The Bank of Canada's *Senior Loan Officer Survey*

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- *Since 1999, the Bank of Canada has been conducting a quarterly survey of the business-lending practices of major Canadian financial institutions.*
- *The* Senior Loan Officer Survey *gathers information on changes to both the price and non-price terms of business lending over the current quarter and surveys the views of financial institutions on how changing economic or financial conditions are affecting business lending.*
- *Analysis of the information in the survey shows that it is correlated with future growth in both credit and real business investment.*
- *The* Senior Loan Officer Survey *data complement information on firms' access to credit, which is collected in a question in the Bank's* Business Outlook Survey. *High correlation exists between the results of the two surveys, which assess credit conditions from the perspectives of lenders and borrowers.*

Information and analysis from various sources and perspectives form important inputs into the larger set of information used by the Bank of Canada to arrive at its monetary policy decision. Data on the various developments that might be affecting the growth of money and credit, such as changes in the willingness of financial institutions to lend, can provide important insights about future changes in credit growth and economic activity and are therefore included in this larger information set.[1] As well, the recent turmoil in financial markets following the problems with asset-backed commercial paper and subprime mortgages in the United States highlights the importance of actively monitoring credit-market developments, including business-lending conditions.

The Senior Loan Officer Survey *collects information from selected financial institutions.*

The Bank of Canada maintains regular contact with financial institutions as part of its information-gathering process. Since 1999, the Bank has been conducting a quarterly survey of the business-lending practices of major Canadian financial institutions. The *Senior Loan Officer Survey* (SLOS) collects information from selected financial institutions on changes to both the price and non-price terms of business lending over the current

1. For a more detailed discussion of the information and analysis used in monetary policy decision making, see Macklem (2002).

Box 1: Lending Surveys among Central Banks

A number of central banks conduct and publish surveys of lending conditions, including the U.S. Federal Reserve (1967), the European Central Bank (ECB) (2003), the Bank of England (2007), and the Bank of Japan (2000).

Although there are many similarities between the Bank of Canada's *Senior Loan Officer Survey* and other international business-lending surveys, several differences exist. For example, the sample sizes differ, depending on the structure of the banking market in each country. While the Bank of Canada surveyed 11 institutions in April 2008, the ECB surveyed 113 banks across its member countries. The U.S. Federal Reserve Board (currently) surveys 56 domestic banks and 21 U.S. branches and agencies of foreign banks. Still, the survey's coverage of over 60 per cent of business lending by financial institutions in Canada compares favourably with that of the ECB and the U.S. Federal Reserve surveys.[1,2]

Another difference concerns the type of information solicited by business-lending surveys, with other surveys tending to cover a broader range of questions than the *Senior Loan Officer Survey*. The U.S. Federal Reserve Board survey, for example, queries financial institutions on lending to consumers, in addition to business lending, and the Bank of England survey asks both backward-looking and forward-looking questions on credit conditions.

Despite these differences, the widespread use and publication of the results of credit surveys among major central banks underlines their importance as part of the information used to assess financial conditions and to conduct monetary policy.

1. For Canada, business lending by financial institutions is defined as the sum of short- and long-term business loans, non-residential mortgage loans, leasing receivables, bankers' acceptances, and foreign currency business loans by chartered banks and non-banks.

2. See Driver (2007) for a summary of the coverage provided by the ECB and Federal Reserve Board surveys.

quarter. The survey also includes supplementary questions to collect the views of financial institutions on how changing economic or financial conditions are affecting business lending. The *Senior Loan Officer Survey* complements information on lending conditions from the borrower's perspective that is collected in the Bank's *Business Outlook Survey* (BOS).[2]

Analyzing trends in business-lending conditions presents several challenges. First, data on business-borrowing activity show the outcome, but not the underlying causes, of credit developments. For example, an increase in the growth of business credit could result from increased demand for credit, increased willingness of lenders to lend, or a mix of the two. The implications for policy-makers may differ, depending on whether this credit growth reflects strong economic activity that has spurred an increased demand for credit, or simply an easing in the lending policies of financial institutions that has allowed firms to become more highly leveraged. Second, while some pricing information for business loans is publicly available, the coverage of non-pricing aspects of business lending (such as lending terms or covenants) is limited in currently published Canadian data. Yet changes in non-pricing conditions for loans may contain as much or more information for credit-market analysis as the pricing component. The survey is particularly useful in addressing the latter challenge, since it collects information about both the pricing and non-pricing dimensions of business-lending conditions in Canada.

