

Developments and Trends

Notes

The material in this document is based on information available to **31 May 2007** 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, RBC Financial Group, Scotiabank, and TD Bank Financial Group.

Assessing Risks to the Stability of the Canadian Financial System

The *Financial System Review* is one vehicle that the Bank of Canada uses to contribute to the strength of the Canadian financial system. The Developments and Trends section of the *Review* aims to provide analysis and discussion of current developments and trends in the Canadian financial sector.

The first part of this section presents an assessment of the risks, originating from both international and domestic sources, that could affect the stability of the Canadian financial system. Key risk factors and vulnerabilities are discussed in terms of any potential implications for the system's overall soundness. The second part of the Developments and Trends section examines structural developments affecting the Canadian financial system and its safety and efficiency; for example, developments in legislation, regulation, or practices affecting the financial system.

The current infrastructure, which includes financial legislation, the legal system, financial practices, the framework of regulation and supervision, and the macroeconomic policy framework, significantly influences the way in which shocks are transmitted in the financial system and in the macroeconomy, and thus affects our assessment of risks.

Our risk assessment is focused on the vulnerabilities of the overall financial system, and not on those of individual institutions, firms, or households. We therefore concentrate on risk factors and vulnerabilities that could have systemic repercussions—those that may lead to substantial problems for the entire financial system and, ultimately, for the economy. In examining these risk factors and vulnerabilities, we consider both the likelihood that they will occur and their potential impact.

Particular attention is paid to the deposit-taking institutions sector because of its key role in facilitating financial transactions, including payments, and its interaction with so many other participants in the financial system. For instance, these institutions assume credit risks with respect to borrowers such as households and non-financial firms. Thus, from time to time, we assess the potential impact that changes to the macrofinancial environment may have on the ability of households and non-financial firms to service their debts.

Risk factors and vulnerabilities related to market risks are also examined. The potential for developments in financial markets to seriously affect the financial position of various sectors of the economy and, ultimately, to disrupt the stability of the Canadian financial system is assessed.

Financial System Risk Assessment

This section of the Review presents an assessment of the risks arising from both international and domestic sources bearing on the stability of the Canadian financial system. The objective is to highlight key risk factors and vulnerabilities in the financial system and to discuss any potential implications for the system's overall soundness.

Key Points

- The financial positions of the Canadian financial, non-financial corporate, and household sectors remain solid, supported by favourable macroeconomic conditions.
- The possibility of an abrupt slowing of the U.S. economy remains a key risk.
- Other risks include a significant decline in the price of risky assets and a disorderly resolution of global imbalances.
- The Canadian financial system appears to be well placed to withstand the impact of such potential shocks.

Overall Assessment

As in December, our assessment is that the Canadian financial system is sound and is likely to remain so for the foreseeable future. The financial positions of the Canadian household and corporate sectors remain strong, reflecting years of solid economic expansion, which have contributed to healthy corporate and household balance sheets. The financial system appears to be well positioned to withstand the three potential risks that have been identified: an abrupt slowing of the U.S. economy, a marked

deterioration in the prices of risky assets, and a disorderly resolution of global imbalances.

Economic developments have been largely supportive of this favourable assessment of financial stability for Canada, unfolding much as was expected at the time of the December *Financial System Review* (FSR). First, domestic demand in Canada has been strong, supported by sturdy employment growth and by gains in real income and net wealth, owing partly to rising world demand for, and prices of, commodities. Second, as discussed in the April 2007 *Monetary Policy Report*, the U.S. economy is projected to grow at a moderate rate, although the slowdown in the U.S. housing sector appears likely to be more prolonged and deeper than had been expected. Third, the somewhat slower pace of economic growth in the United States is being largely offset by stronger growth in Europe and Asia, including Japan. This suggests that the projected rotation of domestic demand needed for an orderly resolution of global imbalances is under way.

Financial market developments have also been largely favourable. Although there was a brief period of volatility in financial markets in February/March, this volatility has subsided, and risk premiums have since contracted towards the historically low levels observed prior to that period. The exception has been the U.S. subprime mortgage market, where a combination of weakness in the housing market and questionable underwriting practices at some institutions contributed to a decline in the credit quality of some U.S. mortgages and certain related credit market instruments.

Potential risks

This continued favourable assessment is based on a projection of ongoing solid economic growth in Canada and abroad. We continue to see three risks to this assessment: an abrupt

slowing of the U.S. economy, a marked deterioration in the prices of risky assets, and a disorderly resolution of global imbalances. Overall, the probability of these risks is not significantly different from that in December.

While the possibility is remote, a much sharper slowdown in the U.S. economy could materialize if there were to be a further weakening in housing and business investment and if consumption were to decelerate sharply as a result of a tightening of credit conditions, a more widespread decline in housing prices, or a deterioration in consumer sentiment.

Given the strong economic and financial links between the Canadian and U.S. economies, such a slowdown would have both direct and indirect effects on Canadian financial institutions. Canadian banks have only a limited direct exposure to U.S. businesses and consumers, as well as to U.S. banks that might be adversely affected by a deterioration in credit quality. Canadian banks would be affected indirectly, however, since a sharp deceleration of the U.S. economy would affect many export-related sectors in Canada, some of which have been experiencing financial stress for several years. Banks would also see a deterioration in the quality of their loans to households, as employment and incomes in export sectors suffered. Nonetheless, with their strong profit and capital positions, the major Canadian banks are relatively well placed to withstand this shock, although some smaller institutions may be more exposed to a sharper-than-expected slowdown in the U.S. economy.

In the spring of 2006 and in February/March of this year, concern about the health of the U.S. economy contributed to brief periods of declining prices for risky assets. On both occasions, markets remained liquid, and prices for risky assets rebounded after a brief period of turbulence. Nevertheless, if there were to be a sharp slowing of the U.S. economy, there could well be a more significant, persistent, and widespread decline in the prices of risky assets than has occurred to date. The adverse consequences of widening credit spreads could thus amplify a U.S. slowdown. A sudden adjustment in the prices of risky assets in Canada and abroad could have repercussions for the net worth of individuals, institutional investors, and firms; for the availability of credit and the terms on which it could be obtained; and for the near-

term growth of the global and the Canadian economies.

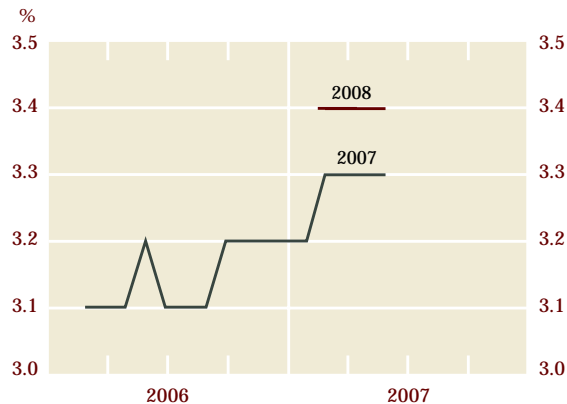
An abrupt slowing in the U.S. economy and a repricing of risk in financial markets could also lead investors to reduce their holdings of U.S. securities and could contribute to increased exchange rate volatility. If this were the case, the risk of a disorderly resolution of global imbalances might well increase. Such a disorderly adjustment could entail lower global economic growth and rising protectionism. This could adversely affect the Canadian export sector and, thus, employment and incomes in Canada.

Widening credit spreads could also be triggered by factors unrelated to a sharp U.S. economic slowdown. Spreads have narrowed to very low levels over the past few years. As discussed in the Highlighted Issue on page 18, while structural and cyclical factors are largely responsible, it is also possible that there is currently some mispricing of risk, perhaps partly because the use of structured products and their complexity may have made it more difficult for market participants to evaluate risk and to determine if risks are properly priced. There are also signs that competition among global intermediaries has led to some erosion of counterparty standards. The longer these trends persist, the more mispricing could be built into the system. And the greater the mispricing, the greater is the risk of an abrupt correction.

Canadian financial situation

Major Canadian banks recorded strong profits in 2006 and the first half of 2007. Their capital ratios remain high. Credit quality continues to be good and, as is discussed in an article in this Review, these banks have made significant progress in developing their risk-management practices. The market's assessment is that banks remain in a strong financial position. All this suggests that banks would be well positioned to withstand adverse shocks.

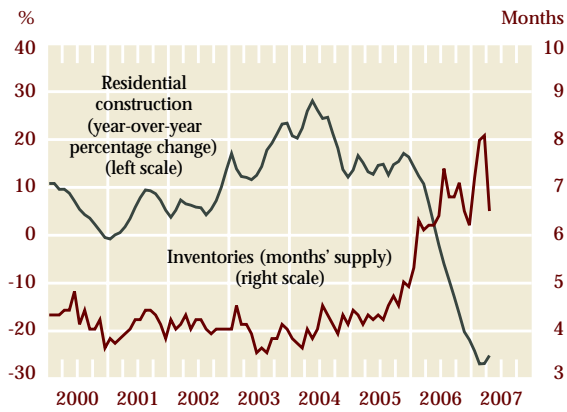
The Canadian non-financial corporate sector is also in very good shape. Profitability continued to be at a high level in early 2007. In general, corporate balance sheets remain strong, with the leverage ratio of the sector at a low level. Our indicators suggest that the credit quality of the corporate sector remains good. The strong balance sheets and the generally favourable economic conditions are reflected in very low

Chart 1 Evolution of Consensus Estimates for Annual Global Economic Growth in 2007 and 2008*

* This estimate covers 46 countries. Country weights are determined using country GDPs converted at 2005 market exchange rates.
Source: Consensus Economics Inc.

rates of arrears on bank loans, bond defaults, and business bankruptcies.

The household debt-service ratio has started to move upwards, reflecting the increase in household indebtedness through 2006 and the rise in interest rates in the first half of that year. Although there has been a steady increase in the proportion of households with both debt-to-asset and debt-service ratios above critical levels, microdata suggest that most households are in relatively good financial shape. Mortgage loan arrears and personal bankruptcies remain at low levels. The subprime mortgage market is not a concern in Canada at this time, given that lending has been largely confined to near-prime borrowers and that there has been little use of exotic features in subprime loans.

