

# Reports



## Introduction

**R**eports address specific issues of relevance to the financial system (whether institutions, markets, or clearing and settlement systems) in greater depth.

The Bank of Canada regularly hosts conferences and workshops. The first two reports in this issue summarize two such recent events, which focused on financial system developments and regulation. The third report addresses the implications for the financial system of the solvency status of defined-benefit pension plans in Canada. The last report aims to contribute to the current debate in Canada on securities market regulation by reviewing some of the literature on the organizational structure of financial market regulation.

Financial markets and financial infrastructure arrangements are becoming increasingly inter-related and globalized. This has led many financial institutions to modify their business lines with resulting implications for their risk-return profile. These changes have also highlighted the need to understand how the regulatory environment—which is defined by the rules and incentives that influence the decisions of regulators, financial institutions, and non-financial agents—can best promote macrofinancial stability. In this context, the report, *The Evolving Financial System and Public Policy: Conference Highlights and Lessons*, explores three key financial system issues: financial contagion, implications of bank diversification, and financial sector regulation.

Technological innovations have been an important driver of financial market developments. In particular, technology enhancements have affected the way in which market participants can trade securities with each other. These innovations have presented opportunities for enhancing the liquidity and efficiency of financial markets. These enhancements have, however, challenged regulators to support their benefits

to market quality, while fostering competition, innovation, and market integrity. The report, *Bank of Canada Workshop on Regulation, Transparency, and the Quality of Fixed-Income Markets*, summarizes the discussions on changes in these markets and how regulation regarding the availability of trade-related information should evolve.

The non-financial corporate sector can have an important influence on the financial system. The report, *What Is the Funding Status of Corporate Defined-Benefit Pension Plans in Canada?*, analyzes how the price movements of equities and fixed-income assets have resulted in a marked deterioration in the solvency status of some pension plans. The report analyzes the evolution of funding deficits for defined-benefit pension plans and assesses the extent of the deficits for individual firms and for Canadian financial stability.

Canada's financial services sector has changed rapidly in response to technological and financial innovation, greater international and local capital flows, and new financing methods. In response to these changes, industry participants in Canada have called for a reform of the current securities regulatory structure. In *The Organizational Structure of Financial Market Regulation: Highlights from the Literature*, insights from the academic literature are provided to contribute to the ongoing debate about the regulatory structure of securities markets in Canada. Issues related to self-regulatory organizations are also examined.



# The Evolving Financial System and Public Policy: Conference Highlights and Lessons

*Pierre St-Amant and Carolyn Wilkins*

**T**he Bank of Canada hosted its 12th Annual Economic Conference in Ottawa on 4 and 5 December 2003. Representatives from various public and private organizations joined Bank of Canada staff to discuss three key issues affecting the financial system: financial contagion, implications of bank diversification, and financial sector regulation. This article presents highlights of the conference and directions for future research.<sup>1</sup>

## Financial Contagion

The Bank of Canada works to promote a sound and stable financial system, one in which problems in one part do not trigger instability elsewhere. Financial markets and financial infrastructure arrangements are becoming increasingly interrelated and globalized. It is therefore important to understand the channels through which financial crises spread across institutions, sectors, and countries so that policy-makers can understand how to better safeguard systems against contagion.

Three conference papers attempted to gain insight into the nature of contagion. **Santor** studies the extent to which Canadian banks have become globalized and how Canadian foreign-asset exposures have adjusted to crisis events. Using firm-level panel data from 1984 to 2003, the author finds that Canadian banks are very active globally, although the composition of exposures has changed over the past two decades.

In particular, Canadian banks now have lower foreign exposures in terms of deposits and loans but higher exposures in terms of foreign securities. The author finds that banks do not adjust their portfolios of foreign securities immediately in the presence of a crisis, and that a banking crisis in one country does not appear to influence the decision of banks to continue doing business with countries that have similar characteristics to the country in crisis.

**Gobert et al.** study the lending market under decentralized and centralized systems. The authors develop a model of a competitive inter-firm lending market in which firms can borrow or lend. They identify a source of inefficiency in this market that may lead to financial fragility. For instance, a liquidity shock can have a persistent component and can lead to firm failures that are inefficient. In this model, the authorities can help to eliminate this inefficient equilibrium by ensuring that there is sufficient liquidity in the system. Conference panellists were of the view that these types of theoretical models represent a good start but are too highly stylized to have direct implications for real-world policy.

**Gropp and Vesala** take this field of study a step further by using market-based indicators to determine the probability that a European bank faces financial difficulty, given that other European banks are also facing difficulty. They find significant evidence of contagion both domestically and across borders. This contagion appears to be typically generated by particularly concentrated interbank exposures. Their empirical model also indicates that larger banks are the main sources and the main victims of cross-border contagion. The discussant of this paper underscored a caveat to these conclusions that the authors' approach is of the reduced-form

1. A more detailed discussion of this conference will be presented in the autumn 2004 issue of the *Bank of Canada Review*. Conference papers and discussions are available on the Bank of Canada's Web site at: [www.bankofcanada.ca/en/economic\\_conference\\_2003/index.htm](http://www.bankofcanada.ca/en/economic_conference_2003/index.htm). Proceedings of this conference will be published in 2004.

type, which complicates the interpretation of their results. Nonetheless, their study provides a useful starting point for future research on this topic.

## Bank Diversification

Central banks rely on the financial system to transmit the effects of monetary policy actions to the real economy. For this reason, it is very important to understand the implications of new business lines and changing strategies for pricing and diversifying risk. Two conference papers contributed to our understanding of the links between the changing behaviour of financial institutions and risk-return trade-offs. These papers suggest that diversification, encouraged to some extent by regulatory changes, has not always had beneficial implications for the risk-return trade-off.

**Stiroh** studies the implications for risk-adjusted profits of the shift in the activities of U.S. bank holding companies (BHCs) towards a wider range of financial services. This shift was encouraged by many factors, including regulatory changes, such as the Gramm-Leach-Bliley Act of 1999. This act explicitly allowed bank holding companies and their subsidiaries to engage in a host of new activities, such as brokerage, portfolio advice, and underwriting. The authors find evidence of diversification benefits in terms of higher risk-adjusted profits across BHCs, but these benefits are offset by increased exposure to activities that are associated with lower risk-adjusted profits.

In a related paper, **D'Souza and Lai** study how the efficiency of Canadian banks is affected by regional and industrial diversification in portfolios, as well as by diversification in business lines and financing sources. They construct a measure of efficiency using a portfolio-allocation approach. The authors find that bank efficiency is increased by diversification of business lines and financing sources; reduced by regional diversification; and unaffected by industrial diversification. The discussant of the paper found this approach to be an improvement over the existing literature because it explicitly takes into account the risk-return trade-off facing banks and, hence, the overall welfare of banks and depositors. The discussant also noted that, in future work, it may be useful to look at some of the model's assumptions,

which appear to be overly simplistic. For example, the model does not explicitly account for informational frictions or for non-pecuniary elements in bank returns that are not captured in price and market-return data (e.g., credit rationing and the use of collateral).

These papers highlight the importance of studying diversification using measures that explicitly account for the risk-return trade-off. If it is true that diversification does not always raise the risk-adjusted returns to banks, future work should concentrate on determining the reasons why banks are not making more profitable portfolio choices. At the same time, discussion by conference participants revealed many deficiencies in the data used (e.g., short sample periods, combining book and market value data, the omission of some activities such as off-balance-sheet activities), pointing to a major challenge in this type of analysis.

## Financial Sector Regulation

The Bank of Canada is very interested in how the regulatory environment, including the regulations themselves, supervision, or regulatory governance (the governance arrangements of the regulatory agencies themselves), can best promote macrofinancial stability. The regulatory environment is defined by the rules and incentives that influence the decisions of regulators, financial institutions, and non-financial agents. Getting the incentives right is important for sound economic performance, and these incentives must adapt to a changing financial landscape. Several aspects of this issue were addressed at the conference, including the relationship between governance and financial sector soundness, the theoretical basis of bank regulations for capital requirements, and the implications of bank capital requirements for the transmission of monetary policy.

**Das et al.** study the relationship between regulatory governance and the soundness of the banking sector. They construct indexes of banking sector soundness, regulatory governance, and public sector governance for a large number of countries. They then test whether these indexes are related to the capacity of the banking sector to withstand shocks. Their regression results indicate that good regulatory governance has a statistically significant, positive influence on banking sector soundness. The results also

indicate that macroeconomic conditions, as well as the quality of political institutions and public sector governance also contribute to banking system soundness. The main lesson from this paper for policy-makers is that good regulatory governance will pay off in terms of soundness in the domestic financial system. The authors suggest that future work could extend these tests beyond the banking sector to the entire financial system.

