Developments

and

Trends

Notes

The material in this document is based on information available to 4 December unless otherwise indicated.

The phrase “major banks” in Canada refers to the six largest Canadian commercial banks by asset size: the Bank of Montreal, CIBC, National Bank of Canada, RBC Financial Group, Scotiabank, and TD Bank Financial Group.

Introduction

This section of the Financial System Review *examines the recent performance of the Canadian financial system and the factors, both domestic and international, that are influencing it. Related topics of particular interest are discussed under "Highlighted Issues."*

Key Points

- The Canadian financial system has demonstrated impressive resilience in the face of a significant degree of global financial stress.
- Revelations of corporate malfeasance have prompted worldwide efforts to improve transparency and buttress confidence in corporate accounting and governance.
- An important degree of uncertainty persists within the global economic and financial system, indicating a continuing need to closely monitor and analyze financial developments.

The Canadian financial system has coped well during the recent period of increased financial stress. Over the past two years, the global financial system has been affected by a number of shocks in conjunction with a weakening economic environment in the industrialized economies. The Canadian financial system has not been unaffected. It has faced a period of slower domestic economic growth, a deterioration in the quality of corporate credit, and substantial losses by investors (including losses on investments made by financial institutions). Revelations concerning corporate malfeasance (primarily in the United States) also shook market confidence. Together, these factors have contributed to heightened uncertainty and, at times, have been reflected in above-average levels of volatility in financial markets.

In the face of these global developments, the Canadian financial system has been resilient. Aided by strong financial foundations and improved diversification relative to previous periods of increased stress, Canadian financial institutions as a group remain in a sound position. Financial markets, despite periods of increased volatility relative to historical norms, functioned relatively well while maintaining reasonably good levels of liquidity. In addition, efforts are underway by both public and private sector entities, in North America and elsewhere, to improve transparency and rebuild confidence in corporate accounting standards and governance practices.

A key element going forward is the increased uncertainty that continues to persist within the global economic and financial system. Past shocks will continue to affect the financial system, and global economic, financial, and geopolitical uncertainties remain. In this environment, it will be important to closely monitor and analyze developments within the financial system as well as its overall performance. To improve understanding of how the financial system operates during periods of above-average stress, it is also important to encourage discussion and analysis of ongoing financial innovation (e.g., the steadily broadening array of financial instruments), both in Canada and globally.

Highlighted Issues

Issues discussed in this section include the impressive resilience of the Canadian financial system in the face of increased global economic and financial stress, and the ongoing international and Canadian response to concerns over corporate accounting and governance standards.

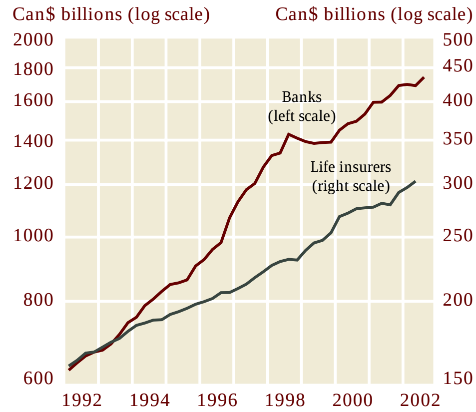
The Resilience of the Canadian Financial System

The Canadian financial system, including financial institutions, has expanded significantly over the past decade (Chart 1). During the past two years, however, the global financial system has experienced an unusual series of adverse shocks, placing strains on national financial systems around the world. In the face of elevated levels of financial stress, the Canadian financial system as a whole has shown itself capable of effectively meeting the current challenges. Canadian financial institutions entered the recent period of economic slowing in a much-improved position compared with earlier stressful episodes, owing partly to strong profitability and improved capital positions within the banking sector. Nevertheless, heightened levels of pressure on the financial system are likely to continue over the immediate future.

The recent adverse economic and financial shocks not only directly contributed to losses for investors and profit declines for financial institutions generally, but also contributed to a weaker global economic climate (Chart 2). Among these shocks was the bursting of the so-called "tech bubble," which began in 2000. Prospects for telecommunications and Internet-related companies deteriorated dramatically and, as is evident in the NASDAQ index, were reflected in their falling equity valuations (Chart 3). This has led to significant sectoral losses for bank lenders and unusually high losses for bond and equity holders.

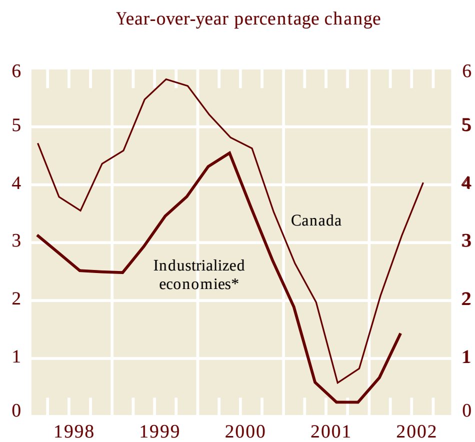
In addition, the 11 September 2001 terrorist attacks in the United States affected more than short-term prospects for economic growth. They also led to substantial global claims on insurance companies and created difficulties and uncertainty for specific industries (e.g., airlines and tourism). Geopolitical concerns have persisted, with a heightened level of tension in

Chart 1 Total Assets: Canadian Financial Institutions



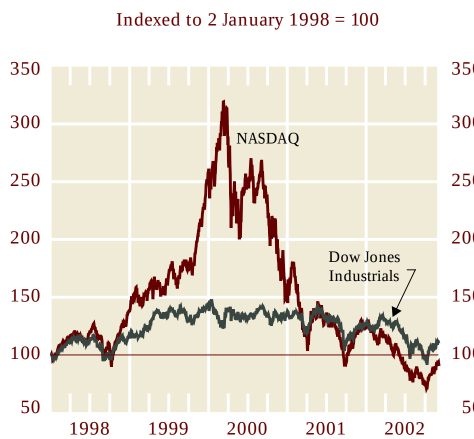
Source: Bank of Canada

Chart 2 Real GDP Growth



* Member economies of the OECD
Source: Thompson Financial Datastream and Statistics Canada

Chart 3 Tech Bubble



Source: Thompson Financial Datastream

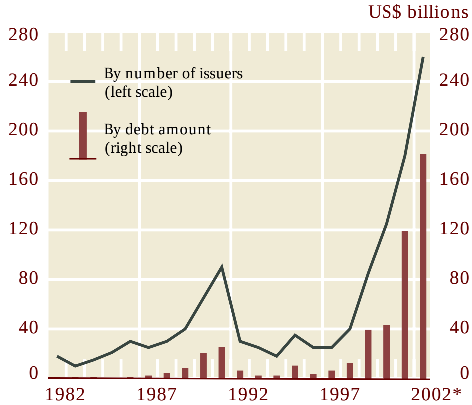
Chart 4 Bond Spread (EMBI+)

Basis points (over U.S. Treasury bonds)

Source: J.P. Morgan

Chart 5 Global Corporate Defaults

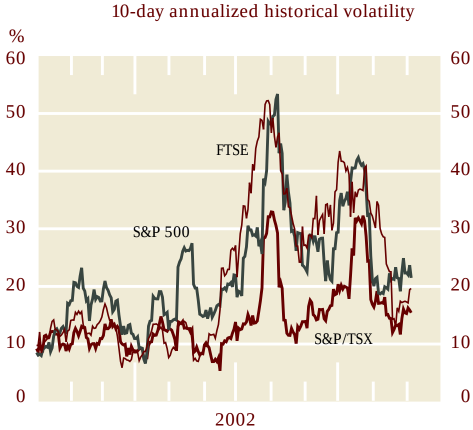
US$ billions



* Annualized figures based on the first three quarters
Source: Standard & Poor's

Chart 6 Volatility of Equity Indexes

10-day annualized historical volatility



Source: Thompson Financial Datastream and Bank of Canada calculations

areas such as the Middle East, the Persian Gulf, and Southeast Asia.

Markets have also been affected by mounting financial difficulties in several Latin American countries, and bond spreads have risen as a result (Chart 4). In January 2002, Argentina effectively defaulted on its sovereign debt. More recently, markets have shown concern over the financial stability of Brazil.

In December 2001, the U.S. energy company Enron declared bankruptcy, an event notable for the surprising rapidity with which it occurred. Subsequent revelations about questionable corporate accounting and governance practices at Enron and at other companies damaged investor confidence in financial statements and led to a reassessment of the financial strength of a number of corporations.

These events, along with the sluggish global economy, contributed to a heightened level of corporate fragility. Defaults on corporate bonds globally rose to unprecedented levels in 2002 (Chart 5). Other sources of concern also emerged, such as the potential need for corporations to make "top-up" contributions to defined benefit pension plans because of diminished (or negative) returns on the plans' equity portfolios.

During the summer of 2002, further dramatic revelations concerning questionable corporate accounting and governance practices again shook market confidence in the quality of financial statements and corporate management. The decline in global equity markets, compounded by a reallocation of investor portfolios towards less-risky assets, contributed to diminishing optimism regarding the economic outlook (particularly in the United States and, more recently, in Europe). Reflecting an elevated level of uncertainty, financial markets, globally and in Canada, were characterized by heightened volatility relative to typical levels (Charts 6 and 7).[1]

In this environment of increased uncertainty, changing perceptions of risk associated with financial assets and declining investor willingness to take on risk (i.e., rising risk aversion) contributed to the movements in equity and bond prices. Spreads on high-yield

1. While the recent observed levels of volatility are unusual, they are not unprecedented.

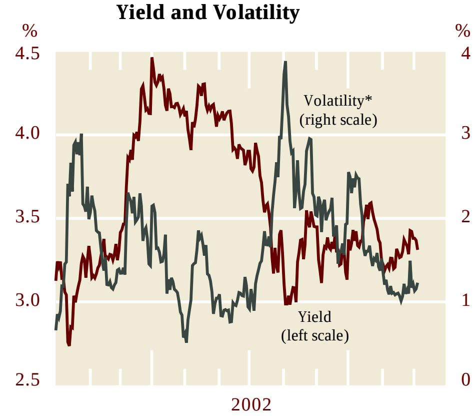
(i.e., relatively risky) bonds rose particularly sharply (Chart 8).