Chart 2 U.S. Residential Construction and Inventories of Unoccupied New Single-Family Homes

Source: U.S. Census Bureau

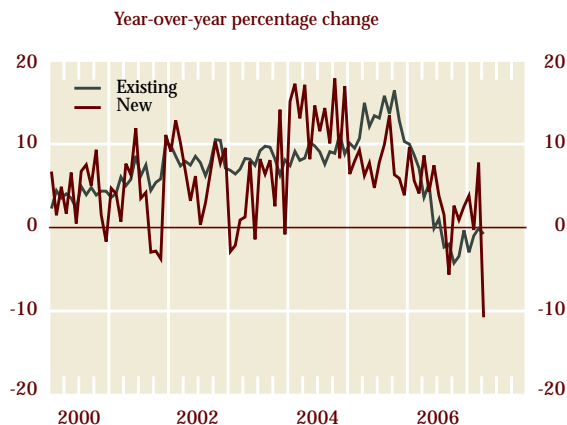
The Macrofinancial Environment

The international environment

The outlook for global economic growth in 2007 has been revised up slightly since December 2006 (Chart 1), although a deceleration from 2006 rates is still expected.

In the United States, the economic slowdown has been somewhat more pronounced than expected. The U.S. housing market has slowed, with lower sales of new and existing homes, higher inventories of unsold homes, and builders reducing construction of homes (Chart 2).¹ This contraction in housing activity has also been accompanied by declines in house prices (Chart 3). Business investment has also been surprisingly weak recently. As discussed in the April *Monetary Policy Report*, U.S. GDP growth is likely to remain modest in 2007 before picking up next year.

Nevertheless, there is a risk, albeit remote, of an abrupt slowdown in the U.S. economy. This could occur if the current slowdown in the U.S. housing sector were longer and more pronounced than currently expected; if this led to a larger slowdown in consumption (for example, as a result of a tightening in credit conditions, a more widespread decline in housing prices, or a deterioration in consumer sentiment); and if

Chart 3 U.S. Median Selling Price for Housing

Note: The new homes series covers only single-family homes, while the existing homes series includes condominiums.
Source: National Association of Realtors and U.S. Census Bureau

1. The decline in residential investment subtracted one percentage point from the annualized growth rate of U.S. GDP in the second half of 2006.

there was a more pronounced slowing in investment.

Whereas growth in the U.S. economy is projected to be relatively modest, expectations for growth in other areas of the world have firmed. The ongoing rotation in global demand away from the United States supports our view that the likelihood of an orderly resolution of global imbalances has increased since the publication of the December FSR. Indeed, it increasingly appears that the U.S. current account deficit may have peaked (Chart 4).

Highlighted Issue

Recent developments in the U.S. subprime mortgage market and their impact on the Canadian financial system

Prepared by William Barker, Jim Day, Ilan Kolet, and Virginie Traclet

Rising delinquencies on subprime mortgages in the United States have recently gathered significant attention.² Although these developments should have no direct impact on the Canadian financial system, since domestic financial institutions have little or no direct exposure to this market,³ they could have indirect effects through their impact on the U.S. economy and on international financial markets.

Deteriorating conditions in the U.S. subprime market

An increase in subprime mortgage lending (partly because of increased financial innovation), low real U.S. mortgage rates, and a general easing in lending standards boosted U.S. housing demand over the past decade (Chart 5).

Estimates suggest that subprime mortgages accounted for over 22 per cent of new mortgage originations in 2006, up from 7 per cent in 2001 (Chart 6). Furthermore, many subprime loans were extended to borrowers on initially

2. The term “subprime” refers to loans extended to borrowers with a tarnished or incomplete credit record and/or a lack of income documentation.
3. Only three of the major Canadian banks offer residential mortgages in the United States, and virtually all of these are prime. In 2006, these loans accounted for less than 2 per cent of their total loans and acceptances, net of specific allowances.

Chart 4 U.S. Current Account

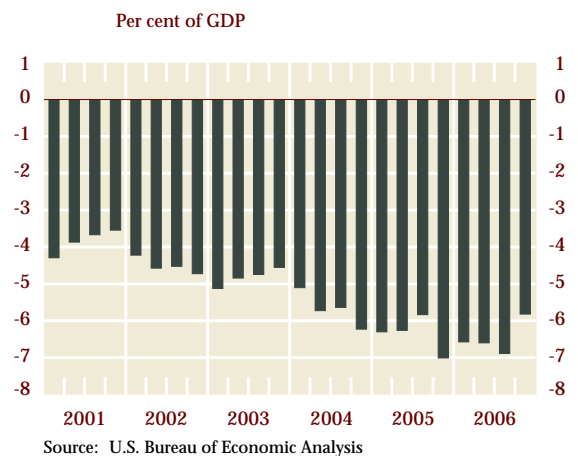


Chart 5 U.S. Home Ownership Rates

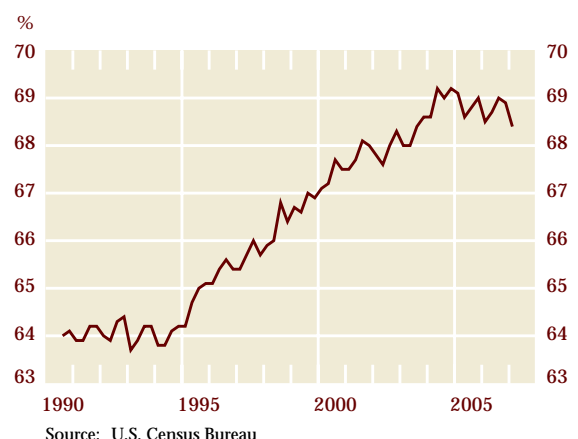


Chart 6 Subprime Share of Mortgage Originations

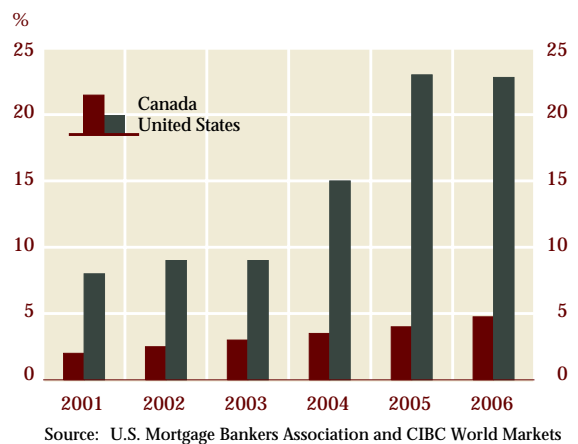
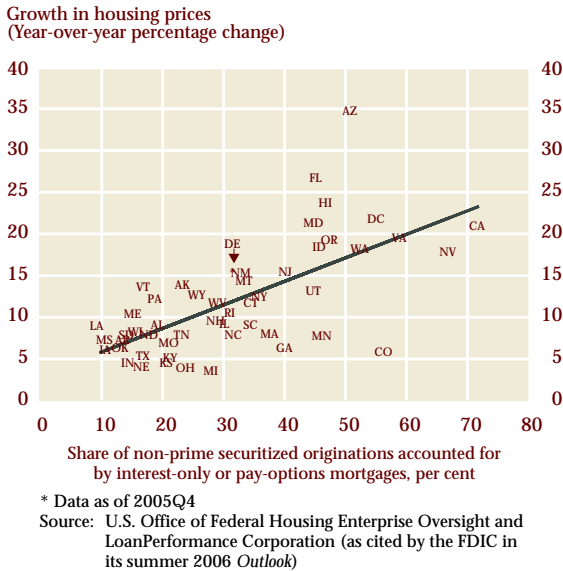


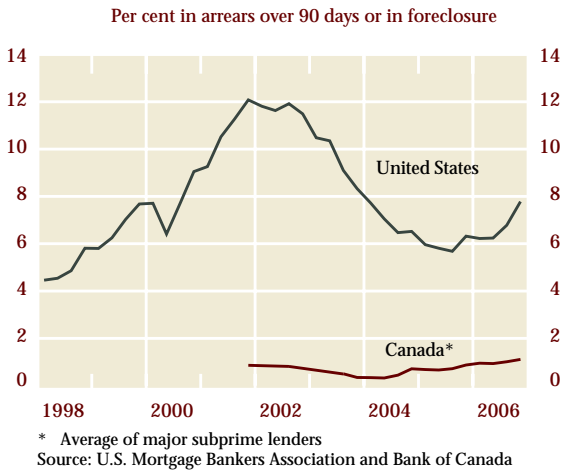
Chart 7 United States: Non-Traditional Mortgage Products by State*



generous terms, using a variety of “affordability” features that typically lowered the monthly payments early in the life of the loan in return for higher payments later.⁴ These non-traditional mortgage products have been particularly popular in those markets in which housing prices have been increasing the most (Chart 7). These loans are, however, particularly sensitive to rising interest rates and/or declining housing prices.⁵ Loan volumes were also maintained by relaxing the documentation requirements imposed on borrowers, with the result that less was known about the capacity of these borrowers to carry debt. The U.S. situation is in sharp contrast to that in Canada (Box 1).

After about three years of sustained declines, delinquencies on U.S. subprime mortgages picked up recently as interest rates rose and housing prices decreased in some areas (Chart 8).⁶ Of note, although delinquency rates on subprime mortgages are below their previous peak at the end of 2001, these mortgages now comprise a much larger share of outstanding mortgages than they did then.⁷ At the same time, the quality of prime mortgages (the bulk of mortgages)

Chart 8 Delinquencies on Subprime Mortgage Payments



4. This subset of loans includes hybrid loans, where interest rates are fixed for a certain period before changing; interest-only loans, which contain no principal portion for a set period; and negative amortization loans, which allow the borrower to pay only a portion of the full monthly carrying cost of the mortgage, with the remaining amount added to the principal portion of the loan, thereby increasing the size of the liability during the life of the loan.
5. As mortgage rates rise, some mortgages will be reset to higher rates. The “resets” will increase the carrying cost of the mortgages and the associated financial burden. Declining housing prices could also mean that some mortgagors might have negative equity in their houses, especially in the case of mortgages in which the size of the liability rises over the life of the loan.
6. Following the recent rise in subprime mortgage delinquencies, some financial institutions have tightened their lending conditions.
7. Subprime mortgages accounted for approximately 14 per cent of total mortgages outstanding in the United States in 2006, compared with 2.6 per cent in 2001.

has not been characterized by such a deterioration (Chart 9).