**Dionne's** analysis of the optimal design of regulation for the banking sector is based on an extensive review of the literature. He argues that bank regulation can be justified in principle by the possibility that bank runs could prevent banks from playing their crucial role as the main provider of liquidity to the economy. The author views deposit insurance as one type of regulation capable of mitigating that risk. That said, Dionne thinks that national authorities should continue to improve deposit insurance by better aligning its pricing with individual bank risk. Authorities should also explore the possibility of using other regulatory tools such as subordinated debt and should work on improving bank governance. With respect to minimum capital-adequacy requirements, Dionne argues that there is little evidence that this approach reduces bank risk and some evidence that it may be the source of costly distortions.

**Gale** voices similar concerns about capital-adequacy requirements. He builds a simple model of an economy with a financial sector in which banks play a pivotal role. The main conclusion from this model is that imposing constraints on capital adequacy does not improve overall welfare. This is because market forces ensure that banks choose the right capital structure in equilibrium. Extensions of the basic model generate cases where the allocation of resources determined by the market is not necessarily optimal, but minimum capital requirements still do not seem to be welfare improving. While this work raises important questions, the applicability of its findings for policy may be limited by the simplicity of the model.

Changes in capital requirements can, in principle, affect how banks price risk and change the cyclical properties of bank capital. **Van den Heuvel** examines how capital-adequacy requirements alter the role of bank lending in the transmission of monetary policy. He constructs a dynamic model of bank asset and liability

management that incorporates risk-based capital requirements. This model shows that monetary policy effects on bank lending depend on the capital adequacy of the banking sector and that shocks to bank profits can have a persistent effect on lending. Bank capital affects bank lending even when the regulatory constraints on bank capital are not binding. Given new capital requirements under Basel II and their potential to change the dynamics of bank capital, more research in the area of the interaction between bank-capital standards and monetary policy is very important.

**Chant** focuses on the governance of Canadian banks, investigating whether linkages between bank boards and the boards of non-financial corporations influence the pattern and performance of bank lending. Based on a preliminary exploration of Canadian data on bank loans, board linkages, and credit ratings, he reaches four main conclusions: i) Canadian banks are more likely to lend to corporations with which they share board linkages than to corporations linked with other banks; ii) the tendency to lend to linked corporations is stronger where the link involves a corporate officer than where it consists of shared directors; iii) there is weak evidence that corporations that receive loans from banks linked by officers have a higher probability of experiencing a downgraded credit rating than corporate borrowers in general; and iv) there is no evidence that the credit-rating experience of borrowers linked to the lending bank through directors differs from that of other borrowers. The author points out that more work is needed to test the robustness of these results, particularly given the short sample period used in the analysis. Future research could also focus on the factors that may be driving these results, including the possibility that there may be informational advantages to banks from corporate links.

## Conclusions

The conference papers highlight the important interaction between financial governance and financial and economic activity. For example, there is compelling evidence that good regulatory governance is key to the sound functioning of the financial system. Also, there is evidence that regulation of bank capital can have important implications for the portfolio choices of banks



and for the monetary policy transmission mechanism.

As the conference panellists noted, however, the conference raised more good questions for future research than it provided clear policy recommendations. For instance, the papers presented by Dionne and Gale underscore the need for further research on the appropriate design and effects of bank-capital requirements. More work in the area of contagion is also needed to fully understand how shocks are propagated through the financial system.

In pursuing this work, it will be important to emphasize the development of theoretical and empirical models that include key real-world characteristics and that could be used to guide policy-makers.

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# Bank of Canada Workshop on Regulation, Transparency, and the Quality of Fixed-Income Markets

Lorie Zorn

In February 2004, the Bank of Canada hosted a two-day workshop, *Regulation, Transparency, and the Quality of Fixed-Income Markets*. The event brought together international academics, regulators, and market participants to discuss changes in fixed-income markets and how the regulatory environment, particularly with respect to the dissemination of trade-related information, might evolve in the context of rapid technological change. This article presents the highlights of this workshop.

## Background

Technological innovation in securities trading has presented opportunities for enhancing the quality of financial markets, partly by facilitating increased transparency. In this context, transparency refers to the ability of market participants to observe information regarding quotes, prices, and volumes. Technological changes have also provided challenges for the evolution of a regulatory regime that supports the liquidity and price-discovery aspects of market quality, while fostering innovation, competition, and market integrity.

Although the finance literature broadly supports the view that greater transparency leads to greater market liquidity and efficiency, regulators around the world have found that the application of theories to actual markets is complex. In the case of fixed-income markets, this is further complicated by the dearth of data and research on securities traded over-the-counter (OTC). Most studies have been based on exchange-traded equities. More recent research and market participants themselves have suggested that, at a certain point, a trade-off exists between greater transparency and the liquidity of fixed-income markets.

## Workshop Themes

To examine these issues and to facilitate the discussion, workshop participants were directed to consider three fundamental questions:

- **How has technological innovation affected transparency and market quality?** To support well-functioning financial markets, it is important to understand the effects of technological change on factors such as transparency, liquidity, and efficiency. Because these factors are interrelated, any discussion of one cannot be undertaken without also considering the others.
- **What is the role of financial market regulation in light of these developments?** Advances in trading technologies may not result in enhanced market quality overall. An assessment is needed of whether regulatory intervention is required and whether certain aspects of market quality and certain sectors of the marketplace require particular attention.
- **How can the regulatory framework support market quality and, at the same time, foster continued innovation?** Trade-offs exist not only in improving certain aspects of market quality, but also in addressing the differing needs of various markets and market structures. The regulatory framework should recognize and accommodate these differences.

The workshop presentations and discussions highlighted several key issues that should be considered in the near-term development of financial market regulation. These include the advantage of evolutionary change; ownership rights with respect to trade-related information; the relationship between market structure and

market quality; accessibility by the retail investor; the definition of best execution; and lessons drawn from the experience of other jurisdictions.

The opinions of workshop participants on these issues and, more generally, with respect to the underlying workshop themes, are outlined in this article. First, there is a brief overview of how electronic trading has evolved, particularly in the government bond markets of the United States, Europe, and Canada. This is followed by the key issues in fixed-income regulation raised at the workshop. Finally, suggestions are presented for the role of financial market regulation in the current environment.

## **The Evolution of Electronic Trading in Fixed-Income Markets**

Electronic trading systems have advanced more rapidly in the United States and Europe than they have in Canada. Presentations by workshop participants suggest that innovations in fixed-income trading have improved market quality. Although trading technologies have not significantly altered the traditional dealer-based structure of fixed-income markets, they have enhanced it.

The Bond Market Association (BMA) estimates that there are 77 electronic trading platforms in the United States and Europe, and these are most popular in the interdealer sector. Although electronic trading accounts for a sizable number of customer-dealer trades in government bond markets—i.e., the highly liquid issues of U.S. Treasuries and European government bonds—it does not represent the majority of trading by dollar value. For large trades and during times of market stress, clients still value the liquidity and the “market colour” that they can receive directly through an investment dealer.

Electronic interdealer broker (IDB) screens have been available to U.S. dealers since the mid-1970s. But it was not until the creation of GovPX in 1990 that IDB trade information became more broadly accessible. Over the subsequent ten years, electronic trading systems proliferated in the United States, enabling traders to access prices electronically and in many cases execute trades on-line.

According to Euro MTS, a major interdealer electronic trading system, technological changes in the past decade have had a greater impact on European government bond markets, because these markets were initially more fragmented across individual countries and were less transparent than those in the United States. Electronic trading systems have allowed quote information to be more broadly available and have also permitted the costs of trading and settlement to decline, which significantly increased turnover and liquidity.

Technological innovation in electronic trading has been comparatively slower to develop in Canada. While the four Canadian IDBs have electronic capabilities, trading still occurs via telephone. Since March 2001, CanPX has enabled subscribers to access some IDB trade data initially on government bond trades and later for trades in selected corporate debt. This system has the potential to significantly enhance the transparency of Canadian fixed-income markets. Three alternative trading systems (ATs) have been launched in Canada in the past few years. The volume of electronic trades is growing, but it is still too early to conclude whether or not these systems will be profitable or will be adopted by market participants.