Inevitably, all of these developments have adversely affected the revenues and profitability of Canadian financial institutions. More generally, losses have been widely distributed among holders of financial assets. For example, the downward trend in equity values has directly affected merchant banking portfolios, the investment portfolios of insurance companies and pension funds, and the wealth of individual investors. The deterioration in credit quality has most directly affected banks through increased loan losses, but non-financial companies have also experienced losses on vendor financing. Bondholders have also faced higher default levels (although declining medium- and long-term interest rates for higher-grade bonds have provided an offset in the form of higher prices over the recent period).

Overall, the Canadian financial system has coped well with the events and related pressures of the past two years. Banks, which account for over one-half of the assets held in Canada by the financial services sector, have responded to the corporate sector difficulties arising from these shocks by adding significantly to their loan-loss provisions (Chart 9). Insurance companies have also provisioned against losses on their portfolio investments. This has been accomplished without significant impact on the capital base of Canadian financial institutions as a whole. Banks have also sought to manage their exposure to credit risk in the current climate, and some major banks have announced longer-term plans to reduce the proportion of capital allocated to corporate lending. Despite heightened levels of volatility relative to historical norms, financial markets continued to function relatively well, setting prices of financial assets while maintaining reasonably liquid markets.

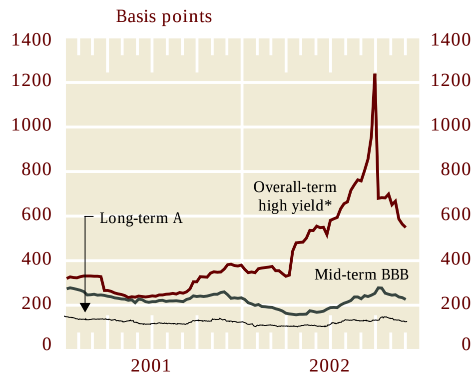
The resilience of the Canadian banking system is especially welcome when compared with the difficulties that the sector faced during earlier cyclical downturns (e.g., in the early 1990s, which included the associated downturn in the commercial real estate sector). Several factors have contributed to this. Various measures have enhanced the banks' overall robustness (e.g., loan-loss provisioning practices have been adjusted to improve their timeliness and include the use of general provisions), and banks now

Chart 7 2-year Government of Canada Bonds: Yield and Volatility



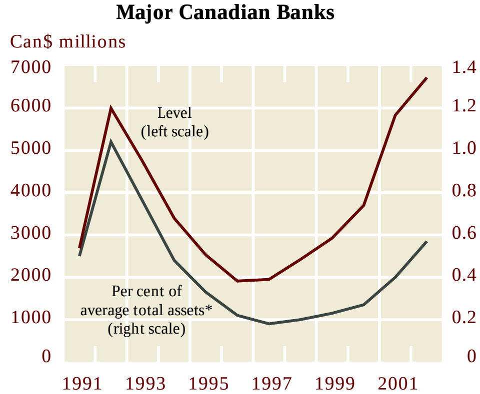
* 10-day historical volatility
Source: Thompson Financial Datastream and Bank of Canada calculations

Chart 8 Spreads Between Canadian Corporate and Government Bonds



* Large changes can occur owing to compositional shifts
Source: Scotia Capital

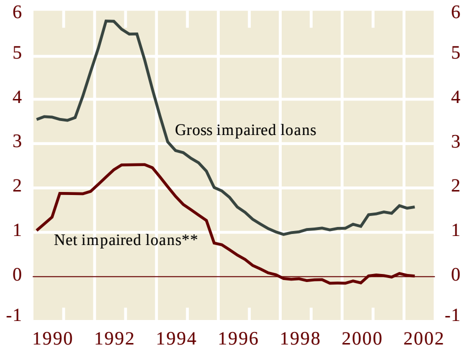
Chart 9 Provision for Credit Losses: Major Canadian Banks



* Assets on a taxable equivalent basis
Note: Figures for 2002 are based on the first three quarters.
Source: Canadian Bankers Association and Bank of Canada

Chart 10 Non-Performing Loans: Major Banks

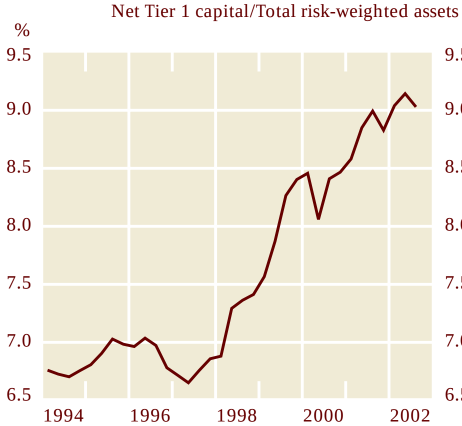
As a percentage of total loans*



* Net of loan-loss allowances
** Impaired loans less allowances
Source: Office of the Superintendent of Financial Institutions

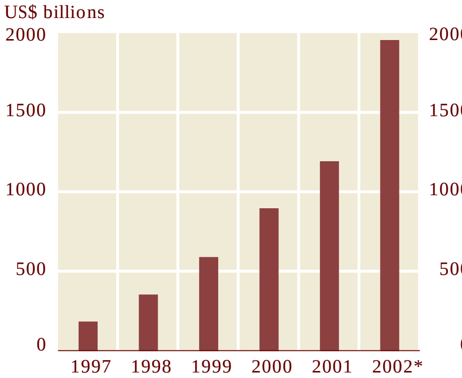
Chart 11 Tier 1 Capital Ratio: Major Banks

Net Tier 1 capital/Total risk-weighted assets



Source: Office of the Superintendent of Financial Institutions

Chart 12 Size of Global Credit-Risk Transfer Markets



* Figure for 2002 is estimated

have more diversified revenue sources and portfolios. Benefiting from diversification, the level of non-performing loans has risen but remains well below earlier peaks (Chart 10). The average Tier 1 capital ratio of the major banks has moved upwards over the course of the 1990s and remains high despite current pressures (Chart 11).[2]

How financial systems in Canada and elsewhere perform during periods of increased financial stress may be affected by changes brought about by financial innovation.[3] For example, innovative financial instruments involving the transfer of credit risk (Chart 12) have expanded the means available for managing risk exposure. These instruments, which allow credit risk (i.e., the potential for losses when extending credit) to be treated essentially as a tradable commodity, facilitate the adjustment of risk profiles in a way that better reflects institutions' ability to absorb risk.[4] At the same time, markets for some of these instruments are relatively new. Particularly during periods of above-average financial stress, it is important to encourage assessments of the effects of such financial innovations to help in understanding their implications.

Responding to Deficiencies in Corporate Accounting and Governance

A series of revelations last summer increased concerns about the use of improper accounting methods in corporate financial statements. These events also reinforced questions about whether senior corporate executives and board members had acted in the best interests of shareholders. The perception that market confidence in corporate behaviour and financial statements had been severely impaired added a sense of urgency to the efforts within official and private sector bodies to buttress confidence in the standards for corporate accounting and governance. This was particularly important in an environment where other factors were

2. Tier 1 capital represents the highest quality of capital that underpins the banks' activities.
3. For a discussion of innovation among financial-service providers, see the article by Freedman and Goodlet in this *Review* (page 57).
4. See Box 5 on page 20 for a more specific discussion of these financial instruments.

already contributing to increased risk aversion on the part of investors.

The range of international activity in this area has been extensive. In the United States, where much of the corporate malfeasance originally came to light, government legislation in the form of the Sarbanes-Oxley Act (signed into law on 30 July) introduced a broad array of changes designed to improve corporate governance and raise confidence in financial statements. The Act included a new oversight board (the PCAOB) to monitor the U.S. accounting industry. See Box 1 for a list of relevant organizations.

Securities regulators, stock exchanges, and government authorities have also been examining a wide range of business activities with respect to their impact on investor confidence. For example, the combination of investment banking activities and stock research in the same firm, together with the distribution of shares under initial public offerings (IPOs), has come under close scrutiny because of perceived conflicts of interest.

There has also been an increased focus on international co-operation. The IASB and the U.S. FASB recently issued a memorandum describing their joint efforts to bring about greater convergence in global accounting standards. In October, the FASB released a proposal for a new principles-based approach to setting U.S. accounting standards. Also in October, IOSCO released a set of principles designed to guide national securities regulators with respect to company disclosure and auditor independence and oversight. This broad re-examination of corporate governance and accounting has been supported by international bodies such as the FSF and the OECD.

These events have raised a range of issues for both financial and non-financial Canadian companies, and for the relevant oversight bodies in Canada (see Box 2). While efforts to increase financial transparency, allowing investors to better assess risk and financial soundness, will be beneficial, careful evaluation over time will be important to avoid unintended effects from regulatory and related changes.

Box 1

Selected Organizations

AASOC	Auditing and Assurance Standards Oversight Council (Canada)
AcSB	Accounting Standards Board (Canada)
AcSOC	Accounting Standards Oversight Council (Canada)
CICA	Canadian Institute of Chartered Accountants
CSA	Canadian Securities Administrators
CPAB	Canadian Public Accountability Board
FASB	Financial Accounting Standards Board (United States)
FSF	Financial Stability Forum
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
IDA	Investment Dealers Association (Canada)
IOSCO	International Organization of Securities Commissions
OECD	Organisation for Economic Co-operation and Development
OSFI	Office of the Superintendent of Financial Institutions (Canada)
PCAOB	Public Company Accounting Oversight Board (United States)
SEC	Securities and Exchange Commission (United States)
TSX	Toronto Stock Exchange

Box 2

The Regulatory and Accounting Response in Canada

International developments have raised a number of issues for Canadian authorities, regulators, and accounting bodies (among others). In some cases, Canadian firms are directly affected by foreign initiatives. For example, they may have their shares listed on U.S. stock exchanges and are thus affected by some of the measures contained in the Sarbanes-Oxley Act.[1] More fundamentally, in the current environment of diminished investor confidence, it appears unlikely that the status quo is a viable option. In assessing which changes to adopt, however, some provincial regulatory agencies and stock exchanges have argued that caution is necessary, suggesting that not all of the new rules introduced in the United States, for example, may be appropriate in the Canadian context. A sample of recent initiatives in Canada follows.