The recent increase in delinquencies has led to a sharp rise in the credit spreads associated with the riskier segment of the mortgage-backed securities market.⁸ For instance, the spread on the riskiest (i.e., BBB- tranche) of the ABX.HE index, composed of credit default swaps based on bonds consisting of subprime mortgages, has widened by close to 1,000 basis points from roughly 400 basis points in early January 2007.⁹ This widening, in turn, reflects reduced demand among investors for product backed by subprime mortgages. This has reduced the incentives for investment banks to restructure mortgages into structured products and make loans to mortgage originators. The combination of increased collateral requirements and reduced credit availability has led to a spike in bankruptcies and to consolidation among originators of subprime mortgages.

Nearly three-quarters of U.S. subprime mortgages are originated by mortgage brokers, specialized finance companies, or the mortgage finance units of bank holding companies. Most of these are subsequently repackaged into mortgage-backed debt securities (MBS) or more complex debt instruments, such as multi-tranche collateralized debt obligations (CDOs). (See the Highlighted Issue on structured finance.) These repackaged mortgage-based debt securities are sold to institutional investors, which are the ultimate bearers of the risk. This credit-risk-transfer mechanism should help to moderate the systemic risk of rising mortgage delinquencies.

Impact on the U.S. economy

Developments in the subprime mortgage market could exacerbate the current slowdown in the U.S. housing sector by restraining demand, as financial institutions tighten their lending standards in reaction to the rise in delinquencies,

8. Given the rapid growth of the subprime market, credit-risk models may have been based on limited data, with the result that mortgage originators may have underestimated the risk involved with these loans.
9. The ABX.HE index consists of 20 of the largest subprime home equity asset-backed securities in the United States, and is broken down into five sub-indexes, ranging from AAA to BBB-, based on their exposure to default.

Box 1

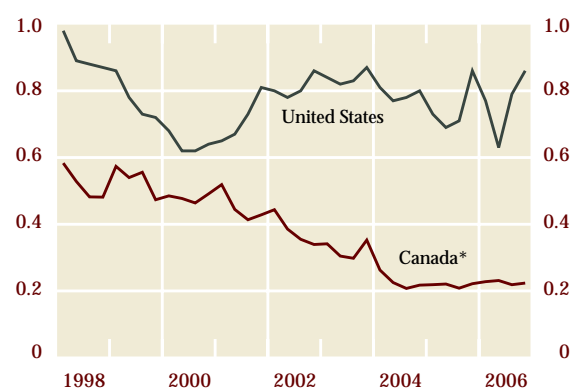
Differences in the Canadian and U.S. subprime mortgage markets

Compared with the U.S. subprime mortgage market, the Canadian market is in its infancy.¹ It is estimated that subprime mortgage originations accounted for only 5 per cent of total mortgage originations in Canada in 2006 (Chart 6), and that subprime loans currently represent less than 3 per cent of total mortgage loans outstanding. Furthermore, while delinquency rates on subprime loans have recently increased sharply in the United States, this has not been the case in Canada (Chart 8).² Canadian subprime lenders have been focusing mainly on near-prime and Alt-A customers,³ and have not offered subprime loans with the types of features that have contributed to rising delinquencies among U.S. subprime mortgages. In addition, the Canadian housing market has not faced the same situation as the U.S. market, and various indicators suggest that a major widespread reversal in Canadian housing prices is unlikely. (See the section on Canadian housing prices on p. 12.) Therefore, the Canadian subprime mortgage market is not a source of concern for the Canadian financial system at this time.

1. For an extensive discussion of the Canadian subprime mortgage market, see the December 2005 Bank of Canada *Financial System Review*, pp. 17–18.
2. All figures quoted for Canada are based on limited available statistics.
3. Near-prime customers are borrowers that are just outside the comfort zone of major financial institutions. Alt-A customers are borrowers with a good credit history but a lack of income documentation.

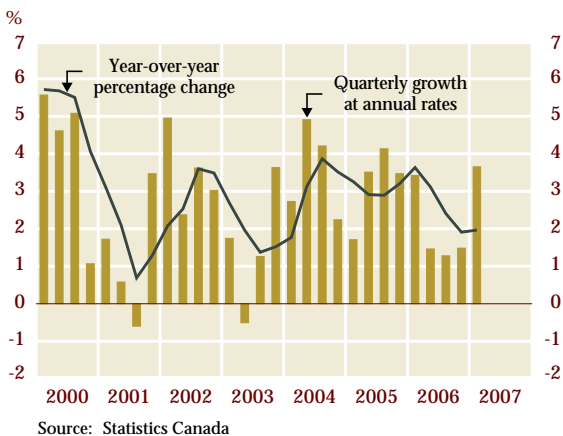
Chart 9 Delinquencies on Prime Mortgage Payments

Per cent in arrears over 90 days or in foreclosure



* At Canadian commercial banks only

Source: U.S. Mortgage Bankers Association and Bank of Canada

Chart 10 Real GDP Growth: Canada

and by adding to supply in the market for existing homes. Less affordable credit, coupled with the wealth and income effects from the ongoing contraction in the housing sector (including house prices), could dampen consumer spending. Therefore, the ongoing slowing in the U.S. economy could be more prolonged and deeper than expected.

Implications for the Canadian financial system

Weaker-than-anticipated growth in the U.S. economy would affect Canada's export sector. This would likely have an adverse impact on the credit quality of Canadian banks' loan portfolios. As well, if the developments in the U.S. subprime mortgage sector were to cause an increase in risk aversion in financial markets, the value of some assets held by Canadian banks could decrease. However, with Canadian banks currently well capitalized and highly profitable, the overall impact on the health of Canadian financial institutions is likely to be limited.

Canadian developments

Canadian economy

As described in the April *Monetary Policy Report*, growth of the Canadian economy slowed in the second half of 2006, largely reflecting the deceleration of the U.S. economy (Chart 10). Despite some slight slowing, domestic demand continued to rise at a solid pace, and the economy remained in excess demand. In recent months, inflation has been somewhat higher than expected.

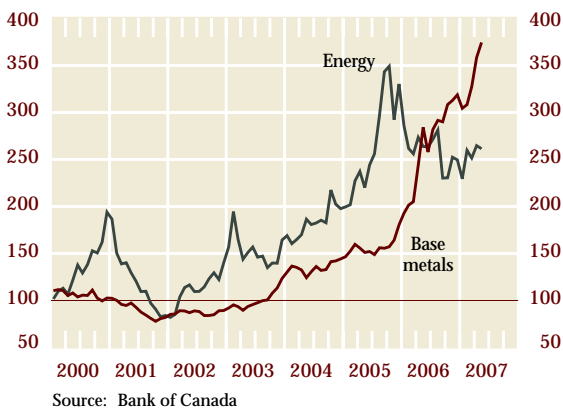
The projection in the April *Monetary Policy Report* was for some pickup in economic growth in Canada through 2007 to a pace close to the rate of growth of potential, once excess demand is absorbed. The main driver is expected to be domestic demand. While exports will benefit from generally solid growth in the global economy and relatively high commodity prices (Chart 11), some sectors will continue to be affected by the U.S. economic slowdown. In fact, growth in Canada picked up strongly in the first quarter of 2007 and was higher than estimated in April.

Non-financial corporate sector

The overall financial position of the non-financial corporate sector remains robust. The return

Chart 11 Bank of Canada Commodity Price Index

1982-90=100



on equity remains at a very high level, while the ratio of debt to equity continued to fall through 2006 and into early 2007 (Chart 12). The corporate sector continues to adjust to relatively high prices for a wide range of commodities, the rise in the Canadian dollar, and strong competition from emerging-market economies. Over the past year, it has also been affected by weak U.S. demand. These factors are reflected in the performance of individual sectors (Chart 13). Profits remain high in most sectors with a low exposure to international trade and in some resource-based sectors (such as oil and gas extraction and primary metal manufacturing). Profits in a number of other sectors with high exposure to international trade remain relatively weak.

Our microdata and contingent claims approach (CCA) indicators suggest that the credit quality of the corporate sector remains good overall (Chart 14). The microdata indicator¹⁰ showed some improvement in credit quality in 2006. More specifically, the share of assets concentrated in companies considered to have weak profit margins, liquidity ratios, and leverage ratios fell to below 8 per cent. This improvement was spread across most industries. The principal exceptions were the consumer goods manufacturing sector and retail sales, where credit quality deteriorated significantly between 2005 and 2006. The CCA indicator also points to an improvement in credit quality. As discussed in previous issues of the FSR,¹¹ this indicator signalled a possible increase in risk in the non-financial corporate sector over 2005 and 2006. This increase was driven primarily by rising volatility in the oil and gas industry and, to a lesser degree, by a modest increase in risk in several other industries.¹² Based on recent

Chart 12 Financial Position of the Canadian Non-Financial Corporate Sector

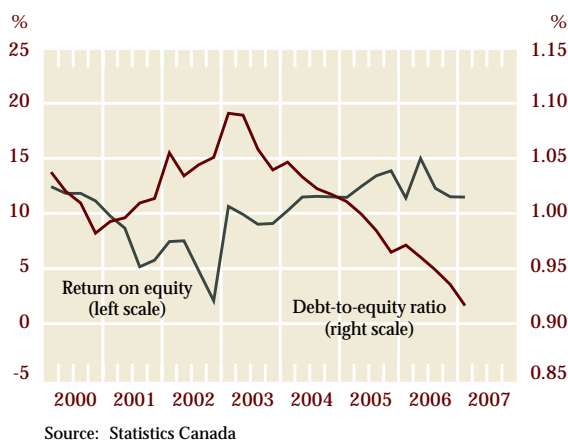
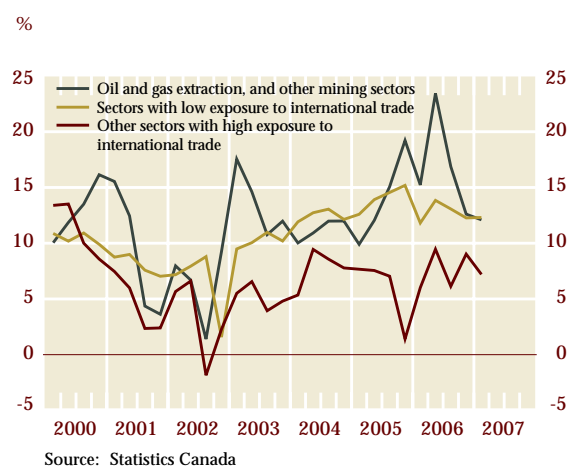


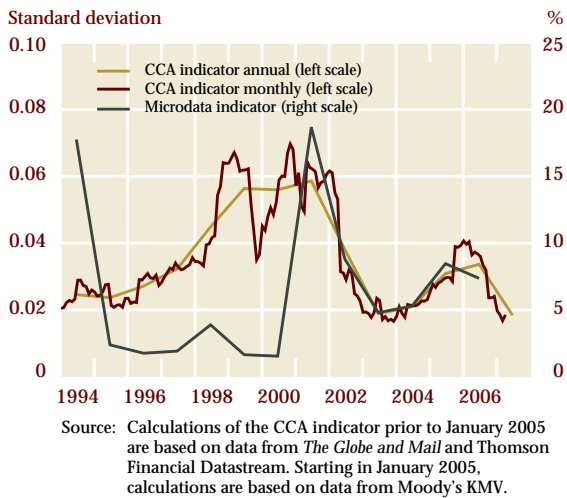
Chart 13 Rate of Return on Equity for Selected Sectors



10. The microdata indicator was described in a Report in the December 2005 issue of the FSR, pp. 37–42.

11. Details of the contingent claims approach (CCA) were outlined in the June 2006 *Financial System Review* (pp. 43–51). The CCA indicator was updated in the December 2006 FSR, pp. 8–9.