Overall, the experience, particularly from the United States and Europe, indicates that technological changes have had positive effects on price discovery because of the greater availability and centralization of information. It was also suggested that the liquidity of fixed-income markets in benchmark issues of government bonds has benefited from these changes. Nevertheless, electronic trading platforms have not diminished the need for dealer services. Fixed-income markets are still largely decentralized, relying on dealers to provide a market-making function.

## **Highlighted Issues in the Regulation of Fixed-Income Markets**

### **Evolution versus revolution**

In the development of electronic trading systems and in the regulation of financial markets, it was suggested that success is linked to making

small, gradual changes, so that market participants can easily adapt.

In fixed-income trading, evidence suggests that those enterprises that have leveraged existing practices tend to be successful. Trading on electronic platforms has flourished on systems that have automated and electronically linked different stages of a trade, from the search for a counterparty through to clearing and settlement. Industry-driven improvements, such as the ongoing development of a common communications protocol and straight-through processing, have been built on existing practices. Although these changes have generally evolved by degrees, their qualitative impact on financial markets has been positive and significant.

In securities regulation, those changes that have incorporated extensive consultations with market participants and have allowed gradual modifications in requirements seem to have been successful. For example, the TRACE<sup>1</sup> project in the United States was implemented in three distinct stages over a two-year period. The preliminary evaluation of the program, from both regulators and market participants, is that it has improved market quality.

### **Ownership rights with respect to information**

A question implicit in examining the regulation of transparency is, Who should benefit from trade-related information? Although there was a general sense that more information is usually better for those who are uninformed, how to protect the interests of those who generate that information was unclear.

One view from the IDB perspective is that those outside a trading sphere should not be allowed to free ride. For example, interdealer brokers supply the quote and trade information published on CanPX, but they don't receive any direct benefits. It was suggested that the level of transparency should be appropriate to the

function and to the market served. It was also suggested that institutions servicing a market group should find their own solutions to meeting the information needs of that group. This implies that the dealers, not the IDBs, should develop ways to better inform their customers.

It was also established that trader identity is valuable information and that its publication could damage the ability of traders to manage risk. The general view at the workshop was that trader anonymity should be upheld.

### **Liquidity, transparency, and market structure**

Fixed-income markets rely on market-makers to provide liquidity. The appropriate level of transparency must therefore balance the desire for more information with the dealers' motivation to limit information so that they can continue to conduct market-making services profitably. This trade-off depends on how trading is structured. Two perspectives regarding the relationship between transparency, liquidity, and market structure emerged at the workshop:

i) At one extreme, in a traditional, quote-driven fixed-income market, dealers compete for customer order flow. The information that dealers receive in conducting their business affects their ability to make a profit. And their ability to conduct business profitably, in turn, affects the supply of market liquidity. If forced to give up all trade-related information, their incentive to compete to make markets will decline, and higher prices could result. This in turn affects the ability of customers to manage their investment needs. One view from workshop participants is that limits on the dissemination of trade-related information in the OTC fixed-income marketplace benefits market liquidity and overall market quality.

ii) At the other extreme, based on evidence from more centralized, order-driven marketplaces with higher transparency, the view is that the widespread availability of trade information motivates market-makers to be more competitive. It was suggested at the workshop that this type of trading structure can provide better price discovery and more efficient execution in terms of low cost and best price, resulting in improved liquidity overall. It was implied that this is particularly true for commoditized financial assets, such as government securities. As such, the

1. The Trade Reporting and Compliance System is a post-trade transparency system launched in July 2002. All National Association of Securities Dealers dealers and IDBs are required to submit the results of their trades in corporate bonds within a specified time. The information is then entered into a database used for market surveillance. Results with respect to the most liquid securities are publicly redistributed via TRACE in order to enhance transparency.

enhanced transparency offered by fixed-income ATSs could contribute to improved market quality.

In Canada, a large portion of trading in the secondary market is conducted through the major bank-owned dealers. CanDeal, a fixed-income ATS in Canada, has automated the traditional dealer-based trading structure and has increased transparency for institutional investors. It has also offered a new source of liquidity to smaller institutional investors by enhancing their access to the dealers. However, it is not currently available to the retail sector. The trading platforms under CollectiveBid (BondMatch) and Bloomberg (BondTrader) have also provided institutional investors with greater access to information. Moreover, these systems offer an alternative trading model that could potentially provide a new source of market liquidity, since clients are able to trade with each other. In practical terms, only BondMatch offers retail investors access, via a broker, to a broader number of dealer counterparties.

### **Retail access**

During the workshop, it became apparent that the retail sector has played a smaller role in the transparency debate than the wholesale sector. Retail investors typically represent a small proportion of the volume of fixed-income trading, but changing demographics may bring an increase in retail participation and focus more interest in retail issues. Accessibility to information and investment expertise is one such issue.

To date, fixed-income trading activity has been relatively concentrated, dominated by a small number of high-value transactions undertaken by a few highly skilled participants. These are usually large institutional customers, such as pension funds. Retail customers constitute a very small percentage of the volume of fixed-income trading. In contrast, retail transactions account for a much larger volume of equity market trading. Because the retail trading volume is relatively small in fixed-income markets, retail investors are relatively less informed than institutional investors.

One opinion echoed by many workshop participants was that fair markets require access to both information and to comparable levels of investment expertise. For the retail investor, this refers not only to price, but also to other market-

moving information. Sources of information accessible to the retail investor are limited, and it was suggested that, in some cases, even retail brokers do not have access to all available information. In terms of expertise, retail investors are usually considered to be less sophisticated, having limited experience and limited resources for analysis relative to institutional investors.

Because of this lack of sophistication and resources, retail investors appear to be price-takers in fixed-income markets and will likely pay more to transact than their institutional counterparts. A study of the U.S. municipal bond market, for example, indicated that not only are transactions costs higher for retail versus institutional customers, but that they are high considering the minimal level of credit risk. Government securities are on the opposite end of the credit spectrum from common equities, but despite their lower credit risk, retail costs are greater for bonds than for equities. It was suggested that the broader dissemination of trade-related information for equities might contribute to this discrepancy.

This would suggest that transparency in fixed-income markets could be increased. As some institutional investors acknowledge, they can afford to share information as long as the supply of liquidity from the dealers is not affected. With more information, there can be more confidence in valuing trades, and trading by the retail public would likely increase. In particular, as the aging baby-boomer population becomes more conservative in its portfolio management, it has the potential to increase its participation in the fixed-income market. However, many workshop participants conceded that any increase in trade-related information should also be accompanied by more education, if the retail investor is to become more sophisticated and more active in fixed-income markets.

### **Best execution**

Given the diverse needs of investors, many workshop participants were of the opinion that the term “best execution” should refer to the process surrounding a trade. However, best execution is most often considered in the context of a client receiving the best price in a transaction. In centralized equity markets, where transparency is fairly high, there is less risk of price misjudgment than in fixed-income markets, where



most of the market is decentralized and transparency is limited.

Best execution does not appear to be an issue for the experienced and informed institutional investor, particularly the larger ones. These market participants can threaten to withdraw business from a dealer if they perceive that they have been treated unfairly. Market forces will therefore likely ensure that these institutional investors receive best execution.

Workshop participants felt that on the retail side, investors are not as sophisticated, nor as powerful. Although wealth-management professionals realize their obligation to provide best execution to their customers, this service is not accessible to all. This implies that trade data are critical in order for regulators to assess market integrity and to protect all retail investors.

In the United States, both investors and brokers feel that the TRACE project has helped them to gauge whether they are getting fair prices and quality service. The data from this project have also made U.S. regulators aware that perceptions in the marketplace are not always accurate; i.e., individuals may know less about the marketplace than they think they do. This applies not only to investors, but also to brokers, dealers, and regulators.

### **Lessons from the international perspective**

Four key lessons can be drawn from the experiences of non-Canadian regulators participating at the workshop:

- i) Regulators need to work with market participants to manage change in a gradual and thoughtful manner. Crisis-driven change is not desirable. Regulators should focus on the net long-term benefits, while being aware of the potential damages that may occur in the process.
- ii) Canadian regulators can benefit from the experiences of other regulators. Although markets differ, there are similarities on which Canadian regulators should focus. The U.K. Financial Services Authority (FSA) has supported a functional approach to transparency, where information requirements are microstructure specific. However, the FSA is now also considering requirements for fixed-income markets that differ from those for equity markets. In contrast, the U.S. approach is that transparency requirements

should be imposed uniformly across a market, regardless of the trading mechanism.

iii) Thorough study and evaluation are key. The information requirements of the marketplace should be assessed before mandating change, and the impact of change should be studied before further changes are implemented. In addition, because certain potential users of this information may not be aware of its availability or applicability, it was suggested that enhanced transparency initiatives should be supported by investor education.

iv) Consideration should be given to the costs of transparency reporting. Ideally, those who receive the value from the information should pay, but often this is not practical. Under the TRACE system, the National Association of Securities Dealers collects fees from those who report and from those to whom the data are sold. In Canada, it was suggested that the small number of market-makers might be unduly burdened by such a system.