Auditing Standards

Perhaps the key development in Canada to date has been the announcement by the CSA, OSFI, and CICA of a new oversight board, the CPAB. The Board will oversee the introduction of new rules involving more rigorous inspection of the auditors of public companies, auditor independence, and new quality-control requirements for auditing firms. It will have the ability to impose sanctions against auditors who do not meet the required standards. In September, the CICA proposed new guidelines to assess and buttress auditor independence. These were adapted from international rules, as well as from the new SEC requirements in the United States. The CICA has also announced a new oversight body for the setting of auditing and assurance standards (the AASOC).

1. While this involves a relatively small number of Canadian publicly listed firms, they nevertheless represent approximately one-half of the market capitalization of Canadian firms. There is ongoing discussion as to whether Canadian companies and their auditors will receive an exemption from some elements of the new U.S. rules.

Accounting Standards

Specific accounting issues are also being addressed. The CICA has proposed new guidelines on the treatment of financial “special-purpose vehicles” in financial statements. The treatment of stock options has been a particularly contentious issue, both internationally and domestically. The Canadian AcSOC has publicly indicated that it supports in principle companies expensing stock options. More recently, the AcSB has announced that it will draw up explicit proposals to that effect. Indeed, some Canadian firms have already indicated that they will begin to expense stock options on their financial statements.

Governance Issues

Partly at the behest of securities regulators, stock exchanges have been examining their corporate-governance requirements for listed companies. For example, the TSX has announced changes for listed companies with regard to board composition. It has also supported the proposal that CEOs certify the accuracy of their companies’ financial disclosures.

A contentious issue has been that of potential conflicts of interest in firms that offer an array of financial services. Some provincial regulators are currently pursuing this issue with the major Canadian securities firms. In April, the IDA proposed a new set of guidelines to address conflicts of interest, but a consensus has not yet developed around these proposals. Some provincial regulators have recently proposed increased penalties for firms and individuals who violate securities regulations.

Finally, in November, the CICA released a new framework for the management discussion and analysis component of corporate reports.

The Macrofinancial Environment

Global Environment

Over the past six months, the global environment has been marked by heightened uncertainty and downward revisions to estimates of the strength of the global recovery. Consensus projections for growth this year in the industrialized economies, after picking up sharply following the surprisingly rapid rebound during the first part of the year, stabilized and then reversed course in the summer (Chart 13).

A number of factors contributed to the pullback in expectations for growth. These included a generally unexpected weakening in U.S. growth in the second quarter, the uncertainty created by revelations (primarily in the United States) concerning deficient corporate accounting and governance, and the downturn in global equity markets.

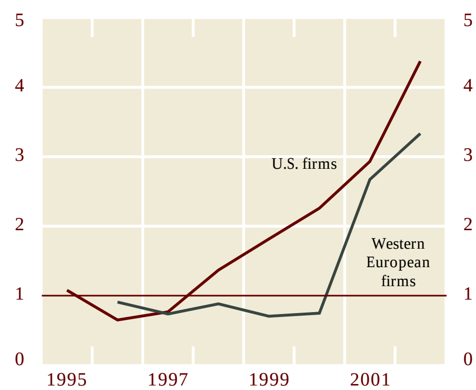
These developments occurred in an environment where corporations were already under financial pressure. This was exemplified by the increase in credit-rating downgrades relative to upgrades for U.S. and European firms (Chart 14), with elevated levels of downgrades continuing into the third quarter. The telecommunications sector has been responsible for a relatively large proportion of problem issuers. Reflecting the higher level of global financial stress, financial institutions have also accounted for a relatively large proportion of credit downgrades. This is particularly the case for insurance companies which, worldwide, have come under pressure from higher claims and reduced investment income.[5]

In some foreign economies, prices in the residential real estate market have been rising rapidly (e.g., Australia, the United Kingdom, and, to a lesser extent, the United States). Although this has provided an offset to the decline in household wealth arising from lower equity prices, such increases will eventually slow and may, in some cases, reverse.

Chart 13 Evolution of Consensus Estimates for Annual Growth in 2002

* North America, Western Europe, and Japan
Source: Consensus Economics

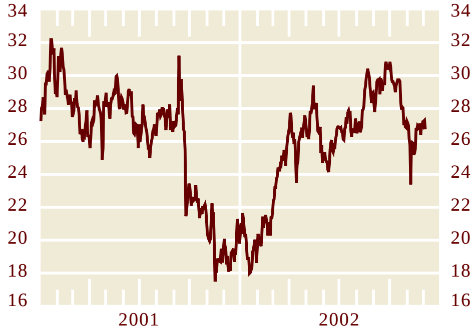
Chart 14 Corporate Downgrade/ Upgrade Ratio



Note: Figures for 2002 are based on the first three quarters.
Source: Moody's

5. Standard & Poor's estimates that the global insurance/reinsurance industry has experienced a net reduction in capital of approximately US$200 billion over the past several years.

Chart 15 Crude Oil Prices



Source: Bank of Canada

Chart 16 Indicators for Brazil

* Increase indicates a depreciation
Source: Thompson Financial Datastream and J.P. Morgan EMBI+

Table 1

Total Canadian Bank Claims on Selected Latin American Countries ($ millions)*

	2002Q2	2001Q2
Mexico	21,465	22,241
Chile	4,947	4,536
Argentina	2,467 **	4,798
Brazil	2,039	2,267
Peru	558	493
Venezuela	537	508
Uruguay	96	110

* Includes local claims of subsidiaries

** Does not reflect the sale of Quilmes Bank by Scotiabank (in the third quarter of 2002)

Source: Bank of Canada

Ongoing geopolitical concerns have been an additional source of uncertainty. These include tensions in the Middle East and the possibility of military action in the Persian Gulf. Although these concerns have induced some additional volatility in oil prices, price levels have moved up only moderately from the beginning of the year (Chart 15).

Emerging markets

Economic growth in emerging Asia has remained relatively robust, although showing some recent signs of weakening. The region has experienced only modest increases in interest rate spreads. Although the picture is less sanguine in Latin America (Box 3), emerging-market debt and equities generally have recently rallied as risk aversion appears to have diminished somewhat.

Economic and financial problems in Argentina, which effectively defaulted on its sovereign debt in early January, have persisted. The Argentine authorities and the International Monetary Fund have so far been unable to reach a successful conclusion to their discussions on a new financial program. In November, Argentina fell into arrears on its World Bank debt.

The financial situation is particularly volatile in Brazil, owing to uncertainty over the new government's economic program. This has been reflected in a sharp deterioration in Brazilian financial indicators, although they have recently improved (Chart 16).

Although some smaller Latin American countries have also come under increased financial stress, Mexico, assisted by a strengthened policy framework, has been largely unaffected by regional developments. The exposure of Canadian banks to Latin America is largely concentrated in Mexico (Table 1).

Japan and Europe

In Japan, near-term prospects for growth in domestic demand remain relatively poor, owing partly to low consumer confidence and persistent excess capacity. The weak economic performance of the economy since the early 1990s has been associated with persistent problems in the Japanese financial sector. Japanese banks have disposed of about ¥90 trillion (approximately Can$1.1 trillion) in non-performing loans over the past decade. Nevertheless, non-performing

Box 3

Economic and Financial Developments in Latin America

Many economies in Latin America have experienced deteriorating financial market conditions this year, as evidenced by rising bond spreads (Chart 1). The region has also experienced a sharp slowdown in economic activity, with some economies sustaining significant contractions in real GDP. Argentina's financial crisis is not yet resolved and has led to a reduction in output of 16 per cent in the first half of 2002 compared with the first half of 2001. Brazil and Uruguay also remain vulnerable, despite large financial packages from the IMF. Uncertainty regarding the new Brazilian government's economic program is contributing to financial market volatility in that country, while concerns about the viability of the Uruguayan banking system are undermining financial conditions there. Brazil experienced no growth in the first half of 2002 compared with the first half of last year, while Uruguay's GDP has contracted nearly 8 per cent.

Domestic political uncertainties in Venezuela, Ecuador, and Colombia have contributed to financial market volatility in these countries and to slowing growth as investment deteriorates.

While Mexico and Chile have experienced some financial sector turbulence, it has been on a much smaller scale than that seen in other Latin American economies. An adverse terms-of-trade shock (low copper prices and high oil prices) for Chile and the hesitant U.S. recovery help explain the financial market volatility in these countries. Both economies are expected to grow modestly this year.

Consensus forecasts indicate that growth in the region will rebound to 2.3 per cent next year from -0.6 per cent this year (Chart 2). An important factor driving expectations of a recovery is a bottoming out of the recession in Argentina and modest growth rebounds in Brazil and Mexico, as their major export markets pick up.

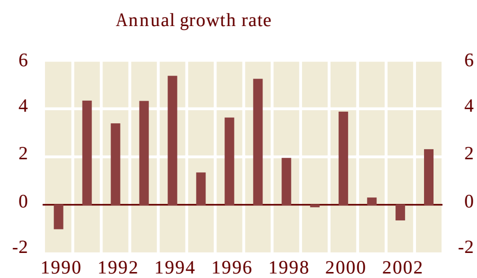
There are two important risks to the outlook in Latin America. One is the strength of the recovery in industrial countries, particularly in the United States. The second is whether Brazil's new government will be able to restore lasting confidence and reduce vulnerabilities there. Continued difficulties in Brazil would negatively affect its closest trading partners in the region (Argentina, Uruguay, and Paraguay).

