instrument other

Nonetheless, both investor and regulatory interest in greater transparency is often challenged, especially by the industry "sell-side." It has been argued that greater transparency may damage liquidity (see section D.3 below). It has also been argued that participants in the corporate debt market have confidence in the market and prices received without mandated transparency for a variety of reasons. First, they can determine the fair value and evaluate the reasonableness of the price received without transparency. Second, institutional investors and dealers have access to price information that is not available to the public at large. Third, some argue that the corporate debt market is largely self-policing, in that if an institutional investor is unhappy with the price received from a dealer, the institution will go elsewhere (and this threat keeps dealers from overcharging institutions).

Retail investors, however, have neither the same access to information, nor the same ability to calculate fair value and prices, as do institutional investors. They also do not have the same ability to "shop around" for better prices. They rely on the prices that are publicly available to judge their fills. If they cannot determine whether the prices available or received are fair and/or reasonable, they are less likely to participate actively in the market. Confidence grows if investors are able to evaluate the quality of the trade price received, and if they believe that it was fair given the circumstances.

Equally important is the fact that adequacy of pricing and trade information is no longer an issue solely for retail investors. Because bond structures are becoming more complicated and, therefore, pricing is becoming more complex and reactive to factors other than interest rates and the price of benchmark government bonds, the calculation of fair value and pricing is more difficult and less formulaic. In addition, the role of price discovery, through transparency of supply and demand, has increased. To underpin the efficiency of the market, as well as to ensure fairness, investors, both retail and institutional, need more complete and accurate information to trade effectively and to their best advantage.

D.3 The Transparency/ Liquidity Debate

Increased transparency can enhance liquidity by increasing investor confidence, but some argue that it may adversely impact liquidity if dealers consider that transparency requirements alter the risk/reward ratio in committing capital.

A major consideration for regulators in assessing the appropriateness of promoting greater transparency in a market is the trade-off between transparency and liquidity. Greater transparency may tend to increase confidence in pricing in a way that encourages wider participation in a market. But some argue that excessive transparency can also alter the risk/ reward profile for dealers who commit capital to the market. If the ratio is altered too radically, they may decide to withdraw from providing liquidity. Although any comparison between bond and equity trading needs qualification, it should be noted that OTC equity dealers have made this argument prior to, or upon, the imposition of transparency requirements on OTC equity trading and these effects have not been observed.

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than shares. The Commission is required to make this report, following public consultation, within two years of the Directive coming into force, which is expected to occur in mid-2004.

As set out above, it has often been argued that greater transparency in the bond markets has not been needed both because of the nature of the participants and the fact that market users can readily determine "correct" bond pricing by reference to exogenous factors. As discussed, that case is now palpably less compelling in many countries. Nonetheless, in assessing the adequacy of transparency in their domestic markets, regulators need to give careful consideration to the structure of the market and the potential effects of requiring greater transparency. Where regulators do decide that they should more actively promote transparency, the recent experience in the United States points to the desirability of working closely with the industry in implementing change, of focusing initially on the most liquid bonds and, in general, of progressing in stages with a degree of pragmatism.

D.4 Data Consolidation

There is very little consolidation of pre-trade information in SC2 jurisdictions. However, the amount of consolidated post-trade information available to market users is greater and is increasing.

At present, there appears to be very little consolidation of any pre-trade data in SC2 jurisdictions. This partly reflects the low liquidity and the domination of bilateral, dealer trading in many parts of the market, but is also true in more liquid securities. It is often argued that prices are only "indications of interest" and, therefore, consolidation between trading venues is not meaningful. To a degree, the development of multi-dealer and order-matching electronic systems, both by exchanges and ATSs, is creating trading venues that may offer a broader (though far from comprehensive) range of pre-trade information.

The amount of consolidated post-trade information readily available to market users is generally greater, and has been increasing, notably in the United States and Canada. This has largely come about as a result of regulatory pressure for greater disclosure, coupled with requirements for that information to go to a central point, from which it can be made available more widely. Although consolidated data is available in several other markets (e.g., the Eurobond market, Australia), it is often not close to real-time and not always available free of charge.