### **The Role of Financial Market Regulation**

Workshop participants seemed to agree that for well-functioning markets regulators need to focus on two key objectives: promoting fairness and protecting the interests of investors.

The balance of opinion would suggest that fairness in the marketplace refers to investor access to information and trading opportunities, as well as to fairness in terms of competition. While investors should not be allowed to free ride on the information of other traders, they should have better decision-making ability. Regulation should support an increase in transparency, with special consideration for retail investors. At the same time, regulation needs to recognize the property rights of traders, the value of trade information, and the importance of trader anonymity. Regulation could also facilitate customers' ability to trade without a dealer.

In terms of fairness in competition, it was suggested that regulators allow specialization to occur, even if it appears as fragmentation of the marketplace. To level the playing field, similar rules should be established for competitors performing the same activities. Support of one group may be justified, however, in order to better develop the market.

It was generally agreed that investor protection should be aimed mainly at the retail investor. Large institutional investors are able to look after their own interests, and market forces will generally guide the best outcomes for this market segment. Retail investors do not have the same level of resources or knowledge, and best-execution rules are not always sufficient. Some investors will place more importance on factors other than price, such as the speed of execution. Regulators should bolster the “know-thy-client” requirements for retail brokers and monitor this aspect of intermediary activity.

## **Insights for the Canadian Fixed-Income Market**

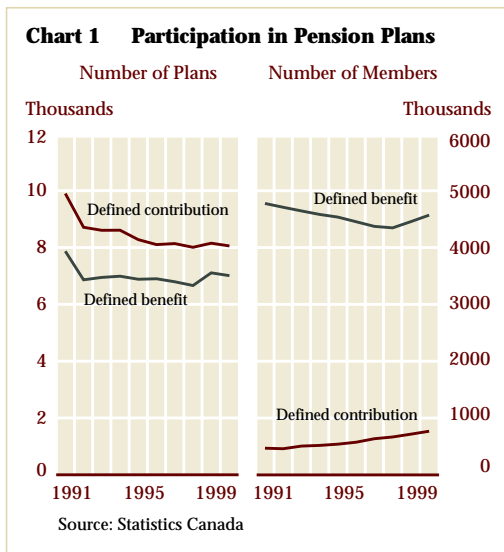
Evidence from foreign jurisdictions and limited academic research, plus acknowledgement from institutional investors themselves, suggests not only that enhanced transparency is required, but also that the market will adapt to it, support it, and ultimately benefit from it in the longer term. But every market has unique characteristics, which determine the amount and kind of information that is needed. The optimal level of transparency is not necessarily full transparency.

Although the participants agreed that the status quo does function well overall, particularly for the dealers and their large institutional clients, it would appear that improvements can be made to benefit smaller institutional investors and retail investors. Competitive forces might eventually bring about these required changes, but, given the characteristics of the Canadian fixed-income market, change will occur more quickly if supported by regulatory action.

The best results are likely to occur when regulatory changes are well thought out, implemented in measured steps, and when effects are evaluated thoroughly before proceeding further. It is the responsibility of all stakeholders to take a more active role in transparency issues going forward in order to help protect their interests and shape desirable outcomes.

# What Is the Funding Status of Corporate Defined-Benefit Pension Plans in Canada?

*Jim Armstrong*



In recent years, the funding adequacy of defined-benefit pension plans—in Canada and in other industrial economies—has deteriorated markedly, reflecting financial market developments that have adversely affected both fund assets and liabilities. Unfunded pension obligations can adversely affect the financial condition of the sponsoring corporation, representing a potential drain on cash flow and a reduction in the net worth of the firm. In the extreme, this could have implications for financial stability.

A *defined-benefit* pension plan provides plan members with a predetermined level of pension income when they retire—the exact level depends on variables such as income and years of plan membership—and employer sponsors tend to assume a large proportion of the risk of meeting that benefit. This contrasts with *defined-contribution* plans, where employer and employee contributions are defined (often as a fixed percentage of employee income), and employees typically assume most of the risk of achieving a certain level of pension income. In Canada, defined-contribution plans account for a greater number of *plans*, but defined-benefit plans account for a much larger share of plan *members*, reflecting the fact that many of the largest plans are of the defined-benefit type (Chart 1).

## Background

Weak equity markets from 2000 through late 2002 initially raised concerns about the deteriorating funding condition of corporate defined-benefit pension plans. This is because the typical large Canadian corporate pension fund has 50 to 60 per cent of its assets invested in equities, a proportion that has tended to rise in

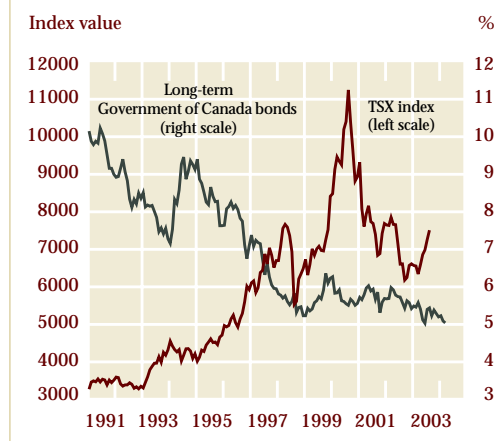


recent years.<sup>1</sup> Furthermore, pension plan funding positions have also been adversely affected by the decline in long-term interest rates, which increases estimates of pension plan actuarial liabilities that reflect mainly the present value of future retirement benefits.<sup>2</sup> Chart 2 presents the trend in the equity market and the yield on long-term bonds in Canada over the period in question.

Compounding the funding problem has been the fact that many plan sponsors took contribution holidays when plans were in surplus during the rising equity market of the late 1990s. These contribution holidays were, to some extent, a matter of choice by sponsors, although they also reflected regulations imposed under the Income Tax Act related to the maximum allowable surplus.<sup>3</sup>

Demographic and employment trends suggest that, in five to ten years, some companies might have one retiree for every active employee. Thus, the underlying growth in pension liabilities is continuous and may be accelerating. When the asset base stops growing and actually declines, as it did during the latest bear market, large funding gaps can arise very quickly. The additional boost to plan liabilities from declining interest rates aggravates the funding problem.

**Chart 2 Key Variables Affecting Pension Deficits in Canada**



1. Greater investment in equities by pension plans has been motivated by the belief that they will earn returns 2 to 3 per cent higher than those on bonds over the long run. Equities can, however, impart considerable risk, in the form of volatility, to portfolio returns because they represent a “mismatch” with plan liabilities, which tend to move with interest rates.
2. Lower bond yields should be favourable for bond holdings (which typically comprise about 40 per cent of pension plan assets) but unfavourable for the present value of liabilities, which comprise 100 per cent of the balance sheet. Therefore, the net effect is substantially unfavourable. This problem is amplified by the fact that the duration of bond holdings tends to be shorter than the duration of liabilities.
3. Under Section 147.2 of the Income Tax Act, employer contributions to registered pension plans must stop when a certain maximum allowable surplus is reached. Excess surplus is defined as the lesser of a) 20 per cent of liabilities and b) the greater of 10 per cent of liabilities and twice the annual service cost.

## Pension Funding Regulations and the Corporate Sponsor

Pension plans in Canada are regulated at either the federal or provincial level, depending on whether employees work in areas that fall under federal or provincial jurisdiction. The Office of the Superintendent of Financial Institutions (OSFI) oversees the plans of businesses under federal jurisdiction, such as banking, transportation, and communications, as well as those of federal Crown corporations under the Pension Benefit Standards Act, 1985 (PBSA). Each province, in turn, has its own pension legislation and regulations; however, the legislation tends to be reasonably similar across provinces.<sup>4</sup>

Canadian pension plans must file an actuarial valuation report at least once every three years with their regulator (be it federal or provincial). Both a *going-concern* and a *solvency* valuation are required. The going-concern assessment can be based on either market values or long-run values for plan assets, the latter being derived from smoothing or modelling procedures; liabilities are calculated as the present value of the expected stream of pension payments, factoring in the effect of variables such as salary increases. A going-concern deficit (i.e., liabilities exceed assets) must be funded by the employer over a maximum of 15 years.