The direct economic and financial links between Canada and Latin America are relatively small. Within Latin America, Canada is most closely linked with Mexico and Chile, currently two of the healthiest economies in the region. Also, given the relatively small size of the Latin American economy and the structure of its trade, even a further deterioration of demand conditions would probably have a relatively small impact on global commodity prices. Nevertheless, the need to increase loan-loss provisions on their Latin American exposure is one factor behind increased provisioning levels at Canadian banks this year.

Chart 1 Spreads on Selected Emerging-Market Bonds (EMBI+)

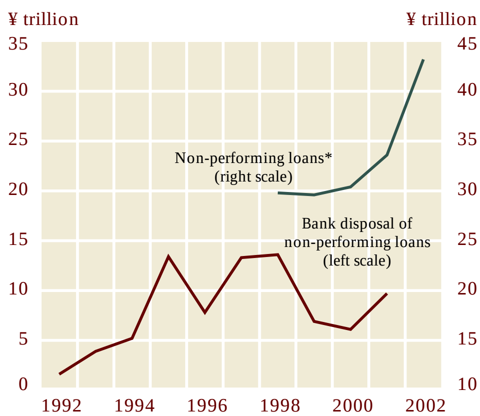
Source: J.P. Morgan

Chart 2 Real GDP Growth: Latin America



Notes: 1. Latin America in this chart includes Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.
2. Forecasts for 2002 and 2003 are from Consensus Forecasts

Chart 17 Non-Performing Loans: Japan

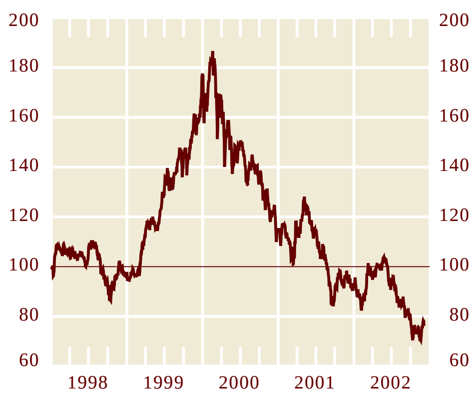


* Change in definition with respect to non-performing loans affected the 2002 level

Source: Bank of Japan and Japanese Financial Services Agency

Chart 18 Japanese Stock Market (Nikkei)

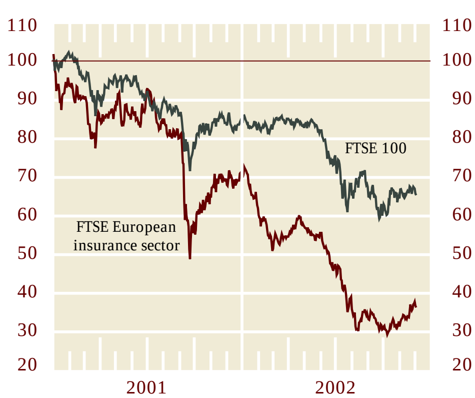
Indexed to 2 January 1998 = 100



Source: Thompson Financial Datastream

Chart 19 European Insurance Sector: Equity Prices

Indexed to 2 January 2001 = 100



Source: Thompson Financial Datastream

loans still on the banks' books remain at high levels (Chart 17).

In a report published by the Bank of Japan, the persistent high level of bad loans was attributed to newly generated non-performing loans from corporate restructuring. In addition, the report pointed to problems at banks created by the low lending margins and the fact that unrealized gains on bank shareholdings which, at one time, acted as a financial reserve for banks, have evaporated as a result of the decline in equity prices (Chart 18). With the shift to mark-to-market accounting last year, market risk pertaining to bank shareholdings is now considered to be a significant destabilizing factor. To help mitigate this, the Bank of Japan announced that it would buy up to ¥2 trillion of equities from domestic banks, with purchases beginning in late November. The impact of this measure is not yet clear.

Despite past efforts, the overall level and quality of the capital of Japan's major banks is considered to compare poorly relative to their international peers. Action to support the financial sector has been hampered by a lack of domestic consensus, although the government recently announced a set of proposals aimed at reducing problem loans in the banking system.

The European banking sector began the most recent credit cycle in a sounder position than at the beginning of the previous decade. Nevertheless, weaker economic growth and deteriorating credit quality have placed banks under increased pressure. This has been particularly true in Germany, where bank sector profitability had been comparatively weak. The credit ratings of several major European banks were reduced in recent months, and bank spreads have widened.

The European insurance sector has also come under increased pressure, partly as a result of the decline in equity prices. Despite significant strengths as a group, European insurance companies tend to invest a relatively large proportion of their assets in equities and thus have experienced significant investment losses (adding to those on their bond portfolios). This, together with higher insurance payouts, has adversely affected their financial strength and is reflected in the substantial decline in the equity valuation of the sector (Chart 19). The capital levels of large European reinsurance companies have also been adversely affected by developments over this period, and some companies have had their credit ratings lowered.

United States

U.S. real GDP growth rebounded in the third quarter of this year (Chart 20). Despite this, the recent softening in business and consumer confidence and the slowing in manufacturing output have contributed to continued uncertainty about the persistence of the current recovery.

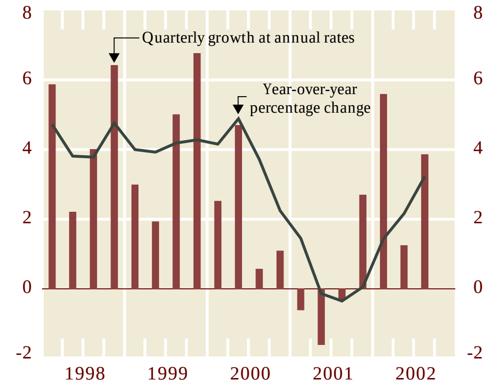
In this environment, business conditions remain difficult. U.S. corporations continue to be affected by a relatively high pace of credit downgrades (recently including Ford and General Motors), and corporate profits remain under pressure.[6] Nevertheless, aggregate corporate debt and net interest payments relative to cash flow have moved down from their recent peaks (Chart 21).

In spite of the elevated level of corporate defaults and a continued deterioration in syndicated loan quality (Chart 22), U.S. banks have been able to maintain a high level of profitability. Commerical banks earned US$68.6 billion in the first three quarters of the year, more than 10 per cent above earnings for the same period in 2001. Non-performing loans have continued to rise, but the overall coverage ratio of reserves to non-performing loans has remained well above 100 per cent (Chart 23).

Some large U.S. banks that are heavily involved in investment banking have fared relatively poorly. Activity levels in the investment banking area have diminished, reducing revenues and, in some cases, leading to substantial reductions in staffing. The credit ratings of several large institutions have been downgraded. One risk that is difficult to evaluate is the extent of the legal risk of litigation and investigation that financial firms face in the United States in the aftermath of the recent financial and accounting improprieties on the part of some corporations.

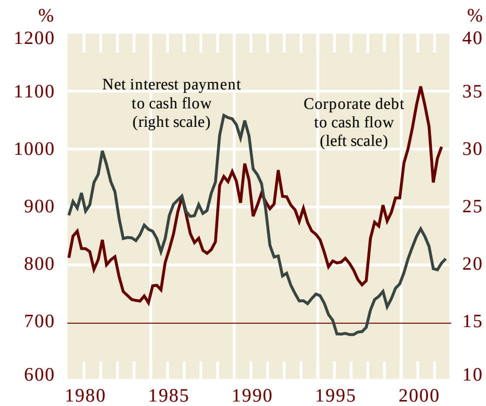
Reflecting developments in the global industry, the financial position of U.S. insurance companies has deteriorated. Declining investment revenues and higher insurance payouts have hurt profits. Property and casualty insurance firms have been most heavily affected, and a portion

Chart 20 Real GDP Growth: United States



Source: Thompson Financial Datastream

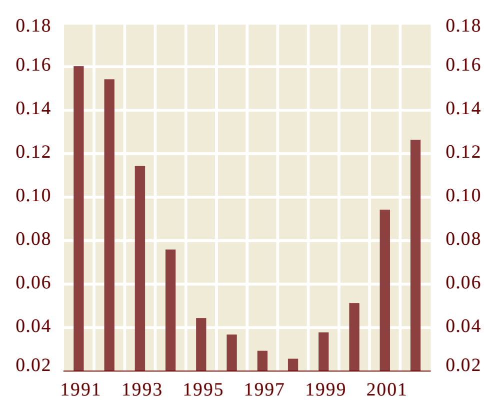
Chart 21 U.S. Corporate Debt and Net Interest Payments



Source: Thompson Financial Datastream

Chart 22 U.S. "Adversely Rated" Syndicated Loans

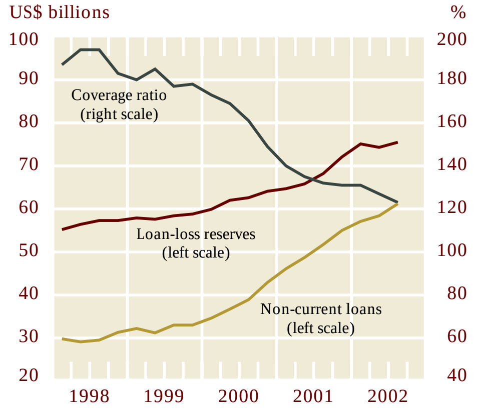
As a per cent of commitments



Source: U.S. Federal Deposit Insurance Corporation *Shared National Credit Review*

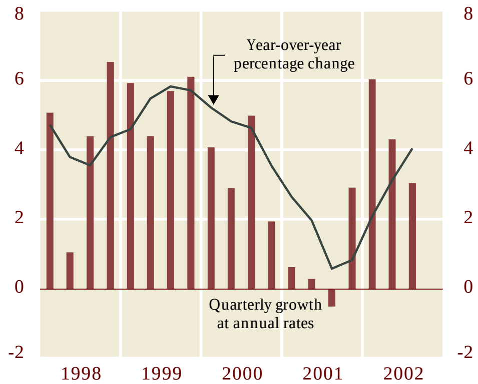
6. Standard & Poor's reported that U.S. companies incurred 157 credit-rating downgrades in the third quarter and only 40 upgrades.