D.5 Transparency of Primary Offerings

The discussion above focuses on transparency in the secondary market. However, where there is a lack of transparency in the primary market, as well as an opaque secondary market, the overall lack of information raises significant concerns about investor protection, the ability of investors to assess their trading executions, and for regulators to monitor the market.

D.6 Transparency of Government Securities Markets

There is little formal transparency in government bond markets. However, some information is provided voluntarily by market participants, but rarely in real-time.

Access to high quality information on government bond pricing is a central ingredient in corporate bond pricing in that the information provides a risk-less yield curve against which corporate bonds can be measured. Yet, in many SC2 jurisdictions there is little formal (let alone mandated) transparency in government bond markets. As already indicated, many securities regulators have little or no (direct) jurisdiction in the government bond markets, and the public agencies that do have oversight/management responsibility for the sector normally have public finance, rather than investor protection, responsibilities in the market. Nonetheless, many of these agencies do publish summary information, although it is seldom in real-time. In addition, in some government bond markets, participants (dealers, inter-dealer bond brokers) voluntarily disseminate quotes, volumes and/or prices on their websites or to information vendors. For example, in the United States, comprehensive, real-time pricing information on Treasury securities is disseminated on a voluntary basis.

E. REGULATORY REPORTING

Trading information is important not only to market participants and investors at large, but also to regulators, whether or not it is published more widely. IOSCO states, in support of Principle 27 (transparency) that a market authority "should, in any event, have access to complete information to be able to assess the need for derogation [from transparency] and, if necessary, to prescribe alternatives." IOSCO also states that, in relation to Principle 28 (prohibition of manipulation and unfair trading practices), regulators should ensure that arrangements are in place for the continuous monitoring of trading.[37]

The needs of regulatory authorities will depend largely on the extent of their responsibilities in the corporate bond markets. Their need for information will clearly be greater in cases where they have specific responsibilities in the market, whether in relation to the market and/or the participants.

E.1 Reporting and Supervision in SC2 Jurisdictions

Generally, the statutory requirements applicable to equity securities are similar to those that apply to corporate bonds. In all SC2 jurisdictions, manipulation, fraud and insider trading prohibitions apply to both equity and debt securities. The differences arise in the implementation of the requirements for the listed and unlisted markets and the approach to monitoring and surveillance, including trade reporting.

In most jurisdictions, the regulatory framework for the corporate debt market is a combination of statutory regulation and SRO (whether an exchange or non-exchange SRO) requirements. The regulatory authorities are responsible for regulating primary offerings,

[37] *Supra*, see notes 1 and 4, section 13.6.

marketing activities, and licensing participants, including dealers, ATSs and exchanges, and general rules relating to market integrity (manipulation, fraud, insider trading, etc.) for the corporate debt market. Exchanges are generally responsible for setting the detailed trading rules and for the monitoring and surveillance of trading on the exchanges. SROs and/or exchanges may be responsible for oversight of the practices of their members trading both listed and unlisted corporate debt. See Table 5 for a summary of the regulatory reporting requirements of SC2 jurisdictions.