12. The CCA indicator is the variance of the portfolio of all assets (at market value) of the Canadian corporate sector. Thus, this metric incorporates any available diversification benefits within the Canadian corporate sector. As a result, the CCA indicator can be seen as a proxy for non-diversifiable risk in the Canadian corporate sector.

Chart 14 Microdata and CCA Indicators

monthly data, the CCA indicator suggests that risk in the non-financial corporate sector decreased in late 2006 and early 2007 as volatility in the oil and gas sector subsided.¹³ The level of risk in most other industries also declined over the same period. Thus, the CCA indicator has returned to the low level seen in 2004.

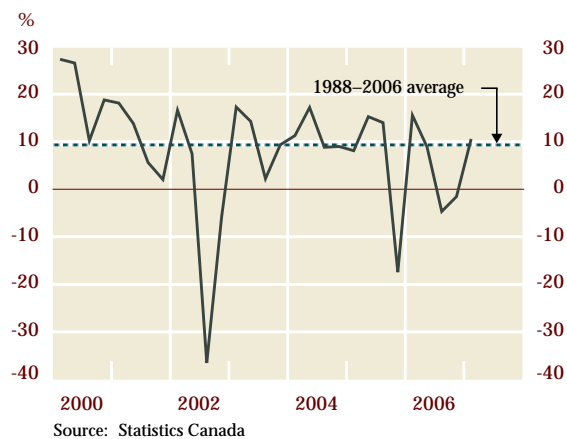
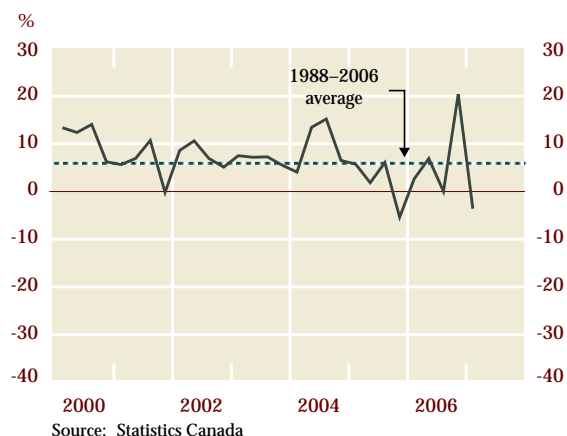
Industry

The U.S. slowdown over the past year has particularly affected Canadian exports of building materials and automobiles, sectors that were already suffering from the appreciation of the Canadian dollar and strong competition from foreign producers. Part of the Canadian auto sector is also being affected by the shift in demand for autos away from the three large North American producers.

The auto manufacturing industry in Canada, after experiencing a loss in the second half of 2006, saw profitability recover markedly in the first quarter of 2007 (Chart 15). However, further restructuring of operations (especially by Ford, Chrysler, and many auto parts companies) is under way, as the Big Three adjust their North American capacity and employment levels downwards to better align them with expected long-term sales.

The wood and paper products industry had a loss in the first quarter of 2007, following a temporary surge in profitability in the preceding quarter with the refund of about 80 per cent of U.S. softwood lumber duties (Chart 16). The slowdown in the U.S. housing market is having a significant adverse impact on lumber prices and export volumes. Lumber producers have also been paying an export charge in recent months, since lumber prices have been below the threshold for export taxes under the Canada-U.S. agreement ending the softwood lumber dispute. Paper producers, especially newsprint manufacturers, have also continued to reduce output as they restructure their operations in response to structural reductions in demand. The difficulties in the wood and paper products sector have been particularly marked in Quebec, Ontario, and British Columbia.

Rates of return in the electronics and computer manufacturing industry eased towards the end

Chart 15 Return on Equity: Automotive Manufacturing**Chart 16 Return on Equity: Wood and Paper Manufacturing**

13. The CCA indicator now includes data up to, and including, April 2007.

of 2006 and into early 2007 as competitive pressures continued to be intense in global markets (Chart 17). Consolidation and restructuring is under way, especially in the telecommunications component of the Canadian industry.

Financial prospects for grains producers have improved markedly since last autumn. Global grains and oilseeds prices have risen substantially, and part of this increase is expected to persist, owing to the increase in the demand for biofuels. On the other hand, the financial condition of the livestock industry, especially that of hog producers, has remained under strain in recent months, owing to rising input costs. The federal government has recently announced that it will allocate \$1 billion for improvements to national farm income programs.

While a number of companies in these affected industries continue to face serious financial risks, it appears unlikely that their problems would have significant adverse effects on the Canadian financial system, since the exposure of Canadian banks to these sectors is limited.

Housing prices

Housing prices across Canada have continued to increase, fuelled by sustained income growth, strong employment, and interest rates that are still relatively low. However, the pace of the price increases has slowed recently, after about two years of acceleration (Chart 18). This moderation is relatively widespread, although regional differences persist—with higher rates in Western Canada where sustained income growth, job creation, and in-migration continue to support housing demand (Chart 19). This widespread moderation results from a general improvement in supply in both the market for new houses and the resale market.

A number of indicators suggest that a major widespread reversal in housing prices is unlikely. Indicators of excess supply in most cities remain below historical averages—and well below the peaks of the early to mid-1990s (Chart 20). Demand for housing remains strong, especially in Western Canada. Finally, affordability has improved in most markets as a result of the slower growth in housing prices coupled with rising incomes and stable mortgage rates.

Overall, recent indicators support the view that the Canadian housing market does not pose a

Chart 17 Return on Equity: Electronics and Computer Manufacturing

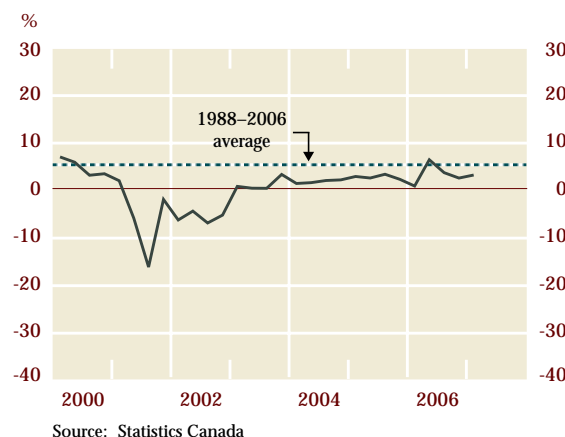


Chart 18 Real Prices for Housing in Canada*

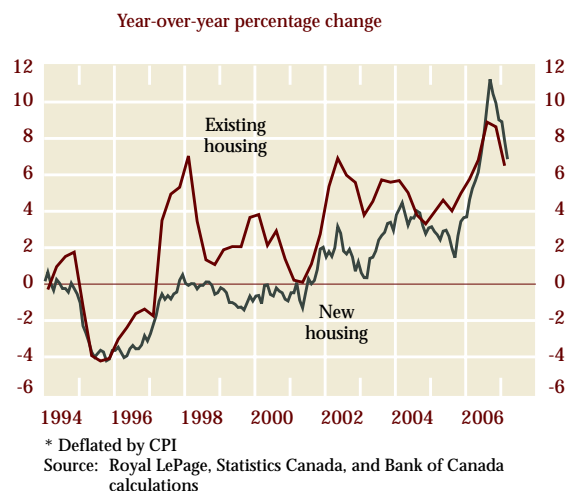


Chart 19 Real Prices for Existing Houses by City*

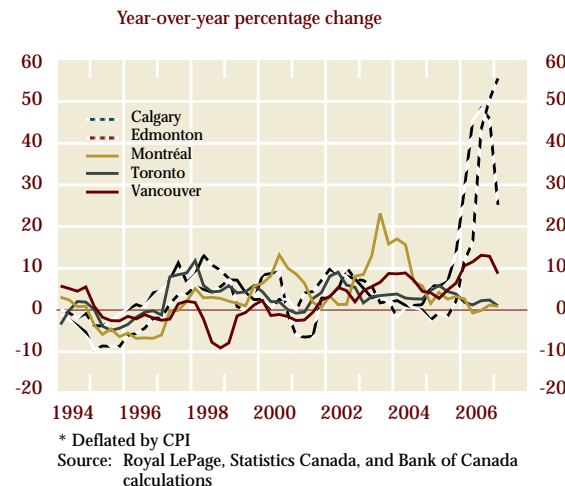
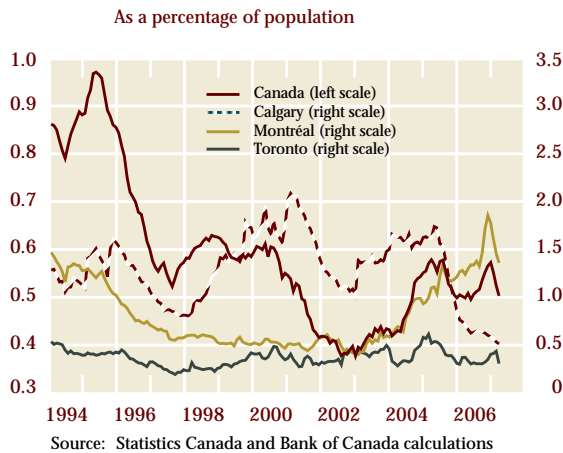


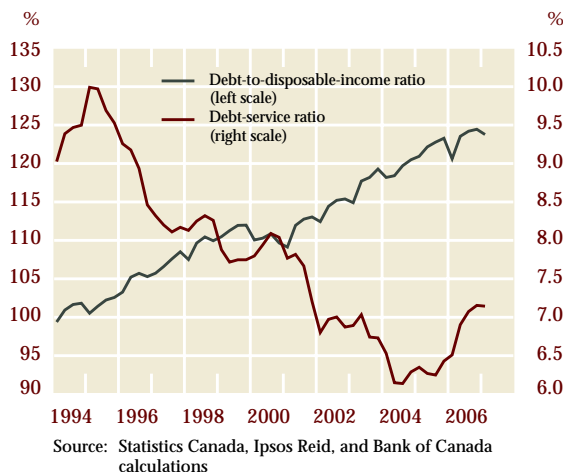
Chart 20 Recently Completed Unoccupied Dwellings

major threat to the stability of the Canadian financial system.