Chart 23 U.S. Banks



Source: U.S. Federal Deposit Insurance Corporation *Quarterly Banking Profile*

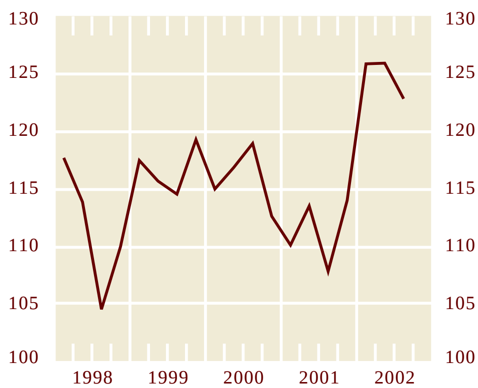
Chart 24 Real GDP Growth: Canada



Source: Statistics Canada

Chart 25 Canadian Consumer Confidence

Indexed to 1991 = 100



Source: The Conference Board of Canada

of the sector's largest companies are believed to be currently under-reserved against losses. This suggests that some insurers, in conjunction with adjusting premiums, will need to take measures to boost reserves.

Canadian Developments

Domestic factors that have an important influence on developments in the Canadian financial system include the state of the Canadian economy, the financial position of the household and corporate sectors, and developments within specific industrial sectors (e.g., the telecommunications sector).

Canadian economy

Canada experienced a robust economic expansion in the first three quarters of 2002 (Chart 24).[7] The growth of household spending has been quite strong. In addition, the resumption of inventory accumulation, marked gains in exports, and a recovery in business spending on machinery and equipment all helped to support economic expansion during this period. The consensus view calls for Canadian economic growth to exceed that of other G-7 economies in both 2002 and 2003.

There are, nevertheless, a number of uncertainties in the current environment. Global economic, financial, and geopolitical developments (discussed in previous sections) have contributed to a weaker near-term outlook for the expansion of the global economy (relative to consensus expectations at the beginning of the summer) and therefore of Canada's exports. Spending by corporations and households could also be adversely affected by the increased uncertainty associated with concerns about corporate governance and the unsettled geopolitical climate.

Household and corporate sectors

The financial condition of the household sector continued to be relatively healthy in 2002. With strong employment gains, consumer confidence has remained at a fairly high level despite a slight easing since mid-year (Chart 25).

7. The Bank of Canada's interpretation of global and domestic economic trends is published every spring and autumn in the Bank's *Monetary Policy Report*.

Personal sector indebtedness has risen sharply over the past decade, stabilizing in recent years at about 110 per cent of personal disposable income. Reflecting the higher level of household assets, however, the household debt-to-asset ratio has been more stable, exhibiting only a modest upward trend over the past several years (Chart 26). Household debt-service costs have remained low throughout the current cycle, aided by past declines in consumer and mortgage interest rates.

With real estate assets accounting for about one-third of household wealth in Canada, the current strength in housing prices has provided some offset to the loss in wealth arising from weaker equity prices (Chart 27). Residential mortgage arrears have remained relatively flat in level terms and have fallen as a percentage of total mortgages outstanding, despite the recent cyclical slowdown in economic growth (Chart 28).

The financial condition of the overall non-financial corporate sector also improved in the first half of 2002. However, with the volatility in financial markets, business confidence, especially that of large firms, fell appreciably in the third quarter. Indeed, the proportion of large firms that were unsure whether it was a good or bad time to undertake capital spending to expand plants (one measure of uncertainty) has risen to a high level.[8] As a result, firms have continued to make more use of cash balances and less use of borrowings to help fund operations and capital spending.

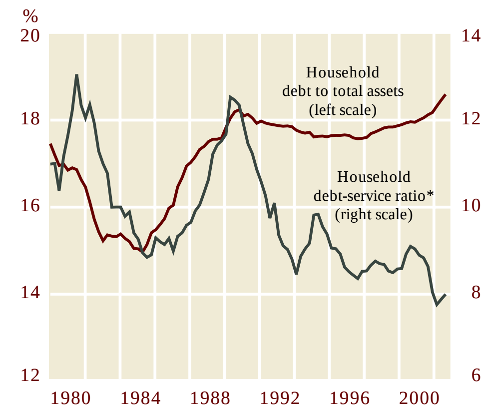
Corporate credit quality, after deteriorating for a number of quarters, has shown some signs of stabilizing, supported by an improvement in corporate profits (Chart 29). The overall level of credit-rating downgrades compared with upgrades has remained elevated throughout the year (Chart 30), and the number of firms assigned a negative outlook by credit-rating agencies remains high. Nevertheless, there have been no additional reductions to below-investment-grade status among large firms in recent months.

Industry

Although the financial position of the overall non-financial corporate sector is relatively

8. The Conference Board of Canada, *Index of Business Confidence*, Autumn 2002.

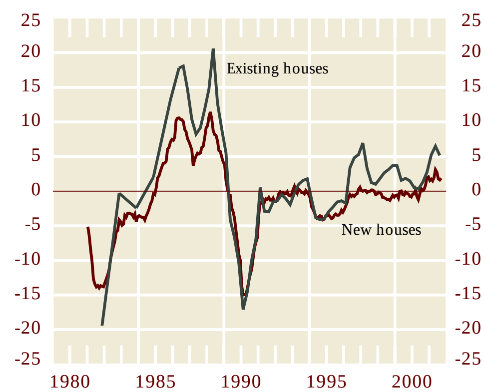
Chart 26 Personal Sector Debt



* Does not include principal repayments
Source: Statistics Canada

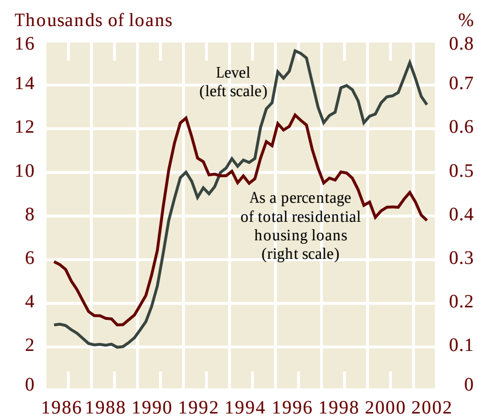
Chart 27 Growth in Real House Prices*

Year-over-year percentage change



* Deflated by total CPI
Source: Statistics Canada, Royal LePage

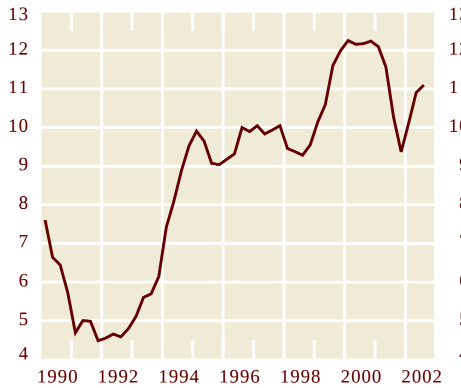
Chart 28 Residential Mortgage Loans in Arrears 3 Months or More



Source: Canadian Bankers Association and Bank of Canada

Chart 29 Pre-Tax Corporate Profits

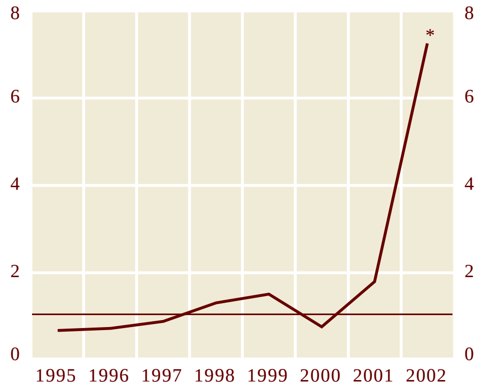
As a per cent of GDP



Source: Statistics Canada and Bank of Canada

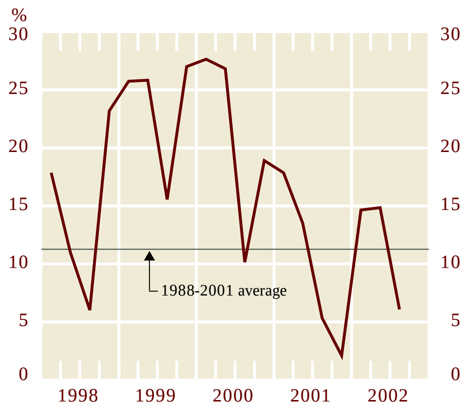
Chart 30 Corporate Issuers Downgrade/ Upgrade Ratio

Excludes financial sector



* Based on the first three quarters
Source: Moody's

Chart 31 Return on Equity: Automotive Manufacturing



Source: Statistics Canada

healthy, some industries (amounting to about 15 per cent of total GDP) experienced significant financial stress, especially in the second half of 2001. These include automotive manufacturing and air and truck transport, as well as most high-technology industries and producers of non-energy commodities.

However, with the overall economic recovery in Canada during 2002, activity increased substantially in most of the financially vulnerable industries. As a result, there was some improvement in their financial situations. These gains occurred for automotive manufacturing (Chart 31), for air and truck transport, and producers of metallic products.

Even so, the near-term financial outlook has worsened for other industries experiencing financial stress. Levels of profitability are still very low for many telecom equipment manufacturers (Chart 32) and telecom service firms,[9] and numerous companies are being forced to undertake further major restructuring of their operations (Box 4). Activity in telecom equipment manufacturing decreased further in recent months, and most observers now expect that a significant recovery in activity will not take place until 2004.

In addition, short-term financial prospects for many forest products companies remain weak. Prices are still very low, and lumber prices have fallen considerably since mid-year. The implementation by the United States of high duties on imports of lumber from Canada has added to the downward pressure on profitability in this industry.

The financial situation in Canada's farm sector has also deteriorated. In particular, many grain and livestock producers are experiencing financial stress as a result of the Prairie drought and very low hog prices.