A solvency assessment is made on the assumption that the plan is wound up on valuation day. This method typically uses market value or fair value for plan assets and windup values for plan liabilities.<sup>5</sup> A solvency deficit must be funded over a maximum of five years.

In the current environment, many pension plans are facing solvency deficits. If a valuation report has been filed showing a deficiency, the regulators would normally require annual contributions sufficient to cover current service costs and,

at the same time, close the solvency shortfall over the mandatory five-year time frame.

The existence of pension deficits, particularly of the *solvency* variety, and the requirement for additional pension contributions, can pose financial hardship for the sponsoring corporation. The degree of potential stress for the sponsor depends on the magnitude of the required payments relative to the size of the firm, as well as on the firm's own financial condition. Indeed, a pension obligation, although "off-balance-sheet," is a legal liability, which can ultimately force a firm into bankruptcy if the contributions required by the regulator cannot be met. Thus, pension deficits represent a potential claim on the earnings and net worth of the corporation.<sup>6</sup>

## Recent Developments in Pension Funding

Many of Canada's largest, publicly traded corporations offer their employees defined-benefit pension plans.<sup>7</sup> In aggregate, these plans have fallen heavily into deficit since 2000 (see Table 1). For example, National Bank Financial has estimated that the 79 companies in the TSX large-cap and mid-cap indexes with defined-benefit plans went from an aggregate *surplus* of about \$18 billion at the end of 2000 to an aggregate *deficit* of \$20 billion at the end of 2002 (National Bank Financial 2003).<sup>8</sup> This translates to a deterioration in the funding ratio—the ratio of plan assets to liabilities—of 28 per cent, that is, from 114 per cent to 86 per cent.<sup>9</sup>

A more recent study that examines a different sample of 68 large defined-benefit plans (including both public and private sector plans) over a somewhat longer time span (from 1999

4. Many of the largest plans are licensed in Ontario. The Financial Services Commission of Ontario supervises plans licensed in Ontario through its Pension Plans Branch. It is responsible for supervising about 47 per cent of all plans in Canada and 35 per cent of plan members.

5. Since under this exercise the plan is hypothetically being wound up, solvency liabilities are calculated by determining the cost of securing the promised benefits elsewhere—for example, through purchases of annuity contracts—on the valuation day.

6. In 2003, General Motors in the United States completed a US\$18 billion bond issue for the sole purpose of covering funding shortfalls in its pension plans.

7. While some companies have converted their defined-benefit plans to defined-contribution plans, this has not been the norm in Canada. Instead, more firms are offering their employees a defined-contribution option and are often requiring that new employees take this option. Large corporations frequently have several pension plans operating in various jurisdictions.

8. Other studies by UBS Warburg and the UWO Ivey School of Business arrive at similar estimates to the end of 2002 using slightly different survey samples.

9. Note that these data are based on the accounting or Canadian GAAP measure of pension deficits as opposed to the regulatory funding measure that is used through the rest of this report.

to 2002) estimates that the aggregate funding ratio of those plans has deteriorated by about 30 per cent (Ambachtsheer 2004).

Monitoring the trend in pension funding can be difficult because most public companies report the funding situation for their pension plans only once a year, at fiscal year-end. However, more current information can be gleaned from “synthetic” indexes, which model on a monthly basis the cumulative impact of market movements on the funding position of a “typical” Canadian corporate defined-benefit pension plan. Such measures suggest that the funding situation for the average defined-benefit plan barely improved in 2003 in spite of very strong equity markets in that year.<sup>10</sup> This can be explained by the fact that liabilities grew almost as fast as assets, partly because of declining interest rates. Chart 3 presents the components of the Watson Wyatt Pension Barometer, which are indexes of pension liabilities, assets, and the funding ratio (i.e., the asset/liability index) over the past ten years for a representative pension fund. It indicates that in 2003, a plan with an asset mix of 60/40 equity/fixed income would have seen its assets grow by 14.5 per cent in 2003. But these gains were largely neutralized by the 12.5 per cent growth in liabilities. In terms of this liability growth, about 7.1 percentage points represented normal growth. The remaining 5.4 percentage points resulted from a decline of 36 basis points in the discount rate—proxied by the yield on long-term Canada bonds—over the year. The net result is that the funding ratio improved by only a modest 2 per cent in 2003.<sup>11</sup>

## Distribution of the Funding Problem

Discussion about the condition of an average or representative pension plan is useful only up to a point. To more accurately assess the financial stability implications of pension funding

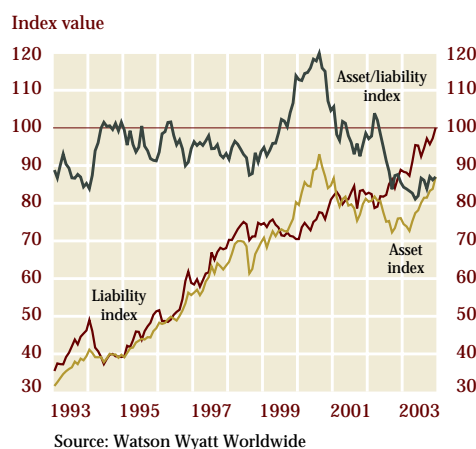
Table 1

Statistics for Corporate Defined-Benefit Plans

|  | 2000  | 2001  | 2002  | 2003 (est.) |
|--|-------|-------|-------|-------------|
| Number of overfunded companies         | 57    | 27    | 13    | 16          |
| Number of underfunded companies        | 22    | 52    | 66    | 63          |
| Plan liabilities (\$ billions)         | 122.8 | 134.0 | 140.9 | 158.5       |
| Funding position (\$ billions)         | 17.8  | -2.5  | -20.3 | -19.0       |
| Funding ratio – assets/liabilities (%) | 114.0 | 98.0  | 86.0  | 88.0        |
| Median discount rate (%)               | 7.0   | 6.75  | 6.5   | 6.14        |

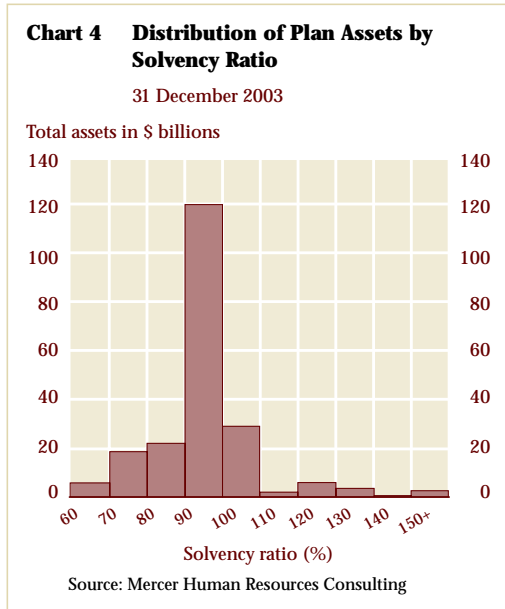
Source: National Bank Financial, except for 2003 which are estimates produced by Bank of Canada staff. These estimates assume the same sample of firms as in the preceding years.

Chart 3 Pension Barometer



10. The TSX increased 24 per cent in 2003.

11. Improvement in pension funding for Canadian plans was also constrained in 2003 by the strong appreciation of the Canadian dollar, which adversely affected returns on plan holdings of foreign equities. Most pension funds do not hedge against foreign exchange risk. For example, the U.S. S&P 500 Index rose 26.4 per cent in 2003, but in Canadian-dollar terms it rose just 4 per cent.



deficits, information about the distribution of these deficits (and surpluses) is required.

In this context, Mercer Human Resources Consulting has provided the Bank of Canada with information drawn from its client database of about 850 plans—both private sector and public sector—and aggregated to protect confidentiality. Using Statistics Canada data as a benchmark, Mercer estimates that its client base represents about 30 per cent of the assets of registered defined-benefit pension plans in Canada.

For each plan in the database, Mercer extrapolates the plan's financial condition on both a going-concern and solvency basis, from the last actuarial valuation up to 31 December 2003, taking into account actual market returns, the plan's asset mix, and estimated funding contributions.

### Distribution of solvency ratios

Chart 4 presents the distribution of plan assets on a solvency basis as of 31 December 2003. It indicates that two-thirds of assets were in plans that were only moderately underfunded, with a solvency ratio (assets/liabilities) between 90 and 99 per cent. Only a small proportion of assets—about 10 per cent—are accounted for by plans with solvency ratios of 80 per cent or lower.<sup>12</sup> Similarly, a small proportion of assets appear to have positive solvency ratios at this point. Most of these assets fall in the 100 to 110 per cent range.