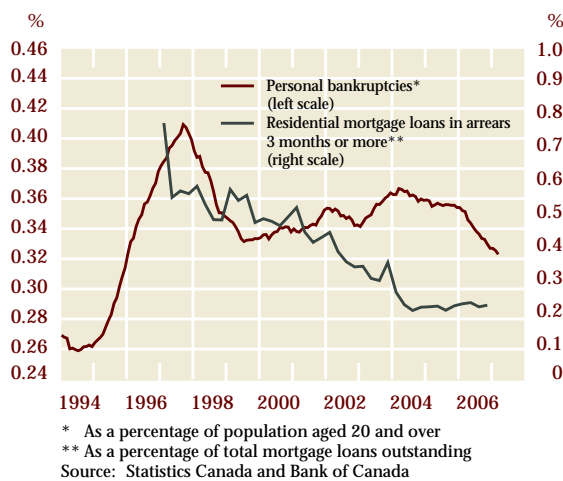
Household sector

Canadian households continued to accumulate debt at a strong pace, although not quite at the peak rate seen in mid-2006. Rising housing prices are supporting credit demand, since households are increasingly using mortgage re-financing to extract equity from their homes.

The rate of increase in household debt surpassed that of income through 2006, leading to a further rise in the debt-to-income ratio. In the first quarter of 2007, however, there was a slight decline in this ratio to 123.7 per cent. The upward trend in this ratio over much of the past year, together with higher interest rates, resulted in an increase in the household debt-service ratio, to 7.15 per cent in 2007Q1 from 6.9 per cent in 2006Q2 (Chart 21).¹⁴ The Canadian household sector appears sound, however, as illustrated by indicators of household financial stress. The personal bankruptcy rate has decreased sharply over the past year, while mortgage loans in arrears have remained at historically low levels (Chart 22).

Chart 21 Household Sector: Indebtedness Indicators

An update of the analysis of the distribution of debt across households presented in the December 2006 FSR indicates that the proportion of vulnerable households (i.e., households that have a debt-service ratio (DSR) above certain vulnerability thresholds) and the proportion of debt owed by these households remain slightly below the averages calculated over the sample period (1999–2006) despite rising debt.^{15,16} At the same time, however, the debt owed by households that have both a DSR and a debt-to-asset ratio (DAR) above vulnerability thresholds is increasing, but it accounts for less than 3 per cent of total household debt, using the 23 per cent DSR vulnerability threshold, and less than 0.7 per cent of total household

Chart 22 Household Sector: Financial Stress Indicators

14. See Box 2 in the December 2006 FSR for a description of the revised estimate of the aggregate debt-service ratio. Note that this measure does *not* include principal repayments.
15. This updated analysis is based on microdata for the whole year 2006. The analysis in the December FSR was based on data for only the first half of 2006.
16. For information on how these vulnerability thresholds were chosen, see the December 2006 FSR, pp. 15–16.

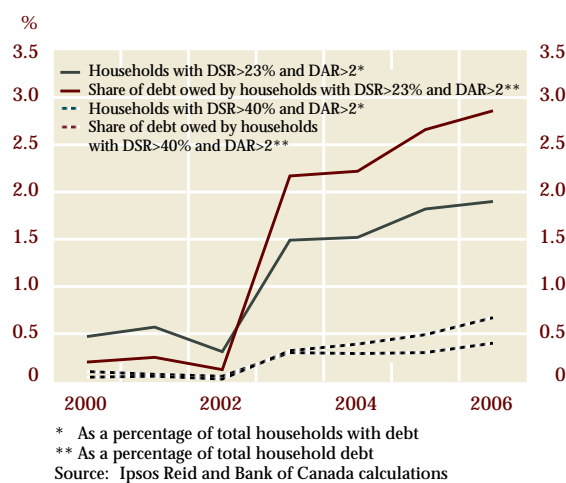
debt, using the 40 per cent DSR threshold (Chart 23).

The current relatively low level of the household aggregate DSR is indicative of the good financial position of the Canadian household sector. If the DSR were to increase sharply, some households would likely become more vulnerable. It is thus important to assess the impact that rising interest rates and/or rising indebtedness would have on the DSR, and thus on the financial position of the Canadian household sector. While, ideally, we would like to be able to project over time the change in the proportion of households whose DARs and DSRs would exceed the vulnerability thresholds, projections of the aggregate DSR can also illustrate what might happen under hypothetical scenarios. Thus, we run simulation exercises using a method similar to that used previously,¹⁷ but using the revised DSR estimate presented in the December 2006 FSR.¹⁸ Under the revised assumptions, the historical data have been revised downwards. The simulation period is 2007Q2 to 2013Q1.

Impact of rising indebtedness on the debt-service ratio

Since the debt-to-income ratio has been steadily rising over the past two decades (recall Chart 21), we can expect further increases in this ratio. To study the impact of rising indebtedness on the DSR, we use a scenario in which the overnight interest rate remains unchanged at its current level (4.25 per cent), while the debt-to-income ratio rises. In this scenario, consumer debt and mortgage debt continue to increase at their average annual growth rates over the 2000Q1–2007Q1 period,¹⁹ and disposable income continues to increase at a trend rate of 5 per cent. As a result, the debt-to-income ratio rises from 124 per cent in 2007Q1 to 138 per cent

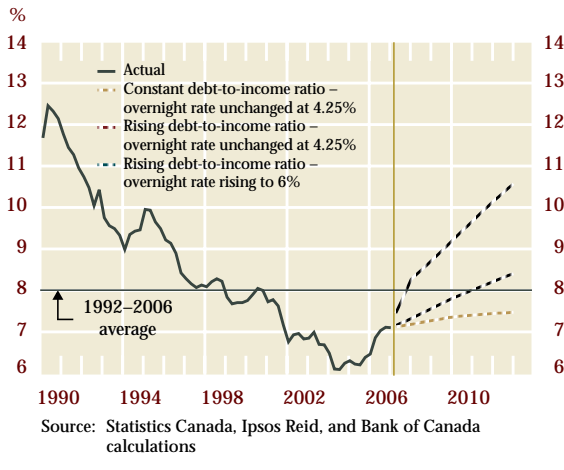
Chart 23 Proportion of Vulnerable Households and Debt Owed by Those Households



17. For details on the simulation methodology, see Box 1 in the December 2004 FSR.

18. See Box 2, p. 12 in the December 2006 issue of the FSR.

19. For simplicity, it is assumed that all the components of consumer debt increase at the same pace as total consumer debt (8 per cent annually) and that all the components of mortgage debt increase at the same pace as total mortgage debt (6 per cent annually). As a result, over the simulation period, total debt increases by 48 per cent.

Chart 24 Debt-Service Ratio, Various Scenarios

in 2013Q1.²⁰ Such an increase in the debt-to-income ratio would also be consistent with a number of other scenarios; for example, one with lower growth rates of both income and debt. As illustrated in Chart 24, with such an increase in the debt-to-income ratio, the DSR would rise above its historical average to reach 8.4 per cent by 2013Q1. In contrast, if the debt-to-income ratio were to remain at its current level, the DSR would rise by less than 40 basis points to 7.5 per cent in 2013Q1, as some loans that come up for renewal during the simulation period are renewed at rates above those at which they were initially contracted.

Impact of rising interest rates on the debt-service ratio

To assess the impact of interest rate changes on the DSR, we consider a scenario in which interest rates increase sharply. Specifically, the overnight rate increases to 6 per cent, a level well above its 10-year average (3.74 per cent), within four quarters and remains at this level for the rest of the simulation period.²¹ As in the previous scenario, the debt-to-income ratio rises from 124 per cent in 2007Q1 to 138 per cent by 2013Q1. This scenario can be viewed as unlikely, since it assumes that debt continues to increase at the same pace over the simulation period despite significantly higher interest rates, whereas higher rates would likely be accompanied by some slowing in debt accumulation. With both an increase in interest rates and in the debt-to-income ratio, the DSR would rise sharply, reaching 10.6 per cent by 2013, higher than the 10 per cent peak reached in 1995. This would significantly reduce the ability of some households to weather shocks to income or interest rates.

20. The debt-to-income ratio is projected to increase by 14 percentage points over the 6 years of the simulation period; it also increased by 14 percentage points over the past 6 years.

21. In this scenario, the term premiums between yields on government bonds of different maturities and the overnight rate (and thus the term premiums for interest rates on household debt) are assumed to rise from their current level to their average historical yield spread for each maturity within four quarters, as the overnight rate increases to 6 per cent. Term premiums then remain unchanged for the rest of the simulation period. Consequently, the yield curve goes back to a more typical positive slope during the simulation period, from its current flat-to-slightly inverted slope.

Conclusion

While the financial position of the Canadian household sector does not currently pose a threat to the stability of the Canadian financial system, this simulation exercise suggests that the household sector is becoming more vulnerable to shocks over time, as the debt-to-income ratio continues to increase. These simulations also suggest that some vulnerabilities could build up in the household sector if interest rates were to rise significantly.

The Financial System

Financial markets

Global financial markets experienced increased volatility in asset prices in February and early March, albeit from historically low levels. While this general decline in the prices of risky assets was partly triggered by a less certain U.S. economic outlook, including developments in the U.S. subprime mortgage market (see Highlighted Issue, p. 6), the decline also reflected an environment where risk premiums are at, or near, historically low levels. Similar to the episode in May and June 2006, the market turbulence was relatively minor and short-lived, with the prices of many risky assets subsequently regaining most of the losses sustained over this period.