The Financial System

Financial Markets

Canadian markets have been influenced by global financial developments. Financial markets worldwide experienced an above-average level of volatility during the summer in response to a

9. The telecom services sector includes phone companies, wireless carriers, and cable companies.

Box 4

Developments in Canada's Telecom Sector

Canada's telecom sector experienced very strong growth in the second half of the 1990s, reflecting the impact on demand of marked reductions in relative prices and booming export markets. This was followed last year by a collapse in export demand and a marked weakening in profitability.

It is useful to put the recent developments in Canada's telecom sector in an international context. The commercialization and mass-market adoption of the Internet during the second half of the 1990s (and also the deregulation of the local U.S. telephone market) contributed to the belief that there were spectacular opportunities for growth worldwide. Firms in all parts of the global telecom sector substantially increased their capital outlays during this period, mainly with the intention of building additional national and global communications networks based on new fibre-optic technologies. A relatively high share of this rise in business investment was financed through debt issuance.

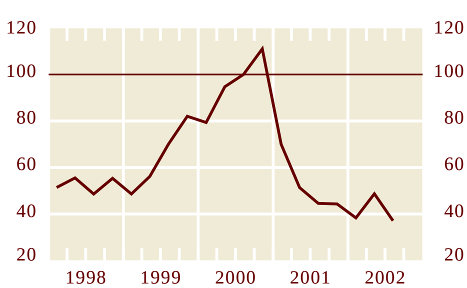
While the growth of demand since the late 1990s was strong, it nonetheless fell well short of expectations and of the growth of capacity. With the buildup of considerable excess capacity, prices fell markedly. Rates of profitability fell drastically, and some telecom companies failed. Other firms resorted to questionable accounting procedures to help boost apparent revenue growth, leading to many of the recently revealed accounting scandals. Access to capital markets has subsequently been curtailed, investment expenditures have been scaled back dramatically, and more telecom firms have entered bankruptcy proceedings.

Canadian manufacturers of telecom equipment have been hard hit by these developments and have been forced to drastically cut levels of activity and employment (Chart 1). Even with these adjustments, most of these companies are still experiencing substantial financial losses. Most industry observers currently expect that a marked increase in capital outlays by the global telecom sector will not take place until 2004, so that the return to profitability in Canada's telecom manufacturing industry may be delayed for some time to come.

Canada's telecom services industry has faced many of the same problems as its foreign counterparts. With substantial debt-financed increases in capital spending in 2000 and 2001, this industry experienced a marked increase in its debt-equity ratio. Revenue growth has fallen well short of expectations, and profitability has been very weak since mid-2001 (Chart 2). Indeed, some wireless services providers are having particularly serious financial difficulties. Moreover, with recent downgrades of much of the industry's debt, most of the largest companies have announced major restructuring of their operations and measures to reduce indebtedness.

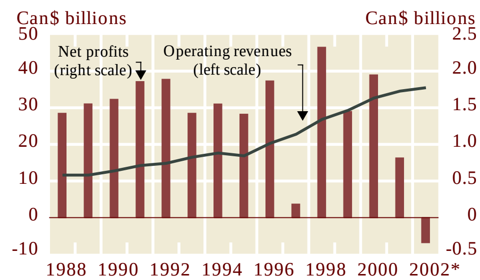
Chart 1 New Orders: Communication-Equipment Manufacturing

Indexed to 2000Q3 = 100



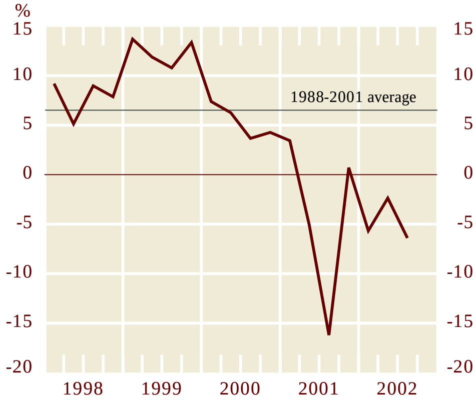
Source: Statistics Canada

Chart 2 Operating Revenues and Net Profits: Canadian Telecommunications Services



* Annualized figure based on first two quarters
Source: Statistics Canada

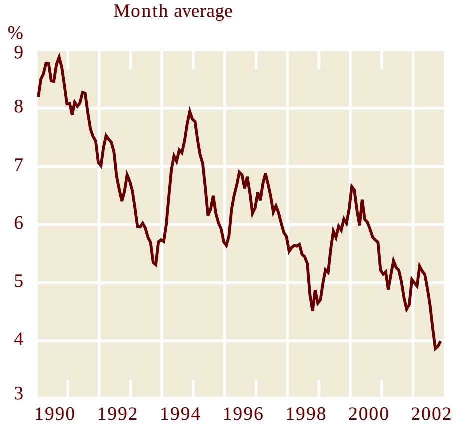
Chart 32 Return on Equity: Electronic and Computer Manufacturing



Source: Statistics Canada

Chart 33 Yield for 10-Year U.S. Benchmark Bond

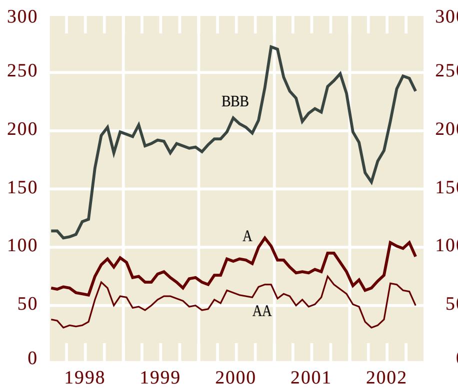
Month average



Source: Thompson Financial Datastream

Chart 34 Canadian Corporate Spreads by Credit Quality (5-10 years)

Basis points (over government securities)



Source: Thompson Financial Datastream

range of factors that included revelations of deficient corporate accounting and governance practices, geopolitical tensions, and changing perceptions about the economic outlook. In this uncertain environment, market participants in Canada and elsewhere reacted with increased sensitivity to new pieces of economic information. Risk aversion continues to be an important factor influencing markets, although recent financial indicators suggest that market participants are becoming less risk averse.

Given the elevated level of loan losses, markets for credit-risk transfer, which continue to evolve rapidly, have attracted considerable attention (Box 5). Despite the relative newness of some of these financial instruments, they appear to have operated largely as expected in the current environment.

Fixed-income credit markets

In fixed-income markets, international developments have been significant. U.S. government bonds, which often benefit from “safe haven” flows during periods of increased turbulence, saw their yields approach historical lows in the third and fourth quarters (Chart 33). Developments in credit markets suggest that there has been a shift to higher-quality assets, both corporate and government, although recent evidence indicates this effect is becoming less important. It is interesting to note that the risk premium between bank and government credit in the United States (as represented by the spread between the Treasury and fixed-rate portions of a fixed-floating swap) has not increased, in contrast to the experience during some previous turbulent periods (e.g., the autumn of 1998, during the problems associated with Long-Term Capital Management). Although other factors were also present, this suggests that recent developments have not markedly raised concerns over the longer-term health of the U.S. banking sector.

In Canada, corporate credit spreads (over government bonds) have risen from the lows reached in the first half of the year, although declining somewhat in recent months (Chart 34). Although funding costs were near historical lows for many high-quality issuers, the uncertain economic environment and financial volatility led a number of firms to emphasize debt reduction. Canadian corporate debt issuance fell as financial market volatility peaked in July

Box 5

Evolution of Financial Markets for Transferring Credit Risk

Techniques for credit-risk transfer (CRT), although not new, have recently attracted significant attention with the development of markets for credit default swaps (CDSs) and collateralized debt obligations (CDOs). From the perspective of a financial institution, company, or investor, CRT instruments can be attractive because they allow them to alter their financial-risk profile, either by increasing their risk exposure (i.e., acquiring risk) or reducing it. Certain types of CRT, such as securitization, can also represent an alternative source of funding for institutions that carry loans as assets on their balance sheets.

Significant developments in the CRT market include the introduction of primary market syndication of bank loans in the 1960s and the development of a secondary market in bank loans in the United States in the 1980s. Also in the United States, the 1970s saw the packaging and sale of loan portfolios (securitization) to fund the financing of residential mortgages.

In recent years, the use of securitization and special-purpose vehicles (SPVs) to create asset-backed securities (ABSs) has spread to credit card receivables, car loans, and commercial paper, among other areas. Increasingly, originating institutions do not necessarily expect to hold on to assets, such as mortgage loans or credit card receivables, to maturity. Instead, these are seen as assets to be bundled and sold in order to finance other activities.

Collateralized debt obligations (CDOs) are similar to ABSs. The underlying assets for the CDO are typically corporate bonds or loans, and the associated SPV uses two or more tranches of debt. The "junior" tranche absorbs any initial losses by the SPV, thereby insulating the more "senior" tranches. In a CDS, one counterparty agrees to compensate the other if one or more specified credit events (such as a debt default or a credit-rating downgrade) occur during the life of a contract, in exchange for a fee or premium. The market or standardized, "single-name" CDS is currently the most active and liquid area of the credit derivatives markets. Finally, a "synthetic" CDO is created when an underlying portfolio of high-quality debt securities is combined with CDSs to replicate the risks and returns of a portfolio of higher-yielding securities. CDSs and synthetic CDOs can be used to transfer credit risk without transferring the underlying assets or, in the case of loans, without even informing the borrower.

One implication of this activity is that risk exposure can be shifted more easily among financial system participants. But only limited information is available on how this has influenced aggregate risk exposures within the financial system. One recent survey suggests that banks, securities houses, and hedge funds tend to be the most active buyers of credit protection (which, alone, would reduce their risk exposure), while these institutions, together with insurance and re-insurance companies, are the most active sellers (see chart).