### Funding projections to the end of 2008

In a forward-looking exercise, Mercer uses a model to project solvency ratios five years ahead to 31 December 2008 under three economic scenarios: baseline, pessimistic, and optimistic.<sup>13</sup>

The *baseline* scenario is essentially a continuation of the current low-inflation environment over the projected horizon. The *optimistic* scenario assumes financial market developments that are more favourable for pension plan valuations—that is, higher inflation, higher interest rates, and higher equity returns. This scenario

12. These represent about 220 of the 850 plans.

13. Projections are derived from a stochastic model that incorporates key economic variables and rates of return on major asset classes.

uses the 5-year 25th percentiles of these variables under Mercer's stochastic model. The *pessimistic* scenario is characterized by lower inflation, lower interest rates, and lower equity returns and employs the 5-year 75th percentiles of these variables. Table 2 presents the assumptions used in the projections, while Table 3 presents the total portfolio returns for each year under each economic scenario, assuming a representative asset mix of 57 per cent equities (domestic and foreign) and 43 per cent fixed-income assets.<sup>14</sup>

Mercer makes this projection (Tables 4 and 5) for two sets of plans—the group of plans in deficit and the group in surplus, as at 31 December 2003.

The solvency projections incorporate the projections for market returns, as well as the regulatory rules for funding. Plans in solvency deficit as at 31 December 2003 are assumed to be put on a contribution schedule that would eliminate those deficits over five years. The solvency position is reassessed at the end of each year and the contribution schedule revised, if required. Plans in surplus at the starting point are assumed to make contributions to cover normal pension-service costs unless the surplus exceeds the limits imposed by the Income Tax Act, at which point contributions must stop.

It can be seen from Table 4 that under the baseline scenario, plans that have solvency deficits as at 31 December 2003 are expected, in aggregate, to remain slightly in deficit as at 31 December 2008, even if special solvency payments are made. The reason for this is that the baseline return on assets (around 6 per cent for a typical asset mix) is not sufficient to cover the growth in liabilities.<sup>15</sup> Under the baseline projection, the aggregate solvency ratio for this group of plans does, however, improve materially from 89 per cent to 97 per cent.<sup>16</sup> Under the

14. The actual asset mix of each plan in the sample is used in the projection.
15. Under the assumed scenario for interest rates and return on assets, liabilities grow more than assets each year. The special solvency payments are calculated annually based on the current deficiency and are not based on a forward-looking assessment of the trend.
16. Furthermore, under the baseline projection the number of plans in deficit drops from 603 in 2003 to 519 in 2008.

**Table 2**  
**Economic Assumptions Used in the Mercer Projection**  
Per cent

| Economic variable                               | Initial level<br>(January 2004) | Scenario |             |            |
|---|---------------------------------|----------|-------------|------------|
|   |                                 | Baseline | Pessimistic | Optimistic |
| Inflation                                       | 2.34                            | 2.34     | 1.59        | 3.34       |
| Yield on treasury bills                         | 2.58                            | 3.46     | 2.72        | 4.47       |
| Yield on Government of Canada bonds (10 years+) | 5.13                            | 5.13     | 4.38        | 6.13       |
| 5-year equity return                            | 8.20 <sup>a</sup>               | 8.15     | 3.60        | 13.20      |
| Risk premium on equities <sup>b</sup>           | 2.95                            | 2.95     | 2.95        | 2.95       |

a. Canadian equity return. Projected returns assume equal mix of Canadian, U.S., and international equities.  
b. Spread over yields on long-term Canada bonds  
Source: Mercer Human Resources Consulting

**Table 3**  
**Portfolio Returns Incorporated in Mercer Projection**  
Per cent

| Year | Scenario |             |            |
|------|----------|-------------|------------|
|      | Baseline | Pessimistic | Optimistic |
| 2004 | 5.85     | 3.59        | 8.29       |
| 2005 | 5.91     | 3.59        | 8.45       |
| 2006 | 5.98     | 3.59        | 8.61       |
| 2007 | 6.04     | 3.59        | 8.76       |
| 2008 | 6.11     | 3.59        | 8.92       |

Source: Mercer Human Resources Consulting

**Table 4**  
**Projected Solvency Position in 2008 for Plans in Deficit as of 31 December 2003**  
\$ billions

|                                  | Estimates as of<br>31 December<br>2003 | Scenario |             |            |
|----------------------------------|--|----------|-------------|------------|
|                                  |  | Baseline | Pessimistic | Optimistic |
| Number of plans                  | 603                                    | 603      | 603         | 603        |
| Total solvency assets            | 166.2                                  | 239.7    | 223.0       | 256.2      |
| Total solvency liability         | 186.2                                  | 246.1    | 251.4       | 238.4      |
| Total solvency surplus/(deficit) | (20.0)                                 | (6.5)    | (28.4)      | 17.9       |
| Solvency ratio (%)               | 89                                     | 97       | 89          | 107        |

Source: Mercer Human Resources Consulting



Table 5

**Projected Solvency Position in 2008 for Plans in Surplus as of 31 December 2003**

\$ billions

|                                  | Estimates as of<br>31 December<br>2003 | Scenario |             |            |
|----------------------------------|--|----------|-------------|------------|
|                                  |  | Baseline | Pessimistic | Optimistic |
| Number of plans                  | 244                                    | 244      | 244         | 244        |
| Total solvency assets            | 43.1                                   | 51.1     | 47.2        | 56.8       |
| Total solvency liability         | 38.5                                   | 47.1     | 49.2        | 44.3       |
| Total solvency surplus/(deficit) | 4.6                                    | 4.0      | (2.0)       | 12.5       |
| Solvency ratio (%)               | 112                                    | 108      | 96          | 128        |

Source: Mercer Human Resources Consulting

pessimistic scenario, the aggregate ratio for these plans does not improve.

For the group of plans starting the period in surplus (Table 5) the solvency ratio actually declines under the baseline scenario—from 112 per cent to 108 per cent. This is explained by the fact that under this exercise, some plan sponsors use a portion of their surplus to take contribution holidays.

## Projected Burden of Funding Contributions

Funding contributions comprise the required employee contributions and the employer contributions, which include both the current service cost and special contributions, if any.

Table 6 shows that plans in deficit at the end of 2003 face the need to make substantial contributions that are relatively high as a share of payroll. Under the baseline scenario, the group of companies with plans in deficit at the start of the period will be paying between 19 and 21 per cent of their payroll over the projection period, compared with 4 to 5 per cent of payroll for companies with plans in surplus at the end of 2003. Under the pessimistic scenario, contributions in aggregate for the plans in deficit are about 22 to 25 per cent of payroll.

Table 6

**Funding Contributions as a Percentage of Payroll: Baseline Scenario**

|      | Plans with solvency deficit as of<br>31 December 2003 (603 plans) |                               | Plans with solvency surplus as of<br>31 December 2003 (246 plans) |                               |
|------|---|-------------------------------|---|-------------------------------|
|      | Employer:<br>Current service                                      | Employer:<br>Special payments | Employer:<br>Current service                                      | Employer:<br>Special payments |
| 2004 | 10  | 11                            | 4   | 0                             |
| 2005 | 10  | 11                            | 4   | 0                             |
| 2006 | 10  | 10                            | 5   | 0                             |
| 2007 | 10  | 10                            | 5   | 0                             |
| 2008 | 10  | 9                             | 5   | 0                             |

Source: Mercer Human Resources Consulting

## Conclusions

In spite of strong equity markets in 2003, the majority of defined-benefit pension plans in Canada are still facing moderate deficits, and a minority are facing more severe deficits.

It is possible to conclude that only a handful of plans are so severely underfunded that the requirement to make pension contributions may well call the viability of the sponsoring firms into question. A large number of firms will, however, need to make substantial contributions in order to close funding gaps, even in a generally benign financial market environment.

One interpretation of this result is that while difficulties in funding pensions may not pose meaningful risks for the stability of the financial system, they may represent a prolonged drain on corporate earnings and cash flow. This, in turn, could leave firms vulnerable to other shocks, such as an economic slowdown that significantly reduces cash flow.

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# The Organizational Structure of Financial Market Regulation: Highlights from the Literature

*Christine Fay and Nicolas Parent*

*The structure of securities market regulation in Canada is the focus of much debate among the federal and provincial governments, provincial securities commissions, industry participants, and academics. While the Bank of Canada is not directly involved in this debate, it has an interest in the efficiency of Canada's securities markets. This note reviews some of the issues raised in the academic literature regarding the organizational structure of financial market regulation.*

**R**apid technological change, the globalization of markets, and the increasing complexity of financial innovations are just a few of the factors that have dramatically altered the global financial environment. Given the magnitude of changes in the financial landscape on both a domestic and global scale, many countries have begun to question whether their current regulatory structures are still appropriate, and some have already implemented major reforms.