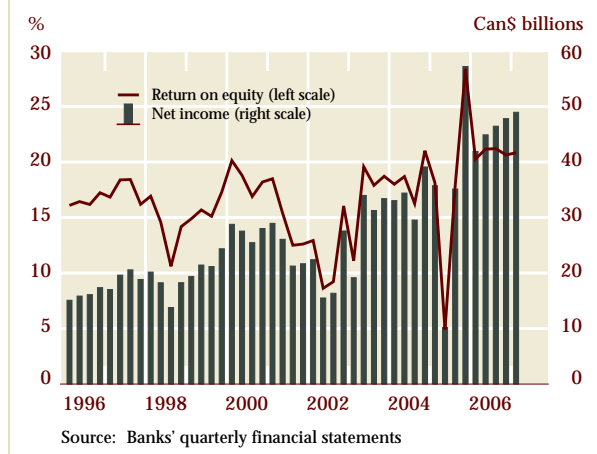
Overall, while both structural and cyclical factors are contributing to the historically low levels of risk premiums (see Highlighted Issue on spreads on risky assets, p. 18), there remains some concern that market risk may be underpriced (see Highlighted Issue on structured finance, p. 20). Numerous indicators suggest that market participants' appetite for risk remains strong. These indicators include the implied volatility on the S&P 500 (VIX) and spreads on emerging-market bonds, which have fallen back to historically low levels. Taken together, the episodes of market turbulence in 2006 and 2007 suggest that the increased dispersion of risk facilitated by developments in structured finance has made it easier for financial markets to absorb idiosyncratic shocks. Notwithstanding these improvements, however, a risk remains that a large macroeconomic shock could result in a rapid rise in risk premiums, leading to a widespread and significant decline in asset prices.

Furthermore, there is some unease about indications that the strong competition for hedge

Box 2

Financial Stability Forum Report on Highly Leveraged Institutions

The Financial Stability Forum (FSF) was established by the G-7 finance ministers and central bank governors in 1999 to promote international financial stability through the exchange of information and through international co-operation in financial market supervision and surveillance. At the request of the G-7 ministers and central bank governors, the FSF recently updated its 2000 *Report on Highly Leveraged Institutions*. On 19 May 2007, it released this report, which offers recommendations on financial stability issues related to hedge funds and other highly leveraged institutions. The report calls on supervisors to act so that core intermediaries continue to strengthen their counterparty risk-management practices and improve their robustness to the potential erosion of market liquidity. It also calls on counterparties and investors to strengthen market discipline by seeking more information about risk exposures. Finally, it calls on the hedge fund industry to develop sound practice benchmarks for hedge fund managers.

Chart 25 Profits of Major Banks

fund business may have eroded counterparty standards. The Financial Stability Forum recently issued a report recommending action by supervisors, counterparties, investors, and hedge fund managers to strengthen protection against systemic risk. (See Box 2.)

In a recent review of the major Canadian banks' exposure to hedge funds, OSFI found that this exposure was relatively small and that Canadian banks were taking a cautious approach to hedge funds. This being an area where ongoing vigilance is required, OSFI has said that it will continue to evaluate the banks' activities with regard to hedge funds as part of its ongoing supervisory process.²²

Financial institutions

The major Canadian banks continue to be very profitable and well capitalized. In the first half of 2007, profits of the major banks remained firm, with the average return on equity in the 20 per cent range (Chart 25). This strength continues to be broad-based. The domestic personal and small business side of the banks' operations has continued to deliver a strong performance and underlying growth in revenues of 12 to 15 per cent. Growth in corporate loans remains firm. Operations in capital markets contributed significantly to profitability, reflecting high levels of underwriting and merger and acquisition activity. However, trading losses of \$680 million (\$327 million after tax) at one bank adversely affected profits over the period.

The banks continue to benefit from very firm credit quality in both their retail and wholesale loan portfolios. However, while new loan-loss provisions remain at very low levels, banks are no longer benefiting from loan recoveries to the extent that they did earlier in the credit cycle. As noted in the Highlighted Issue on the U.S. subprime mortgage market, exposure of the Canadian banks to the subprime mortgage market in the United States is reported to be minimal. Capital ratios remain well above the regulatory benchmarks, giving banks the financial flexibility to continue to increase dividends and repurchase shares. The Bank's CCA

22. Remarks by Julie Dickson, Acting Superintendent of Financial Institutions to the Senate Standing Committee on Banking, Trade and Commerce, 31 January 2007.

indicator continues to show that markets view Canadian banks as financially healthy (Chart 26).

The three largest Canadian life and health insurance companies registered record profit levels in 2006, with returns on equity in the range of 14 to 16 per cent. The companies recorded strong operating results in both their protection (individual and group) and wealth-management products, the latter enjoying the benefits of generally favourable markets in 2006. They have also been benefiting from the strong global economy because of their geographical diversification. The life and health insurance companies continue to be well capitalized and enjoy strong credit quality in their fixed-income portfolios.

In 2006, the Canadian securities industry had a record year, with an operating profit of \$5.8 billion, exceeding the previous record established in 2005 by 33.6 per cent. Commission, trading, and investment banking revenues were boosted by strong equity markets and the robust environment for mergers and acquisitions. Despite the record activity, the industry managed to hold the increase in its operating expenses to 8 per cent.

Highlighted Issue

What is driving the current low spreads on risky assets?

Prepared by Stacey Anderson, Jim Armstrong, William Barker, Chris Graham, and Graydon Paulin

Introduction

Over the past several years, borrowers in global markets have experienced easy financing conditions, as is apparent from the historically narrow credit spreads on risky assets. For example, corporate borrowers in the United States rated below investment grade, as well as emerging-market borrowers, have been able to issue debt at, or near to, record low spreads relative to yields on U.S. Treasuries (Charts 27 and 28). Equity market performance, particularly for emerging-market equities, has been strong, thus facilitating equity financing (Chart 29). Market volatility, as measured by that on U.S. equity markets (S&P 500), has remained low (Chart 30).

Chart 26 Distance to Default for Major Banks

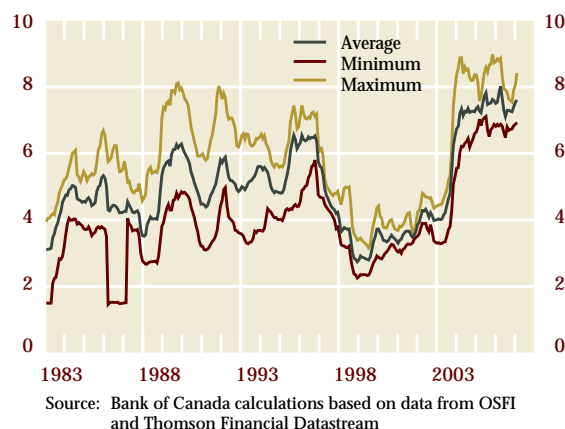


Chart 27 Corporate Bond Spreads

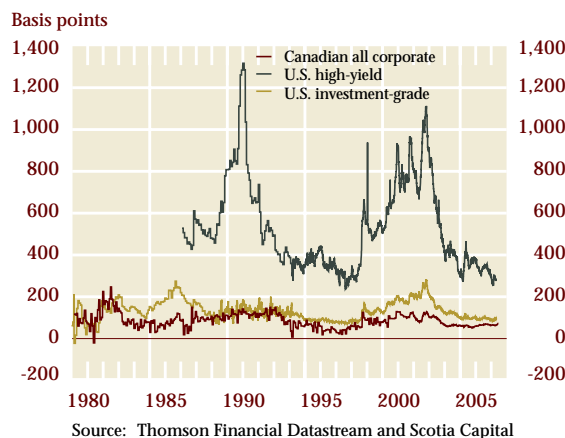
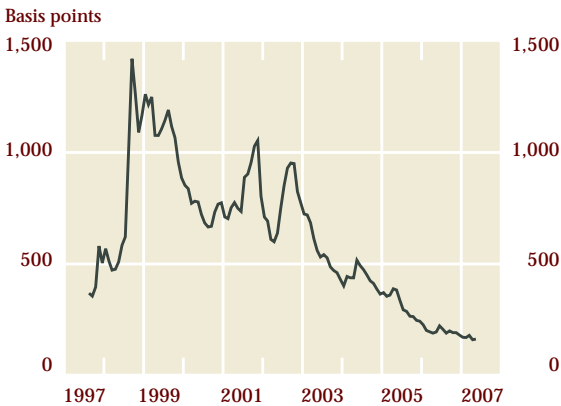
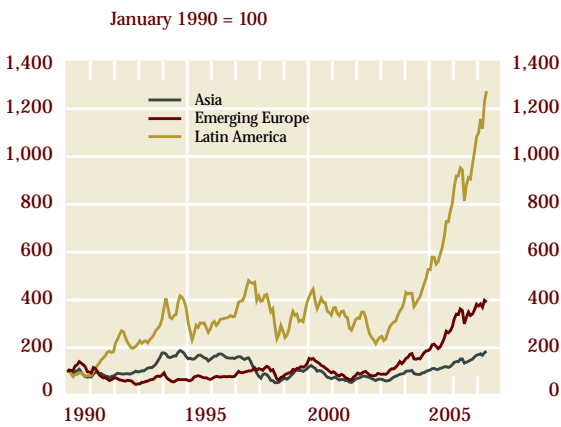
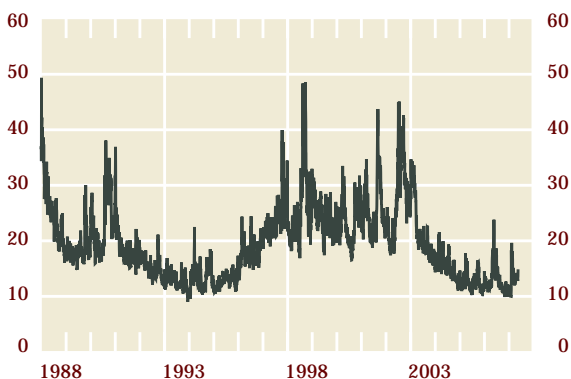


Chart 28 Emerging-Markets Sovereign Bond Spread (EMBI+)

Source: JPMorgan Chase & Co.