Breakdown of Participants in Credit Derivatives Markets

Showing institutions buying and selling credit protection

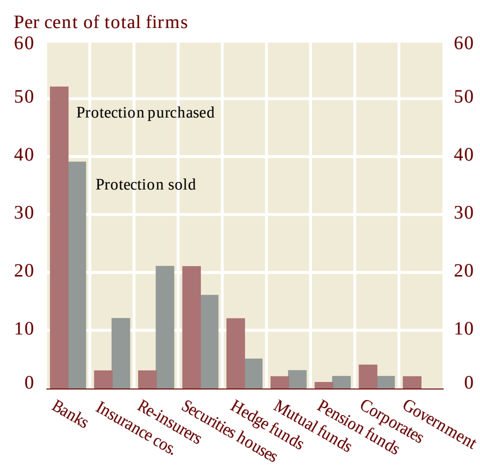
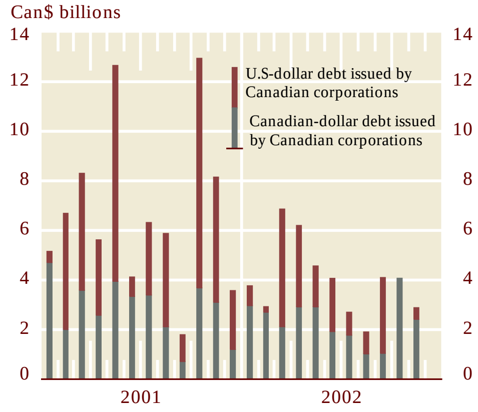
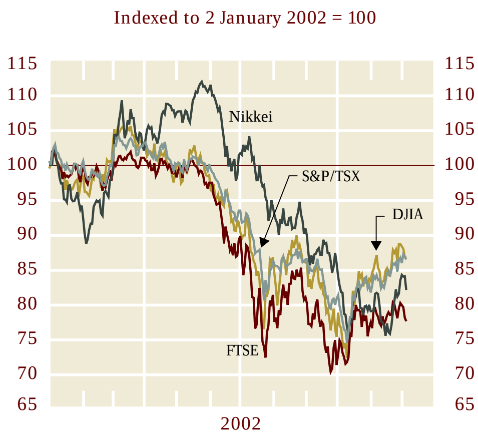


Chart 35 Corporate New Issuance



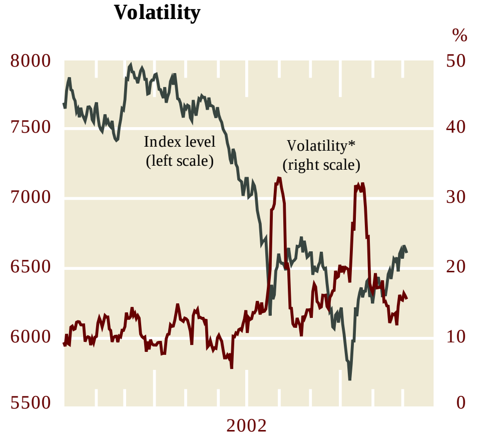
Source: Bank of Canada

Chart 36 Equity Indexes



Source: Thompson Financial Datastream

Chart 37 S&P/TSX Index Level and Volatility



* 10-day annualized historical volatility
Source: Thompson Financial Datastream and Bank of Canada calculations

and August, and many issuers chose to remain out of the market.[10] Assisted by diminished market volatility, bond issuance has recovered somewhat (Chart 35).

Equity markets

Although global equity prices had been falling since May, the pace of decline accelerated in mid-June, and international markets subsequently posted broad-based losses (Chart 36). The market declines themselves added to fears about the resiliency of consumer confidence and spending and, in turn, the outlook for continued economic recovery. Most recently, equity markets in Canada and elsewhere have moved back from their lows, although in the context of above-average levels of volatility (Chart 37). The Canadian S&P/TSX index is nonetheless still about 15 per cent below its level during the first part of the year.

The observed volatility in financial markets may be linked to uncertainty among market participants regarding appropriate equity valuations in the current climate. The declines in equity markets have tended to move price-earnings ratios in Canada and elsewhere (based on trailing, i.e., actual, earnings) down towards their historical trend values. However, uncertain prospects over the future growth in company earnings, and in the economy more generally, suggest that the volatility in equity market values may persist.

Foreign exchange markets

The Canadian-dollar exchange rate also reflected the volatility that affected fixed-income and equity markets during the summer (Chart 38). Volatility in the Canadian/U.S. dollar exchange rate (which has typically been quite modest relative to that of other major currencies against the U.S. dollar), has since returned to more normal levels. The Canadian dollar has generally remained in a range of 0.63 to 0.64 U.S. dollars over the past several months. The U.S. dollar, which had moved down against the yen and euro through the summer, has regained some of its lost ground, particularly against the yen.

10. Similar to the United States, swap spreads on bank and government bonds in Canada have also remained relatively stable.

Financial Institutions

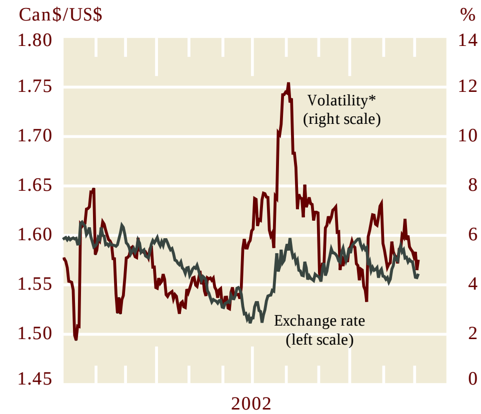
The Canadian banking sector has responded to the weakening in the overall quality of its asset base. In the second half of fiscal 2002, the major banks again made large additions to loan-loss provisions (Chart 39). Total loan-loss provisions in fiscal 2002 increased substantially relative to a year earlier.

Specific problem areas for banks have been their loans to the telecommunications sector, involvement in the U.S. syndicated loan market, exposure to Latin America, and losses on their merchant banking portfolios. Banks have been working to reduce their exposure to the troubled telecommunications sector. It nevertheless remains at about $18 billion, although the banks have provisioned against a substantial portion of this exposure. While the troubled U.S. merchant energy and power-generation sector will also contribute to losses, the impact is expected to be relatively limited. Banks have also been affected by the decline in equity valuations, which has become more important to them in recent years in view of the trend increase in bank holdings of equities (Chart 40). This increase reflects activities such as their venture capital and merchant banking operations, and investment dealer inventories of equities.

The more difficult credit environment and increased provisioning has placed downward pressure on bank profits, and their return on equity has deteriorated, with some banks reporting quarterly losses in the second half of fiscal 2002 (Chart 41). The credit ratings of two major Canadian banks were lowered by rating agencies in the autumn.

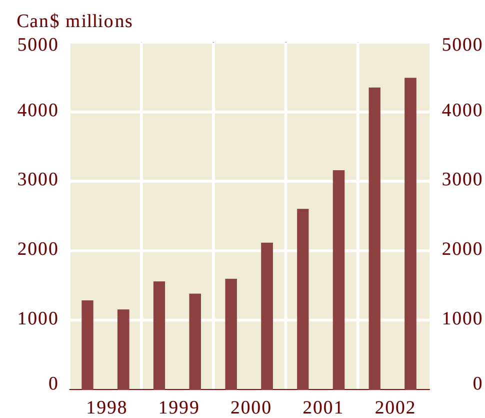
Canadian banks are nevertheless benefiting from the fact that their financial position as they entered the current period of credit deterioration was much improved relative to that of the early 1990s. Their aggregate capital base has remained strong in the face of recent developments. Despite an increase in impaired loans, the extent to which they are covered by allowances (the "coverage ratio") remains at much higher levels than was the case in previous cyclical slowdowns (Chart 42). Several banks have indicated that, over the next several years, they intend to place less emphasis on corporate lending. They plan to reduce the capital devoted to such lending by approximately one-third, and

Chart 38 Exchange Rate and Volatility



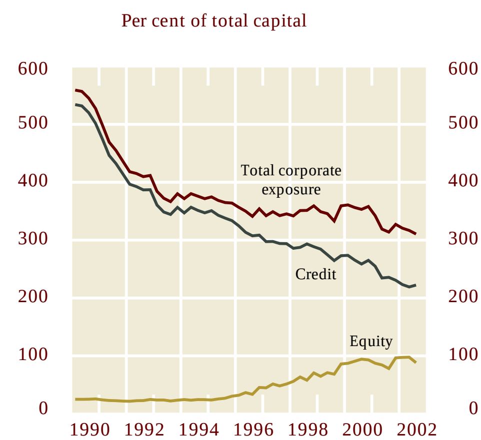
* 10-day annualized historical volatility
Source: Thompson Financial Datastream and Bank of Canada calculations

Chart 39 Provision for Credit Losses: Major Canadian Banks



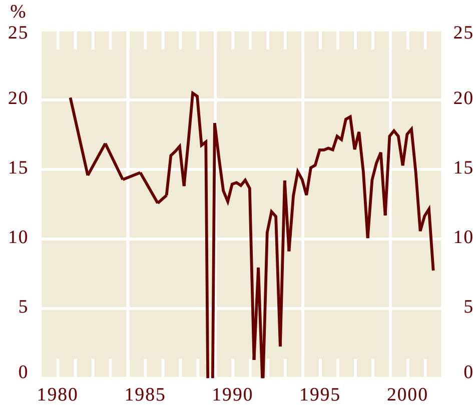
Calculated from quarterly financial statements published by the major Canadian banks
Source: Bank of Canada

Chart 40 Corporate Exposure of Banks



Source: Bank of Canada

Chart 41 Return on Equity of Major Canadian Banks



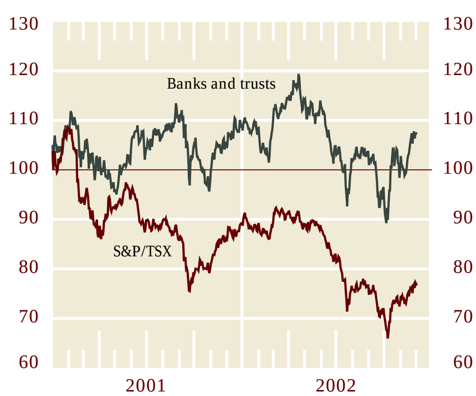
Source: Canadian Bankers Association

Chart 42 Major Canadian Banks: Asset Quality

* Relative to loans and acceptances less allowances
** Total allowances/Gross impaired loans
Source: Office of the Superintendent of Financial Institutions

Chart 43 Equity Price Indexes

Indexed to 2 January 2001 = 100



Source: Thompson Financial Datastream

reinforce areas such as retail banking and wealth-management operations. Bank sector equity values have fared relatively well compared with broader equity indexes in Canada (Chart 43).