Canada's financial services sector underwent rapid changes in the 1980s, which led to a number of reforms.<sup>1</sup> More recently, however, the focus of reform has turned to the regulation of securities and, more generally, financial markets. In the past decade, provincial regulators and others have put forward various initiatives covering not only the development of financial markets, but also the harmonization of securities regulations across different jurisdictions in Canada. More recently, there has been a call for significant restructuring of the current regulatory structure for securities markets to better reflect the changing domestic and international environment. (See Box 4 on page 24.)

With so many complex developments unfolding, it is instructive to step back and ask whether we can gain any insights from a review of the academic literature. This article highlights some of the issues in the literature on regulatory structure that are relevant to the debate surrounding the

regulation of securities and financial markets. Although some of the literature presented is broad and encompasses the entire financial sector, our focus is on lessons for the structure of securities market regulation.

This article begins with a discussion of why the institutional structure of regulation matters. Following this, the three main approaches to the structure of regulation are outlined: institutional, functional, and objectives-based. Another aspect of the organizational structure of regulation concerns regulatory competition, which is related to the number of regulators (or agencies) covering a particular area within the financial market. This aspect is addressed through a discussion of the pros and cons of having a measure of regulatory competition instead of a single agency. In the final section, some of the unique issues related to self-regulatory organizations (SROs) are introduced.

## Why Does Structure Matter?

Goodhart et al. (1998) state that, above all, regulatory structure has an impact on the overall effectiveness of regulation and supervision because of the expertise, experience, and culture that develop within particular regulatory agencies. Other major considerations when determining the appropriate regulatory structure include effectiveness in handling conflicts, the different costs of structures, and the issue of overlaps (unnecessary duplication) and gaps (aspects of businesses or institutions that may fall through the regulatory net).

1. See Freedman and Goodlet (2002) and Daniel (2002–03).

Structural reform is not an end in itself, however, and does not guarantee more effective regulation. Effectiveness also depends, to a substantial extent, on the skill and judgment of the regulators themselves (McDonald 1996). As well, the structure itself might not be the most critical factor for success. Factors such as the clarity of roles and responsibilities and the sharing of information among agencies may, in practice, be more essential.

Finally, there is no single “perfect” structure for regulation. There can be many different but appropriate structures for the same economy, as well as across countries, and the appropriateness of these structures may change over time, as both the domestic and global financial landscapes evolve.

## Alternative Approaches to the Regulation of Financial Services

The literature has identified three broad approaches to regulating financial markets: the institutional approach, the functional approach, and the objectives-based approach. In practice, regulation can also be organized as a combination of these three approaches.

### Traditional approaches

The two main organizing principles that have been traditionally used in the structure of regulation are the institutional approach (by type of firm) and the functional approach (by type of activity).<sup>2</sup>

In the institutional approach, regulation covers each individual category of financial intermediary, which has made this approach particularly appropriate when considering prudential issues. Traditionally, each category of institution is assigned to a distinct agency for regulation of its entire range of activities. Since each intermediary has only one regulatory authority as a counterpart, duplication can be avoided, and the costs of regulation can potentially be reduced.

2. The debate on institutional versus functional regulation for financial institutions is an old one in Canada. It was raised with regard to financial institutions in 1976 by the Economic Council of Canada, and by the federal government in its 1985 Green Paper and its 1986 Blue Paper. (See references.)

However, with growing integration and the blurring of distinctions between different types of intermediaries, the obvious risk is that institutions performing similar functions can be regulated differently, which raises the issue of competitive neutrality.

The functional approach, on the other hand, focuses on the business undertaken by firms. Proponents of the functional approach include Macey and O’Hara (1999), Merton and Bodie (1995), and Steil (2001). Macey and O’Hara argue that the functional approach provides three main benefits: it applies the same rules to all intermediaries who perform the same activity; it allows firms to select the precise services they wish to offer; and it best supports the process of financial innovation, because it provides competitors with the maximum amount of flexibility consistent with regulatory objectives. Others argue, however, that the functional approach may lead to excessive specialization of competencies across regulatory agencies, and that the position of an institution as a whole may be obscured.

Goodhart et al. (1998) argue that a strict dichotomy between these two approaches is misleading because the two serve different purposes. In practice, it is the institution that can fail, so the institution itself needs to be regulated for safety and soundness; that is, for prudential reasons. Functional regulation, on the other hand, is concerned with how intermediaries conduct various aspects of their business and how they behave towards customers. For competitive neutrality to be maintained, this type of regulation, known as “conduct-of-business regulation,” must apply to particular aspects of business regardless of which type of institution conducts the business. So, while prudential regulation may be conducted by different agencies, conduct-of-business regulation needs to be equitable to all firms.

### The objectives-based approach

An approach that has been examined more recently is the objectives-based approach, which is advocated by Taylor (1995, 1996), Goodhart et al. (1998), and Di Giorgio and Di Noia (2001), among others, and has been the organizational approach used for Australia’s regulatory system. This approach postulates that all intermediaries and markets be subject to control by more than one authority, each of which is

responsible for one objective of regulation regardless of both the legal form of the intermediaries or of the activities they perform. The aim is to create a structure that reflects the objectives of regulation and, at the same time, promotes those objectives most effectively and efficiently. This approach is “*particularly effective in a highly-integrated market context and in the presence of poli-functional operators, conglomerates and groups operating in a variety of different business sectors.*” (Di Giorgio and Di Noia 2001).

Taylor (1995) provides an example of the objectives-based approach in his proposed twin-peaks model for the financial system (including financial markets) of the United Kingdom. This model consisted of only two regulatory agencies: one responsible for ensuring the soundness of the financial system and one focusing strictly on consumer protection. He argues that this model should have several benefits including eliminating regulatory duplication and overlap, providing for greater clarity in the objectives of regulators, establishing mechanisms for resolving conflicting objectives, and encouraging a regulatory process that is open, transparent, and publicly accountable.

In response to Taylor’s twin-peaks model, McDonald (1996) notes that the argument regarding the number of regulators seems to depend on the view that each must have only one objective, but it appears that the concepts of investor protection and systemic risk cannot be so easily separated. Goodhart et al. (1998) claim that Taylor’s model is too all-encompassing. In their view, major differences still exist between different types of firms, and although firms have diversified, a dominant core business usually remains. They argue that the risks across business lines are sufficiently different to warrant a differentiated approach to prudential regulation. Instead, Goodhart et al. argue for a larger number of regulatory bodies. They suggest no fewer than six separate agencies: a competition authority, together with five others to cover systemic risk; non-systemic prudential regulation; retail conduct of business; wholesale conduct of business; and financial exchanges.

Briault (1999) notes that the rationale for objectives-based models of regulation is superficially attractive, but it does not resolve inefficiencies, nor the communication and co-operation problems that exist whenever there is more than one regulatory body. He criticizes Taylor’s approach

in particular, arguing that the distinction between prudential and conduct-of-business regulation is not as neat and simple in practice as the Taylor model might imply. With respect to the structure proposed by Goodhart et al., he notes that it looks very similar to a functional approach, partly because many firms would be subject to regulation by more than one regulator.

## **The Debate over the Optimal Number of Regulators and Regulatory Competition**

Two interesting trends are emerging in the debate over the optimal number of regulators. On the one hand, academics are debating the merits of greater consolidation, and a number of countries have adopted reforms to reduce the number of regulators with responsibilities for financial institutions. An example of this is the United Kingdom’s adoption of a single-regulator model for their entire financial system, including securities markets. On the other hand, a body of literature is developing in the United States on the merits of allowing greater competition among jurisdictions in the area of securities market regulation.

### **A single agency**

The single-agency model has typically characterized early stages of financial development, but has re-emerged in developed economies, notably in the United Kingdom.

Goodhart et al. (1998) list several advantages that a single regulator can provide. These include:

- Efficiency gains: economies of scale and scope (synergies), which should lead to reduced regulatory costs (although institutional costs are likely a small part of total regulatory costs). There is also the ability to allocate scarce regulatory resources efficiently and effectively, thus lowering the monitoring costs imposed on firms, since they need to deal with only one agency.
- Greater transparency and accountability, because a simple regulatory structure should be easily understood and recognized by regulated firms and consumers and should make regulators more accountable (if for no other reason than that it is more difficult to pass the buck).