Table 5 **Regulatory Requirements for Corporate Bonds**

Country	Trading in Listed Bonds			Trading in Unlisted Bonds		
	Regulated by	**Reporting to Regulatory Authority?**	**Monitoring and surveillance (by whom and how)**	**Regulated by**	**Reporting to Regulatory Authority?**	**Monitoring and surveillance (by whom and how)**
Australia	Regulatory authority, exchange	No	By exchange In real-time	Regulatory authority (very small role) and SRO	No, but SRO conducts annual survey	Regulatory authority Not in real-time
Brazil	Regulatory authority, exchange, as an SRO	Only if requested	No automated arrangement until 2006	Regulatory authority	Only if requested	No automated arrangement
Canada	Regulatory authority and market regulation SRO on behalf of the exchange and member regulation SRO	No trade reporting ATSs must file quarterly information with regulatory authority with summary information (volumes and values of trading)	By market regulation SRO, on behalf of the exchange Real-time and T+1 analysis	Regulatory authority and member regulation SRO	No trade reporting ATSs must file quarterly information with regulatory authority with summary information (volumes and values of trading)	By SRO Not in real-time Done during examinations of members
France	Regulatory authority, exchange	Yes, the trading information must be reported immediately to the regulator	Regulator and exchange	Regulatory authorities	No	Not by the securities regulator
Germany	Regulatory authority, exchange	Yes, no later than the next working day after the trade (includes off-market and ATS)	Not in real-time	Regulatory authority	No	Not in real-time
Hong Kong	Regulatory authority, exchange	No Exchange submits reports and trading statistics to the regulatory authority on a regular basis	Exchange in real-time	No regulator responsible for trading over-the-counter If on an ATS – regulatory authority	No	ATS – surveillance performed by the ATS, a regulatory authority or another competent person (a person considered by the SFC to be fit and proper to carry out the function)
Italy	Regulatory authority and exchange	Information on exchanges and regulated markets available in real-time	Regulatory authority in real-time Exchange in real-time	Regulatory authority	No	Done during examinations of members
Japan	Regulatory authorities, exchange, and JSDA	Regulatory authority receives information from exchanges	Exchange in real-time and regulatory authority	Regulatory authority and JSDA	JSDA receives information from its members regarding OTC market information monthly	JSDA and regulatory authority
Malaysia	Regulatory authority and exchange	Information on exchanges and regulated markets available in real-time	Exchange in real-time	Regulatory authority	Yes, within 10 minutes of the trade	Central bank Enforcement by securities commission

Country	Trading in Listed Bonds			Trading in Unlisted Bonds		
	Regulated by	**Reporting to Regulatory Authority?**	**Monitoring and surveillance (by whom and how)**	**Regulated by**	**Reporting to Regulatory Authority?**	**Monitoring and surveillance (by whom and how)**
Mexico	Regulatory authorities, exchange and SROs	All trades reported to the exchange Monthly reporting to regulatory authority by brokerage firms	Regulatory authority has access to firms' trading by electronic means	All trades reported to the exchange	Same as listed bonds	Same as listed bonds
Singapore	Regulatory authorities and exchange	Information available to regulatory authority in real-time	Exchanges in real-time	Regulatory authority	No	Not in real-time Done during examination of licensees
Spain	Regulatory authority and exchange	Regulatory authority receives exchange information at the same time as market members	Regulatory authority, daily Exchange in real-time	N/A	N/A	N/A
Switzerland	Regulatory authority and exchange	No	Exchange Regulator receives information from the exchange	Regulatory authority	No	Done during examinations of securities dealers by auditors
United Kingdom	Regulatory authority and exchange	Exchange, within three minutes of trades occurring	Exchange in real-time	Regulatory authority	Yes, by close of business on day after trade	By regulatory authority on periodic basis or when issue of market concern arises
United States	Regulatory authority, exchange and SRO	No	Exchange, in real-time	Regulatory authority and SRO	Yes, to SRO, within 45 minutes of the trade	By SRO

Generally, the statutory requirements relating to market integrity applicable to corporate bonds are similar to those for equity securities. For example, in all SC2 jurisdictions, manipulation, fraud, insider trading prohibitions and other requirements relating to market integrity (e.g. front-running) apply to both equity and debt securities. The main differences between jurisdictions arise in the how these provisions are applied and the approach to monitoring and surveillance, including trade reporting.

(a) Regulation of Listed Corporate Bonds

In most SC2 jurisdictions, the regulation of listed corporate bonds is similar to the regulation of listed equity securities. Exchanges are generally responsible for monitoring this trading, in real-time and/or on a delayed basis, to detect breaches of their rules or aberrant or abusive trading.[38] In many SC2 jurisdictions, there is no supplementary reporting of these trades directly to the regulatory authority because of the extensive information that is (potentially) available to the regulatory authority from the exchange directly.

Where listed bonds are traded off-market, the trades may be reported to the exchange (Canada,[39] Hong Kong, Italy, Mexico, Singapore, Spain, Switzerland), an SRO (Japan), an industry body (Australia) or the regulatory authorities (Germany, France, the United Kingdom). If the listed bonds are traded on an ATS, the regulatory authority (Italy) or an SRO (Canada, the United States) may monitor and supervise real-time trading on the ATS.