The Canadian insurance industry is well capitalized and, as a whole, was not heavily exposed to claims arising from the 11 September terrorist attacks last year. Nevertheless, the sector faces a number of challenges. Investment income, an important source of revenue for the industry, has been adversely affected in the current environment. In addition, insurance companies face losses on their extensive corporate bond portfolios (e.g., those involving firms in the North American telecommunications, merchant energy, and airline and aerospace sectors). Several firms have announced significant provisions for credit losses.

The return on equity can vary substantially across the industry. While remaining relatively robust among some of the major life insurers, the return on equity of the aggregate insurance sector has tended to decline, falling in the second quarter (Chart 44). The situation among property and casualty insurers has been comparatively difficult. Within this relatively heterogeneous group of companies, recent increases in premiums and tighter underwriting criteria have been at least partly offset by intense cost pressure from claims, particularly from the auto insurance segment of the industry.

The securities industry has experienced a reduction in operating profits from the peak levels achieved in 2000 (Chart 45). Revenues from equity trading fell sharply in the second quarter, a development that likely continued into the third quarter. Firms that primarily serviced retail clients have been particularly hard hit. In contrast, firms serving institutional clients have fared better, as rising issuance of income trust units relative to a year earlier (Chart 46) and higher equity financings in the second quarter contributed to investment banking revenues. Commission revenues have been under downward pressure as a result of reduced investor activity. Another indicator of reduced investor activity has been the lower demand for margin debt by clients. Nevertheless, profits have been supported by firms' efforts to reduce costs, which have included significant staff reductions in some areas.

Investor concern in the current environment has also been reflected in declining investment in mutual funds. The industry has experienced net redemptions in recent months (Chart 47), and some smaller funds are being shut down or consolidated.

Payment, Clearing, and Settlement Systems

Systems designed to clear and settle payments and other financial obligations in Canada (Box 6) have undergone some key changes.

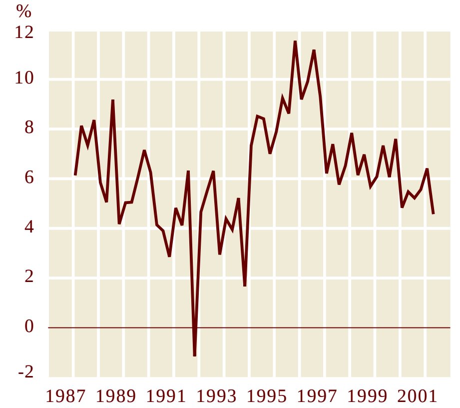
Recent developments

In September 2002, the Continuous Linked Settlement Bank (CLS Bank) began commercial operations. The CLS Bank, based in New York, is an international system for the settlement of foreign exchange transactions. It settles trades in seven currencies, including the Canadian dollar. The CLS Bank has been designated under the Payment Clearing and Settlement Act (PCSA). It is an important initiative that will reduce risk in the settlement of foreign exchange transactions.[11]

The Governor of the Bank of Canada has taken the decision not to designate the Automated Clearing Settlement System (ACSS) under the PCSA. The ACSS is primarily a system for smaller-value retail payments. In conjunction with the decision that the ACSS does not currently pose systemic risk, effective 2 December 2002, the Bank of Canada reduced the interest rate spread that is applied to the ACSS by 50 basis points, to 300 basis points. Thus, when the ACSS settles each day, the Bank will extend collateralized overdraft loans to settle positions in the ACSS at the target rate plus 150 basis points and will pay the target rate of interest less 150 basis points on deposits arising from ACSS settlement. The target rate is the midpoint of the 50-basis-point-wide operating band for the overnight interest rate that is used to implement monetary policy.

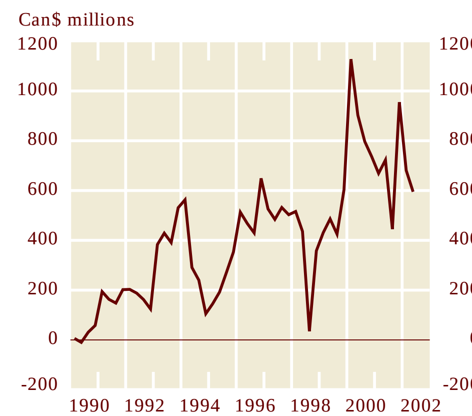
A $25 million cap on paper items eligible for clearing in the ACSS will be implemented by the Canadian Payments Association (CPA) in February 2003 (with a six-month grace period). Currently, it is estimated that about 35 per cent

Chart 44 Insurance Industry Profitability: Return on Equity



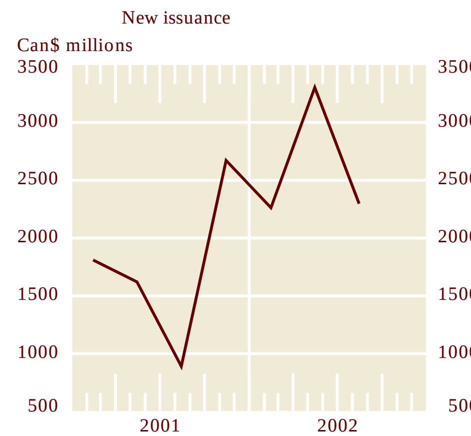
Source: Statistics Canada

Chart 45 Operating Profits: Securities Industry



Source: Investment Dealers Association of Canada

Chart 46 Canadian Income Trust Units

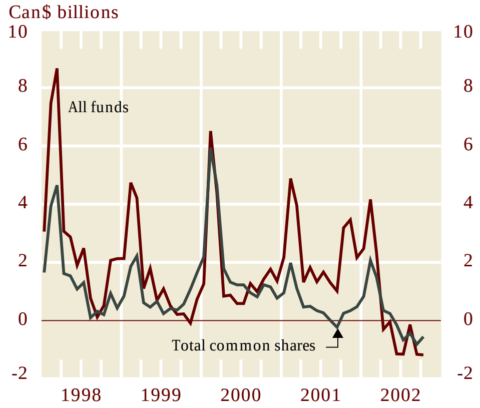


Source: Investment Dealers Association of Canada

11. For more information on the CLS Bank, see the article by Miller and Northcott in this *Review* (page 41).

Chart 47 Net New Sales of Mutual Funds

Excluding reinvested distributions



Source: The Investment Funds Institute of Canada

of the ACSS's daily payment flows of about $21 billion are accounted for by payments over $25 million. The CPA decision will encourage the migration of large-value items to the LVTS, which has payment flows of about $114 billion per day. The LVTS has stronger risk controls and provides users with intraday finality and certainty of settlement.[12]

The Canadian Depository for Securities (CDS) is working to implement a new system for the settlement of debt, equities, and some U.S.-dollar-denominated securities. The new system, called CDSX, is expected to be available in early 2003, although equities are not expected to be brought into the system until some time later. Once the new system is fully operational, the Debt Clearing Service (DCS) and the book-based Securities Settlement Service (SSS), which currently settles equities, will both cease to exist. While the risk controls for the CDSX are based on those of the DCS, a thorough review and redrafting of system rules is underway.

Operational events in payment, clearing, and settlement systems

Payment, clearing, and settlement (PCS) systems in Canada generally operate without major disruption or lengthy systems or telecommunications outages. The LVTS has a one-hour Disaster Recovery Plan (DRP) that allows

12. For more information on the ACSS, see the article by Northcott in this *Review* (page 29).

Box 6

Payment, Clearing, and Settlement Systems in Canada

An essential component of the financial system is a robust set of arrangements to clear and settle payments and other financial obligations. Given their central role in settling financial transactions, clearing and settlement systems have the potential to pose systemic risk should they fail to operate as expected. Under the Payment Clearing and Settlement Act (PCSA), the Governor of the Bank of Canada designates systems that have the potential to pose systemic risk.[1] The Bank of Canada has responsibility for the oversight of such domestic systems and shared oversight with other central banks for international systems that involve the Canadian dollar.

The Bank currently oversees two domestic systems: the Large Value Transfer System (LVTS) for the exchange of payments, operated by the Canadian Payments Association (CPA), and the Debt Clearing Service (DCS) for the clearing and settlement of securities transactions. The DCS is operated by the Canadian Depository for Securities (CDS). The Bank of Canada shares oversight of the Continuous Linked Settlement Bank (CLS Bank) with other central banks, including the U.S. Federal Reserve, which is the lead overseer. Based in New York, the CLS Bank is an international system for the settlement of foreign exchange transactions, involving seven currencies including the Canadian dollar.

Other systems, while not judged to have the potential to pose systemic risk, are nevertheless important to the financial system. These include settlement systems such as the Automated Clearing Settlement System (ACSS), which settles mainly smaller-value retail payments, and the Canadian Derivatives Clearing Corporation (CDCC), which clears and settles exchange-traded interest rate and equity derivative contracts in Canada.

The Bank of Canada supplies services to the LVTS, the DCS, the CLS Bank, and the ACSS by providing settlement assets and liquidity, as well as collateral and settlement-agent services. The Bank of Canada also provides contingency arrangements for these settlement systems.

1. The Minister of Finance must also be of the opinion that such designation is in the public interest.

operations to resume if primary systems fail. The DCS has a two-hour DRP and LVTS participants are also expected to be able to resume operations within two hours of a system outage. Longer outages would be of greater concern because they would be more likely to lead to negative impacts on system participants or to significant settlement delays.[13]

The Bank of Canada monitors problems that occur as indicators of the reliability of these systems. Serious events in PCS systems, if they were to occur, could affect financial stability because these systems underpin much of the financial activity in the economy.

13. For further discussion of participant outages, see the article by McPhail and Senger in this *Review* (page 45).