- Better monitoring of diversified firms.
- Possible avoidance of problems such as competitive inequality, inconsistency, duplication, overlaps, and gaps.
- Easier retention and utilization of expertise.

According to the literature, however, some of these benefits may not be achieved in practice. For instance, economies of scale and efficiency gains may not arise because specialist divisions will exist within a single agency, creating potential problems in communication, coordination, and consistency.

The arguments made against a mega-regulator include:

- Too much power and overly bureaucratic (Goodhart et al. 1998).
- Might not have a clear focus on objectives and the rationale of regulation and might not make the necessary differentiation between different types of institutions (Goodhart et al. 1998).
- Incompatibility of objectives and cultural conflicts, stemming from the fact that the needs of sophisticated wholesale market participants and those of retail consumers differ significantly, and the style and techniques appropriate to prudential and conduct-of-business regulation are profoundly different (Taylor 1995).
- Conflicting objectives are better resolved at a political level, because resolution involves judgment about public policy issues (Taylor 1995; Goodhart et al. 1998).
- Potential moral hazard resulting from the public perception that the risk spectrum among financial institutions has disappeared or become blurred (Goodhart et al. 1998).
- If a single regulator adopts an inappropriate regulatory regime, the costs of compliance and the structural costs of regulation could rise even though the pure institutional costs of regulatory agencies might be lower.

Two recent papers have reviewed the experiences of countries that moved towards more integrated regulation. Taylor and Fleming (1999) conclude that after a decade, the three Scandinavian countries that moved to a single-regulator model have achieved efficiency gains and economies of scale, but have made only limited

progress on improving coordination of the supervision of conglomerates. Briault (2002) reviews the experience of the U.K. Financial Services Authority (FSA) and finds initial indications to be encouraging, although he notes that it is too early to draw conclusions. For instance, the FSA has benefited from economies of scale and has achieved a valuable degree of integration. Also, in his opinion, the experience of the FSA has demonstrated that, in most cases, there is no conflict between the conduct-of-business and prudential regulatory objectives, since both seek to protect consumers. According to Briault, when conflicts did arise, the FSA struck the right balance within an appropriate framework of objectives and accountability.

### **Regulatory competition**

Some researchers have argued that regulation may not be at optimal levels since it is imposed by an authority and not through a market process. Regulators are often monopolistic, and so information is lost about the type and extent of regulation that consumers demand, and about how much consumers are prepared to pay for regulation. Some therefore believe that regulatory competition may help to define the optimal level of regulation. They also feel that there is merit in having a degree of competition and diversity in regulation so that lessons can be learned from the experience of different approaches (Goodhart et al. 1998).

The debate among academics on the merits of greater competition between regulators of securities markets rests on the “race-to-the-top” versus the “race-to-the-bottom” scenarios.

Those in favour of greater competition point out that competition provides incentives for responsive and innovative regulation, as well as guarding against an excessive regulatory burden. This is the race-to-the-top scenario. Kane (1987), a proponent of competition in the regulation of financial services, also points out that regulatory competition will tend to smooth out “bubbles” of overly severe regulation that would develop in response to intermittent financial services crises and scandals if regulatory barriers to entry were more significant.

Others, however, believe that competition will result in a “race-to-the-bottom” outcome as individual agencies will excessively relax their rules in order to attract greater regulatory clientele.



In a seminal paper, Romano (1998) provides a case for allowing states to compete with the United States federal government in two main areas of securities regulation: registration of securities and a disclosure regime for issuers; and antifraud provisions. In this proposal, an issuer would be able to choose which regime (federal or state) applies to its capital markets activities and then deal only with that jurisdiction, thus effectively creating a market for regulation. According to Romano, this system would produce rules more aligned with the preferences of investors, whose decisions drive the capital market, because no government entity can know better than market participants what regulations are in their interest. Such a system provides an incentive for innovation and, finally, if there are significant differences in the characteristics of firms such that the most suitable regulatory regime differs significantly across firms, then firms and investors can self-select the more appropriate scheme.

Competition in itself will not necessarily reduce international harmonization. In fact, Romano suggests that if diversity is not preferred by issuers and investors, then competition will produce uniform regulatory outcomes without the need for government agreement mandating harmonization. That is, competitive federalism would not necessarily increase differences between regulatory regimes. For example, the most desirable disclosure regimes would likely spread across states.

MacIntosh (2002) argues in favour of a passport system for Canadian securities markets by suggesting that the single-regulator system exhibits all of the problems commonly associated with monopolies. He concurs with Romano that there is no case for a race to the bottom. He concludes that we have had a mutual-reliance system in the closely allied field of corporate law for more than 100 years and argues that securities regulation is not functionally distinguishable from corporate law.

One of the most vocal critics of regulatory competition is Fox (2001). He believes, in particular, that abandoning the current mandatory system of federal securities disclosure in the United States would lead to a race to the bottom and would likely lower U.S. welfare. Fox focuses on the interfirm costs that arise when a disclosed item of information can put an issuer at a disadvantage relative to its competitors. Thus,

if issuers were allowed to choose, they would likely select a regime requiring a level of disclosure that is less than socially optimal because the issuer's private costs of disclosure are greater than the social costs of such disclosure.

Coffee (1995) makes a case against regulatory competition by looking at the experience of the Securities and Exchange Commission and the Commodity Futures Trading Commission. He concludes that within the increasingly competitive international environment, gains from competition in domestic regulation are likely to be modest, while costs can be substantial and may have been under-recognized. He agrees that, in theory, regulatory competition could bring benefits, but for these benefits to occur, a number of conditions need to hold. These include the ability of regulated firms to migrate between regulatory agencies at low cost in order to restrain inefficient regulation; the secure delineation of regulatory agencies by clear lines of jurisdiction that they cannot exceed; and the existence of competition between agencies rather than collusion. He finds that in practice many of these conditions are not met and notes that proponents of regulatory competition focus only on benefits that rival regulators can provide to attract clientele.

## Self-Regulatory Organizations versus Public Oversight

Self-regulatory organizations are prevalent in many countries, including Canada, and have played an important role in the securities market landscape. As many countries enact reforms however, there is debate as to whether or not SROs should be included (or maintained) in these new regulatory frameworks. The United Kingdom, for example, has eliminated SROs completely in its new regulatory framework. In view of this, it is important to look at the pros and cons of SROs, their role in regulation, and the type of environment to which they are best suited.

In theory, self-regulation works best when participants in a transaction possess approximately equal knowledge, information, and bargaining power. All investors, whether professional or private, have an interest in a fair, appropriately transparent, orderly and efficient market that is free from abuse and misconduct. Professionals have a clear interest in market integrity. For this

reason, a large degree of self-regulation has typically been seen as appropriate for the general regulation of exchanges. It is important, however, for a competition agency to monitor the self-regulation of exchanges for any anticompetitive behaviour.

Aggarwal (2001), and Domowitz and Lee (1998) list several arguments in favour of SROs relative to government agencies. Their arguments include the following:

- SROs linked to the business interests of participants have a more direct and stronger interest in maintaining market integrity than any government agency.
- The presence of market practitioners may enhance the knowledge and experience of the regulatory authority.
- It is easier for a market to police itself, and self-imposed rules are easier to accept.
- SROs may have better resources (government agencies may not have either the financial resources or the human resources necessary to carry out all aspects of their regulatory function).
- Their close proximity to markets enables them to more effectively monitor many types of conduct and activity that lie beyond the reach of the law. And they are more flexible than governments in responding to market needs and creating appropriate rules.

Nevertheless, self-regulation does present some challenges. The most interesting is the conflict arising from the multifunctional roles of SROs: they may regulate markets to their own advantage, thereby acting against the public interest. The conflicts of interest inherent in SROs require regulatory oversight of SRO practices, particularly their governance structures.

## Conclusions

From this summary, it is apparent that the literature on the organizational structure of financial markets regulation offers many different points of view on the optimal means of regulation. While it helps to put the current debate surrounding the regulation of securities markets in perspective, the literature does not point to a single “optimal” solution. On the one hand, there is the trend of combining regulatory

responsibilities within one or a few regulatory bodies. The theoretical pros and cons of this approach are well known. But research on the practical implications is still in its infancy. Other academics have made a number of strong theoretical arguments with respect to the benefits of greater regulatory competition, but little research has been done on its impact in practice.

Many questions remain unanswered, and economic theory seems to provide limited guidance as to how to organize the complex world of securities regulation. As more data are collected from countries that have implemented reforms, future research and empirical studies should shed more light on these issues.

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