Chart 29 Stock Market Indexes

Source: Thomson Financial Datastream

Chart 30 Equity Volatility** VIX: Implied volatility of the S&P 500
Source: Bloomberg

The persistence of such easy conditions has raised questions as to whether risk is currently being priced appropriately. The purpose of this Highlighted Issue is to briefly review the structural and cyclical factors that have contributed to low spreads in recent years. Structural factors would tend to have an enduring impact on the reduction in spreads; cyclical factors would not. Thus, at least part of the decline (i.e., that caused by cyclical influences) could be reversed.

Factors contributing to low spreads

It can be difficult, at any given time, to untangle the effect of the various factors and to determine whether a particular development is cyclical or structural in nature.

The recent performance of the global macro-economy has been very supportive of financial markets: real economic growth has been robust, and inflation has generally been low and stable. Part of this is undoubtedly related to improved monetary policy, but part of this economic stability also comes from a very favourable conjuncture.

Rates on risk-free assets have remained historically low. In addition to the low-inflation environment, the main factors contributing to low interest rates have been high savings in many emerging-market economies, oil-producing countries in the Middle East, and Russia, as well as low levels of investment and strong corporate balance sheets in the United States.

Low real interest rates may, in turn, have triggered a widespread search for yield, as well as an increasing risk appetite, which has contributed to the current low spreads. A prominent example of the greater risk appetite of global investors has been the rapid growth of the “carry trade” in which funds borrowed in currencies with low interest rates (such as the Japanese yen or the Swiss franc) are used to invest in markets with higher rates of return.

Another influence on spreads is the increased financial integration of emerging-market economies with the rest of the world. Given the potential for higher returns, some of these economies have become important recipients of investment flows as investors have acquired financial assets in these countries at a faster pace, and private equity firms have become

more active in these countries.²³ This has contributed to the relatively low risk premiums on emerging-market sovereign securities (Chart 28) and to the substantial increases in equity valuations in some emerging markets (Chart 29).

One structural influence that may have tended to drive down spreads is financial innovation, such as the rapid development of derivatives, asset securitization, and structured credit products. This has greatly increased the ability of investors to unbundle, restructure, price, and disperse investment risks. (See the Highlighted Issue on structured finance.) These innovations have also increased the ability of institutions to create and take on leverage. Indeed, leveraged institutions with a strong appetite for risk, such as hedge funds and private equity funds, have grown rapidly in importance and have become active participants in credit markets.

In addition, improved risk-management capabilities have arguably facilitated the ability of global investors to underwrite riskier investments. (See the article by Aaron, Armstrong, and Zelmer in this *Review* on commercial bank risk-management practices.) In some instances, this may have contributed to an increase in risk appetite.

The modest consequences of the recent episodes of market turbulence may suggest that the broader dispersion of risk and improvements in risk management have improved the resilience of financial markets. Yet, notwithstanding these improvements, the risk remains that a large macroeconomic shock could result in a rapid increase in risk premiums, resulting in widespread and significant declines in asset prices.

Conclusion

A number of factors help to explain the current low premiums on risky financial investments. The persistence of these low spreads raises the issue of their sustainability. In other words, is risk being appropriately priced? There is little in the way of criteria that can be used to gauge whether or not current levels of risky spreads are

appropriate, relative to the underlying risks. But experience teaches us that vulnerabilities frequently develop during periods of persistently low spreads which, when they are brought to light, trigger an abrupt repricing of risk.

Highlighted Issue

Structured finance: The changing nature of credit markets

Prepared by William Barker

The extraordinarily rapid growth in the use of structured finance has led to tectonic shifts in the nature of credit markets, with major implications for market liquidity, the role of banks in the financial system, and the nature of systemic financial risk. Broadly defined, structured finance is any financial arrangement that results in a transfer of credit risk through the capital markets. There are two principal means of accomplishing this transfer: credit derivatives transactions and asset securitization.

Credit derivatives are financial contracts with a payoff based on the occurrence of predefined credit events (such as bankruptcy). In general, the buyer of a credit derivative protects himself by entering into a contract to hedge that risk at the expense of periodic premiums to the protection seller, who assumes the credit risk of the underlying debt. The variety and sophistication of credit derivatives has developed rapidly, allowing the risk exposures transferred to the protection seller to be customized to meet investor objectives. This ability to flexibly transfer credit risk has proven extremely popular with market participants. As a result, the outstanding notional amount of credit derivatives has doubled every year since the start of this decade to reach US\$34.5 trillion globally by year-end 2006.²⁴

Asset securitization describes the process of isolating designated financial assets from the lender's balance sheet, usually through their transfer to a legally separate special-purpose

23. While emerging-market countries have actually become net exporters of capital as a group, large net capital flows into certain emerging-market countries are having an impact on local markets, including some relatively new markets. A disruption of flows could have significant financial repercussions in these markets.

24. Source: International Swaps and Derivatives Association. Precise estimates on notional amounts outstanding are difficult to come by and vary between sources. But all sources agree that growth in the use of credit derivatives has been extremely rapid and that derivatives markets now greatly exceed the size of underlying asset markets.

vehicle (SPV) and then issuing securities against these assets. The originator of the loan thereby converts the original assets into cash and transfers the credit risk of the borrower but, nonetheless, maintains the loan-servicing relationship. The asset-backed securities (ABS) created by this process can be relatively simple instruments. Alternatively, a portfolio of ABS can be held by an SPV, which then structures the collective cash flows from the ABS into complex multi-tranche instruments known as collateralized debt obligations (CDOs).²⁵ CDOs offer enormous flexibility in terms of structuring financial risks and returns, allowing the tranches to be customized to the risk appetites and yield objectives of individual investors. As with credit derivatives, this flexibility has proven to be extremely popular: CDOs have been the fastest-growing area of structured finance, with global issuance exceeding US\$2 trillion in 2006.²⁶

The extraordinary growth of structured finance reflects the transformation of credit-risk management away from a bilateral relationship between borrower and lender. Prior to these innovations, it was almost impossible to separate the credit risk of the debt from the debt itself, or to assume a short position in credit risk. Structured finance removes these constraints by unbundling the credit risk from the underlying debt and transforming it into a tradable exposure that is priced and transferred through global capital markets. With this innovation, it has now become routine for market participants to adjust their exposure to credit risk to attain their desired objectives and to express opinions on the relative value of debts.

This transformation of credit risk into a tradable asset class has attracted a broad array of new participants to credit markets, especially credit-

focused hedge funds and “real money” accounts (such as pension funds) that are investing in credit risk as an alternative asset class. These non-traditional participants in the credit market are often extremely well funded and have a defined need to invest assets. Structured financial products provide an efficient conduit into credit markets for these investors. This broadening of credit market participation has contributed to increased market liquidity, as measured both by the risk premiums on financial assets and by the magnitude of capital flows. Indeed, the demand for credit products by investors has accelerated the compression of credit spreads over government bond yields towards historically low levels.

As the importance of non-traditional participants in credit markets grows, the role of traditional participants (primarily banks) has also been changing. Whereas banks traditionally focused on funding loans and managing credit risks, their credit operations have increasingly shifted towards a flow-based, fee-oriented business model based on the origination, securitization, structuring, and distribution of debt. The provision of liquidity to credit markets and the management of financial risk exposures have increasingly passed from banks to non-traditional credit market participants.

Structured finance has created both opportunities and challenges for credit markets. On one hand, it has led to more complete capital markets by allowing optimal credit-risk exposures with much lower transactions costs: risks can be unbundled, repackaged, and efficiently transferred to other market participants through structured financial products. In particular, structured finance allows risks to be broadly dispersed throughout global capital markets rather than concentrated on the balance sheets of entities unable or unwilling to bear them. In principle, this should lead to lower systemic risk to the global financial system.

At the same time, however, structured financial products can be highly complex, difficult to price accurately, illiquid, and opaque in regard to their risk characteristics. It is important to recognize that structured financial products only transfer risks, they do not eliminate them—the risks must ultimately rest somewhere, although it may now be more difficult to determine whether these risks are properly priced or unduly concentrated. As the ongoing

25. When the SPV holds a portfolio of bank loans, the resulting instrument is known as a collateralized loan obligation.

26. Estimates of issuance and outstanding amounts in this notoriously opaque sector vary widely between sources. The Bank for International Settlements estimates that global issuance of CDOs approached US\$1 trillion in 2006 (*BIS Quarterly Review* March 2007). However, this figure excludes private CDO deals. Some sources that estimate private CDO activity suggest that total global CDO issuance in 2006 may be as high as US\$2.8 trillion (*Financial Times* 12 January 2007). As with credit derivatives, CDO issuance is growing rapidly.

turmoil in the U.S. subprime mortgage market illustrates, mispriced risks can sometimes be transferred through structured financial products to market participants who are not fully aware of their risk exposure or who are not as efficiently hedged as they believed.

Important Financial System Developments

This section of *Developments and Trends* examines structural developments affecting the Canadian financial system and its safety and efficiency.

Amendments to the Financial Institutions Legislation

On 29 March 2007, royal assent was given to Bill C-37, An Act to amend the law governing financial institutions and to provide for related and consequential matters. This bill resulted from the review of this legislation that is required every five years. The majority of the provisions in C-37 came into force on 20 April 2007, including the sunset provisions in the various acts governing financial institutions. The amendments had three key objectives: to increase legislative and regulatory efficiency; to adapt the regulatory framework to new developments; and to enhance the interests of consumers.

To improve regulatory efficiency, the legislation eliminates some approvals previously required for transactions, streamlines the approval process for some other transactions, and shifts some approvals from the Minister of Finance to the Superintendent of Financial Institutions. It also permits near banks (foreign entities not regulated as banks in their home jurisdiction) to undertake certain financial services in Canada without regulatory approval. To address new developments, the legislation provides an enabling framework for financial institutions to use electronic cheque images in the cheque-clearing system. Because of the growing size of financial institutions, the equity threshold for large banks (which must be widely held) was increased from \$5 billion to \$8 billion, while that for “medium-sized” banks, trust and loan companies, and insurance companies (which can be closely held, but which must have a minimum public float of voting shares of 35 per cent) was increased from \$1 billion to \$2 billion. The

legislation also makes it easier for credit unions to establish co-operative credit associations by reducing the number of credit unions that must participate in such associations. The residency requirement for boards of directors of Canadian-owned financial institutions was relaxed: the proportion of directors required to be Canadian residents has been reduced to a majority from the previous two-thirds.

Initiatives to enhance the interests of consumers include harmonizing online and in-branch disclosure requirements, and requiring financial institutions to make their complaint-handling procedures available in branches, on websites, and to any person requesting them.