(b) Regulation of Unlisted Corporate Bonds

In many SC2 jurisdictions, trade information regarding unlisted corporate bonds is not reported to the regulator or to an SRO and there is little real-time surveillance, monitoring and reporting conducted by the regulatory authorities or the SROs. For the most part, regulatory authorities generally seek to ensure compliance with statutory requirements in the OTC markets after the fact, through examinations of (or requests for information to) market participants or through investigations.

However, several jurisdictions do require regular reporting of all OTC trades in corporate bonds to a market or regulatory authority. In the case of Malaysia and the United Kingdom, these are reported to the regulator; in Japan and the United States, to an SRO; and in Mexico, to the exchange. For the most part, the reporting requirement is not required in real-time and only Malaysia and the United States require the reporting in close to real-time.

(c) Oversight of Trading in Government Debt Securities

In most SC2 jurisdictions, the regulatory requirements relating to market integrity, such as manipulation and fraud, apply also to government debt securities. However, securities regulators often have no, or only a limited, role in the regulation of trading in government bonds. Instead, the treasury, central bank or government debt manager has the lead role in the "oversight" of trading. Securities regulators and exchanges may have a larger role when government debt is listed and traded on-exchange, but even here the amount of real-time surveillance is generally less than for other products.

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[38] In Canada, an independent SRO monitors the exchanges' trading activity in real-time on behalf of the exchanges. In Italy, both the exchange and the regulatory authority monitor trading.

[39] A small number of bonds have been exempted from the requirement to report to the exchange.

Although the authorities responsible for the oversight of the government debt markets may take an active interest in secondary market trading, they do so largely in their role as debt issuance and/or liquidity/interest rate managers. They normally have no remit in the area of investor protection or market integrity. While they often receive trading data from primary dealers, they generally have limited powers to obtain trade reports beyond the primary dealer network. There is little, if any, real-time monitoring and surveillance of trading activity. As a result, these authorities often have formal or informal arrangements to co-operate with securities regulators and SROs in investigating suspected market aberrations and abuses in these markets (which may also include derivatives and repo trading as well as the cash market).

E.2 Assessment of Regulatory Requirements

Many regulatory authorities have only limited information on OTC trading in their corporate bond markets.

During the course of conducting this fact-finding exercise, it became apparent to the SC2 members that regulatory authorities have traditionally focused on the regulation of "organized markets" and market integrity issues relating to the equity market. Real-time monitoring and enforcement has largely been restricted to the organized markets. Few jurisdictions other than the United States collect data regarding OTC transactions for corporate bonds.

Where corporate bonds are traded on-exchange, there should normally be a good flow of information flowing to those responsible for market monitoring. The fact that some jurisdictions also require the reporting of off-market trading in listed bonds, albeit primarily for market transparency purposes, should add to the potential effectiveness of market oversight. However, reliable information regarding OTC trading generally is not available to regulators because most SC2 jurisdictions do not require reporting on a trade-by-trade basis.

Although there is little evidence that there is significant abuse in these markets that goes undetected, an important consequence of this limited information on market activity is that regulatory authorities may not have sufficient information to develop effective regulatory tools, may have perceptions of what is going on in the market that are not always accurate and may be slow in becoming aware of, and responding to, any new risks.

As a consequence, the issue of what reporting a regulator should require beyond the listed and/or on-exchange markets arises. In light of the growing participation in the corporate debt market and the fact that technology facilitates trading by more and a wider range of participants, the regulatory authorities and the SROs may need to set requirements that seek to ensure that there is enough information available to monitor and conduct surveillance appropriately in the OTC corporate debt market.

F. CONCLUSIONS AND RECOMMENDATIONS

The importance of transparency of trading and of regulation is highlighted in IOSCO Principles 27 and 28. SC2's fact-finding exercise examined transparency in corporate bond trading in the context of these principles. SC2's research revealed that most secondary market

bond trading is done off-market or over-the-counter (OTC)[40] and that, in general, there is an absence of substantial information available to the public on this trading in most SC2 member jurisdictions and, in particular, regarding unlisted corporate bonds. This contrasts with the high level of transparency generally available on the trading of corporate bonds on exchanges.