Finally, the new legislation raised the threshold loan-to-value ratio beyond which mortgage insurance is required to 80 per cent from 75 per cent.

The Mortgage Insurance Market

There have recently been several other new developments in the Canadian mortgage insurance market.

A new private mortgage insurer, AIG United Guaranty Canada, started operations in the autumn of 2006, and two other insurers recently received federal regulatory approval to commence and carry on business.

Meanwhile, there have been further product innovations in this market.²⁷ CMHC introduced a mortgage insurance product specifically designed for self-employed people who have difficulty documenting their stated income.²⁸

27. Past innovations include an increased maximum amortization period for insured mortgages, insurance for interest-only mortgages, and insurance products for non-prime borrowers.

28. Previously, CMHC had been absent from this market segment (often described as Alt-A), while Genworth Financial had offered its “Business For Self” mortgage insurance product since early 2006.

There is also some evidence that insured mortgages with longer amortization periods are proving popular.

To the extent that these recent innovations allow new borrowers into the mortgage market, they add to housing demand at a time when housing demand is already putting pressure on capacity. They also contribute to rising household indebtedness, at a time when the aggregate household debt-to-income ratio is already at a historical high.

Highlighted Issue

Asset-backed commercial paper: Recent trends and developments

Prepared by Nadja Kamhi and Eric Tuer

Over the past two years, the market for Canadian asset-backed commercial paper (ABCP) has experienced strong growth. The amount of ABCP outstanding has increased from about \$65.4 billion at the end of 2004 to \$106.7 billion at the end of 2006. As such, ABCP has become an important source of short-term financing for Canadian and global corporations. While Toovey and Kiff (2003) provide an overview of the general features of the Canadian ABCP market, this highlighted issue provides an update of recent market developments concerning the structure and credit-rating criteria for Canadian ABCP programs.

What is asset-backed commercial paper?

The ABCP market brings together investors wishing to invest in highly rated short-term money market debt securities and firms looking for an alternative source of debt financing, potentially at lower cost than traditional commercial paper (CP) and bankers' acceptances.

Asset-backed commercial paper is a form of asset securitization. (See the Highlighted Issue on structured finance.) Firms sell financial assets to a legally separate entity known as a special-purpose vehicle (SPV)²⁹ or "conduit" in return for cash. The purchase of these assets by the SPV is financed by the issuance of commercial paper with a term to maturity typically between

29. Special-purpose vehicles are structured to be "bankruptcy remote" or legally separate from their sponsor, which could be a commercial bank, an affiliate of the bank, or a non-bank-affiliated entity.

30 and 90 days. The types of underlying financial assets that are acquired by these conduits may include receivables generated from credit cards or trade receivables, auto and equipment loans and leases, mortgages and, more recently, collateralized debt obligations (CDOs). There are several different types of conduits, but the most prevalent are multi-seller conduits that provide funding to a number of unaffiliated originator/sellers by combining their assets in a diversified portfolio.³⁰ A typical ABCP program structure is presented in Figure 1.

A new class of underlying securities: Collateralized debt obligations

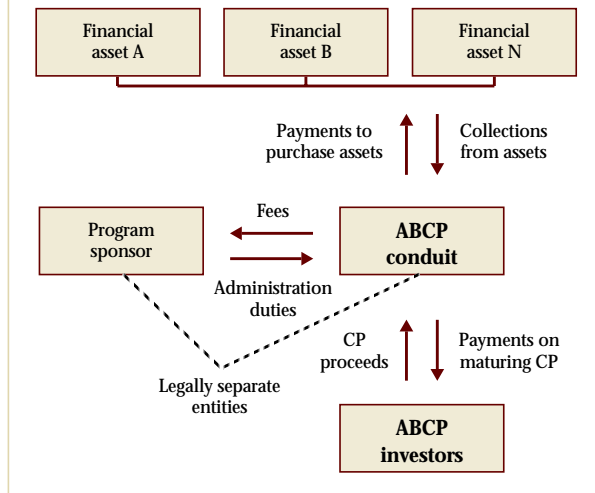
An increasingly popular financial asset class included in Canadian ABCP conduits is CDOs.³¹ CDOs are structured finance securities that reference (in a similar way to ABCP) a pool of underlying debt obligations. CDO notes are generally sold in tranches with varying credit-risk profiles, ranging from the least risky, AAA-rated super senior notes, to the most risky, unrated equity notes. The underlying or referenced debt obligations in a CDO may include corporate bonds, asset-backed securities, mortgage-backed securities, or credit derivatives. When the underlying assets of CDOs are credit derivatives, such as credit default swaps (CDS), instead of the actual security, they are called synthetic CDOs.³² These vehicles have accounted for most of the recent growth in the issuance of structured financial assets.

Recently, leveraged super senior CDO (LSS-CDO) structures (which are typically created from synthetic CDOs) have been the most popular type of ABCP conduits that make use of CDOs. As the name implies, these structures allow the conduit to take on a leveraged position in the highest-rated tranche of a CDO by partially funding its obligation, while at the same time receiving the same premium payments as if it had fully funded its exposure. Because of its leveraged position, the value of an LSS-CDO structure is sensitive not only to the number of defaults incurred in the pool of underlying debt instruments, but also to conditions in credit markets (i.e., fluctuations in credit

30. See Toovey and Kiff (2003) for more information on multi-seller ABCP.

31. See Armstrong and Kiff (2005) for more details on CDOs.

32. See Reid (2005) for details on credit default swaps.

Figure 1 Typical Multi-Seller ABCP Program Structure

spreads). As such, these LSS-CDO structures may experience greater price (and yield) volatility than typical asset-backed securities. The portfolio structure of an ABCP conduit based on an LSS-CDO is therefore crucial to its viability and to the determination of the necessary credit protections that help it maintain its rating.

Characteristics of the Canadian ABCP market

Over the past two years, the Canadian ABCP market has experienced strong growth, largely because of the funding of synthetic CDO assets. Underlying this expansion has been the phenomenal growth of the global CDS market, which has greatly facilitated the construction of synthetic CDOs.³³ Given the relatively small volume of CDS based on Canadian debt securities, a significant portion of the credit risk associated with these CDOs is foreign based.³⁴

According to data from DBRS Limited, the proportion of the total Canadian ABCP market composed of multi-seller ABCP conduits with CDOs as the underlying assets increased from 8.6 per cent in 2004 to 19.9 per cent in 2005. This share increased to approximately 28 per cent of the ABCP market as of December 2006, making it the largest asset class backing ABCP, followed by auto loans and leases (25 per cent) and residential mortgages (20 per cent).

Since the underlying assets are of a longer maturity than the ABCP instruments financing them, most ABCP conduits that issue short-term commercial paper require a liquidity facility (i.e., liquidity backing), which helps mitigate rollover risk,³⁵ in order to receive a credit rating. Liquidity facilities in Canadian ABCP programs provide funding to the conduit if there is a general market disruption (GMD)³⁶ in the ABCP market that would prevent the rolling over of notes. Without proper liquidity

33. See the Highlighted Issue on p. 20.

34. As a result, it appears that much synthetic CDO-based Canadian ABCP represents a strict funding arbitrage investment and does not involve the dispersion of the balance sheet risk of Canadian firms (as in the case of a more traditional form of asset securitization).

35. Rollover risk refers to the ability to refinance by issuing new debt to replace maturing debt.

36. In Canada, GMD refers to the situation where issuers of commercial paper are unable to issue it despite the fact that there has been no change in the credit quality of the conduit from its original level.

support, a conduit that is unable to roll over its ABCP may not be able to repay its ABCP holders in full or on time.

One feature that differentiates the Canadian ABCP market from those in most other countries is the nature of the liquidity facilities that are acceptable to credit-rating agencies. Most liquidity facilities in Canada can be triggered only under the narrowly defined conditions of a GMD and are typically not available if the credit quality of the underlying assets is impaired. By comparison, most liquidity facilities for similar securities in the United States are available to deal with a wider array of disruptions, including, in some cases, those that arise from credit risk (i.e., deterioration of the underlying asset). The narrowly defined liquidity facilities typical of Canadian ABCP avoid the imposition of regulatory capital charges on the providers of the liquidity facility. The difference in liquidity provisions implies that investing in a rated Canadian ABCP may entail somewhat higher risk than investing in a similarly rated U.S. ABCP; this higher risk is reflected in the higher yield of Canadian ABCP.

Revisions to credit-rating criteria affecting Canadian CDO-based ABCP and their implications

An increase in the complexity of the new underlying structured financial assets and a desire for greater transparency caused DBRS to revise the criteria for rating Canadian ABCP programs that fund structured financial assets. The revisions were introduced in January 2007 and apply only to new ABCP programs that fund structured financial assets, of which CDOs are the most prevalent.³⁷

The new criteria include a requirement that these types of newly issued ABCP programs be supported by approved liquidity facilities not restricted to use only under GMD conditions and that conduits limit their exposure to any one industry and to non-investment-grade entities. Moreover, DBRS will require that CDO-based ABCP programs disclose more information to investors so that the risk of the structures can be better assessed.³⁸ Despite these

revisions, DBRS reiterated that all existing CDO-related ABCP programs were deemed to be of high quality and consistent with assigned ratings. As a result, there was no discernible change in the yields.³⁹

The changes to the liquidity facilities requirement mean that the provider of the liquidity facility (usually a large bank) will incur additional regulatory capital charges. The imposition of a higher regulatory capital charge is likely to increase the cost of this type of ABCP program, making it less attractive to the issuer. Recent anecdotal evidence suggests that the growth in this segment of the ABCP market has slowed considerably, especially when compared with that of the past few years.

Lastly, another implication of the criteria revisions is that U.S. credit-rating agencies may now become more involved in rating Canadian CDO-based ABCP programs. To date, they have not rated such programs because of their concerns over Canadian GMD-style liquidity facilities. The entrance of more credit-rating agencies into the market will lead to increased competition for rating ABCP programs. In addition, ABCP programs with more than one credit-rating assessment may attract a wider investor base. These developments would be positive from the perspective of capital market efficiency.

37. These revisions also apply to extendable ABCP and medium-term notes that fund structured financial assets.

38. See Buzanis and Loke (2007) for more details.

39. This lack of yield movement may reflect the fact that most sophisticated investors in the money market understood the previous DBRS framework and the financial risks involved.

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