The corporate bond markets have changed in recent years in many SC2 jurisdictions. First, products have become more complex. Second, investment decisions and market prices are increasingly influenced by a wider range of information, in addition to traditional factors such as interest rates and the price of benchmark government bonds. Finally, the participant base appears to be expanding to the retail market.

The introduction of TRACE in the United States has been a significant development in enhancing regulatory reporting and market transparency for corporate bond trades in the United States. Information provided by TRACE enables regulatory authorities to assess the status of, and monitor trading in, the corporate bond markets. It also provides the public - both retail and institutional investors - with information that enables them to assess whether they are obtaining fair and reasonable prices for their trades.

Regulatory authorities need to be able to assess whether their existing reporting and transparency regimes meet IOSCO Principles 27 and 28 with respect to all segments of the corporate debt market and whether the impact of market developments requires changes to the regulatory regime to enhance investor protection and corporate bond market integrity. Indeed, growing linkages in trading strategies between debt and equity (like those between equity and derivatives) strengthens the case for enhanced transactional reporting and transparency in the corporate bond markets. The core measures below are intended to highlight what regulatory authorities should consider in implementing Principles 27 and 28.

F.1 Regulatory Framework

It is apparent from the analysis conducted by SC2 that, before specific decisions can be made about the appropriate level of reporting and transparency in corporate bond markets, regulators need to have access to trading data sufficient to analyze the state of the corporate bond market, including the participants in the market, the types of bonds trading and the methods and levels of trading. Because of the lack of available information, it may be difficult for regulators to assess accurately either the state of the market (volume, participation, etc.), or whether participants are in compliance with regulatory requirements. Currently, most SC2 jurisdictions neither require reporting to regulators of any OTC transactions in corporate bonds, nor impose public disclosure requirements concerning OTC trades.

Core Measure 1

Regulatory authorities should obtain information regarding the characteristics of the corporate bond market. This information should include:

[40] Again, "off-market" or "off-exchange" refers to the execution of trades of corporate bonds listed on an exchange occurring off of that exchange. "OTC" refers to over-the-counter, bilateral trading of unlisted corporate bonds.

- the types of bonds traded,
- the size of the market, including trading volumes,
- the composition of investor participation,
- the credit rating of the issues, and
- the structure of the corporate bond market, including the trading methodology and the price formation process.

Core Measure 2

To the extent permitted by law, regulatory authorities should implement trade (or transaction) reporting requirements for corporate bonds and if there are impediments to doing so in their regulatory structure, they should, to the extent possible, seek changes or alternatives.[41] These requirements should take account of the type of trading methods used and the resources available to the regulators for receiving and analyzing the data in a meaningful way.

Core Measure 3

Regulatory authorities should have in place appropriate information gathering and surveillance methods or systems for trading in the corporate bond market in order to promote the integrity of the market, including best execution and other investor protection requirements. The design of any system should take into account the type of trading activity and investor participation in the market.

F.2 Transparency

In many SC2 jurisdictions, corporate bonds that are listed on an exchange are subject to transparency requirements that are broadly similar to those for equity securities, whether traded on- or off-market. With respect to trading of OTC corporate bonds, there is little public dissemination of relevant information with the exception of the NASD's TRACE system. Participants that regularly trade corporate bonds OTC - mainly dealers and institutions - may have available to them sufficient information to make informed decisions. However, retail investors generally do not have easy access to such information. This makes it more difficult for them to assess the quality of prices available and the prices at which their orders were filled.

Core Measure 4

Regulatory authorities should assess the appropriate level of transparency in the market for corporate debt to facilitate price discovery and market integrity. In determining the appropriate level, regulators should take into consideration a number of factors, including:

- the size of the market,

[41] Some jurisdictions differentiate between trade and transaction reports, with trade reports normally being real-time reports and transaction reports a more detailed, end of session report. In addition to such trading data, some jurisdictions may also require reporting of custody data.

- the frequency of trading of particular bonds or group of bonds,
- participants in the market,
- the credit ratings of the issues,
- the trading methodology,
- the potential effects of any disclosure on the liquidity of the market, and
- whether the bonds are listed and the existing exchange transparency standards.

F.3 Consolidation

Consolidation of price information can help address issues associated with market fragmentation by providing investors with easily accessible information regarding the prices available for particular securities trading on more than one venue or OTC among multiple dealers. In addition, in the view of some regulatory authorities, clarification of best execution responsibilities and a focus on fair access to markets can also play an important role in resolving these issues. In most SC2 jurisdictions, the exchange consolidates the data for all trades of listed securities, whether traded on- or off-market. However, the rules applicable to trading of listed securities through ATSs vary between jurisdictions.

Core Measure 5

If transparency of trading data exists but the data is not consolidated, regulatory authorities should determine whether there are any impediments to consolidation and whether regulatory action is required.

Appendix A

Coupon Rate Structures

- semi-annual interest payments- most corporate and government debt securities pay semi-annual interest
- monthly interest payments- mortgage backed
- annual interest- mostly non- US bonds
- zero-coupon bonds- discounted and do not pay periodic interest
- accrual bonds- no coupon interest until maturity
- step-up notes- coupon rate increases over time
- floating rate securities
- deleveraged floaters- coupon equals certain percentage of reference interest rate
- drop lock bonds- floating rate securities that change to fixed rate given certain circumstances
- inverse floaters- floating rate securities that vary inversely to a reference rate
- dual index floaters- coupon set to rate to quoted amount plus difference between two floating reference rates
- range notes- floating rate securities that float if reference within certain range
- ratchet bonds- floating rate but once downward move the rate cannot be increased
- stepped spread floaters- floating rate securities that allow reference to be changed during certain time intervals
- extendible reset bonds- floating rate securities whose coupon is reset to keep floater at par

Embedded Options

Options that benefit the issuer:
- call provision
- prepayment provisions
- caps on floaters
- accelerated sinking fund provision

Options that benefit the bondholder:
- convertible provisions
- put provisions
- floors on floaters

Appendix B

The mechanisms listed below are based on the categories published by the Bond Market Association (BMA).[42] Some of these categories apply to manual as well as electronic execution.

(i) *Single-Dealer Mechanisms*

Single-dealer mechanisms can be manual or electronic. They enable investors to execute transactions directly with a specific dealer of their own choice, who acts as principal in each transaction. Dealers offer investors access through a combination of third-party providers, proprietary networks and Internet, with a pronounced shift toward the latter mean in recent years (dealer systems). Nevertheless, most orders are placed by telephone and are manually executed, although some communication systems, for example, proprietary to the dealer or an information vendor (e.g. Bloomberg), may enable the order routing to be electronic.

Both listed and unlisted corporate debt securities can be traded on single-dealer mechanisms.

(ii) *Multi-Dealer Mechanisms*

Multi-dealer systems provide customers with consolidated orders from two or more dealers and provide customers with the ability to execute transactions based on multiple quotes for unlisted corporate debt securities. They often disseminate the best bid and/or ask prices or indications of interest among those posted by a group of participating dealers, acting as principal. These systems may allow investors to request quotes for a particular security or type of security from one or more dealers or enable investors, through their dealers, to hit bids or offers posted by other dealers acting as liquidity providers.

(iii) *Inter-dealer Mechanisms*

Trading between dealers may be done by telephone or electronically. Inter-dealer bond brokers and some ATSs provide dealers with the ability to trade electronically and anonymously with other dealers. Listed and unlisted bonds may be traded on inter-dealer systems.

(iv) *Cross-Matching Execution*

In these electronic systems, participants enter anonymous buy and sell orders, which may be matched continuously (auction market) or at periodic sessions (call market) by an automatic algorithm. The system may be an exchange, where institutions or retail investors have indirect access to trade listed bonds on the exchange through dealers, acting as agents. Alternatively, the system may be an ATS, which allows dealers and/or institutions to trade listed or unlisted corporate bonds with each other, or enables retail investors to enter orders on the system directly or through their dealers. The system may also enable participants to enter bids or offers and hit existing bids or offers.

[42] See "*eCommerce in the fixed-income markets. The 2002 review of electronic transaction systems,*" the Bond Market Association.