In October 2008, the Bank began publishing the results of the *Senior Loan Officer Survey* to share potentially important information on credit conditions with analysts and market participants. Publication of the results is consistent with current practices at other major central banks (Box 1). The results of both surveys will be published simultaneously in the weeks leading up to the release of the Bank's *Monetary Policy Report* and *Monetary Policy Report Update*.

The remainder of this article focuses on how the survey is conducted, describing the questions posed to lenders, explaining the construction of the summary statistics,

2. See Martin (2004) and Martin and Papile (2004) for a general description of the BOS survey design, questionnaire, and correlations with relevant economic data. The credit-conditions question was added to the publication with the release of the winter 2007–08 survey. For background information, see "Backgrounder on Questions in the *Business Outlook Survey* Concerning Past Sales and Credit Conditions" (14 January 2008) on the Bank of Canada's web-site at: <http://www.bankofcanada.ca/en/bos/2008/winter/bos_backgrounder0108e.pdf>. See footnote 13 for the wording of the BOS credit-conditions question.

and highlighting key statistical relationships in the historical survey data.

Methodology

At the end of each quarter, respondents are asked a set of standard questions covering their lending practices for three types of business borrowers: corporate, commercial, and small business (defined in Box 2). These questions focus on changes to both the pricing and non-pricing dimensions of lending. In particular, financial institutions are asked to assess the qualitative *change* in pricing and non-pricing lending practices over the current quarter (compared with the previous quarter) and, if there was a change, to indicate their reason for tightening or easing (see Box 2 for more details). Although the standard questions have remained largely unchanged since the survey began in 1999, they are supplemented in each quarterly survey with one or two topical questions focusing on how changes to specific economic or financial factors are affecting business lending.[3]

Eleven financial institutions are currently surveyed.[4] At each institution, the senior officers responsible for corporate, commercial, and small business lending typically complete the survey. The survey is currently conducted over a two-week period just before the end of the calendar quarter.[5] Previously, the survey was conducted shortly after the end of the quarter, but the timing has been adjusted to allow for simultaneous publication of the results of both Bank of Canada surveys.

Financial institutions are asked to assess the qualitative change *in pricing and non-pricing lending practices.*

The survey is conducted in three parts. First, Bank of Canada staff finalize the topical questions for the upcoming survey, based on internal consultations, and send the survey to participating financial institutions. Second, following receipt of the completed questionnaires, responses are discussed individually with each financial institution. This discussion is an important part of the survey, since it allows respondents to expand or qualify their answers and permits Bank of Canada staff to ask follow-up questions to better understand developments in business-lending conditions. Finally, the survey results are aggregated to maintain the anonymity of individual respondents,

3. For example, in the 2008Q1 survey, financial institutions were asked how their own cost of financing had been affected by the turmoil in financial markets.

4. The composition of the sample has remained mostly unchanged since the survey began in 1999.

5. The survey for the third quarter of 2008, for example, was conducted in the second half of September.

Box 2: *Senior Loan Officer Survey* Question on Business-Lending Conditions

The *Senior Loan Officer Survey* asks financial institutions: “How have your institution’s general standards (i.e., your appetite for risk) and terms for approving credit changed in the past three months?”

Respondents indicate that their practices have tightened, remain unchanged, or eased with respect to each of the following conditions:

(i) pricing of credit (spreads over base rates, fees)

(ii) general standards

(iii) limit of capital allocation, and

(iv) terms of credit (collateral, covenants, etc.).

This question is asked about corporate loans and commercial and small business loans. In the latter two cases, responses are provided for five regions: British Columbia, the Prairies, Ontario, Quebec, and the Atlantic provinces.

Corporate, commercial, and small business borrowers are differentiated by the size of the loans authorized for each, using the following suggested definitions: corporate—over $50 million; commercial—between $2 and $50 million; and small business—less than $2 million. Respondents are allowed to answer based on internal reporting definitions, which may differ from the definitions suggested.

and the aggregated results concerning lending conditions are communicated to senior management of the Bank of Canada and made available on the Bank's website.

Survey Statistics

The key statistics summarizing responses to the survey are shown in Charts 1 and 2.[6] At the most aggregated level, the survey provides information on overall business-lending conditions (Chart 1). This overall measure can be broken into two dimensions: pricing and non-pricing lending conditions (Chart 2). The pricing dimension is constructed using the responses to the first subquestion in Box 2. A measure of non-pricing conditions is constructed using the following methodology: If an institution's response to any of subquestions (ii) to (iv) indicates that lending conditions have tightened (eased), it constitutes a tightening (easing) in non-price lending conditions.[7] The remainder of this section outlines the method used to calculate the results shown in Charts 1 and 2.

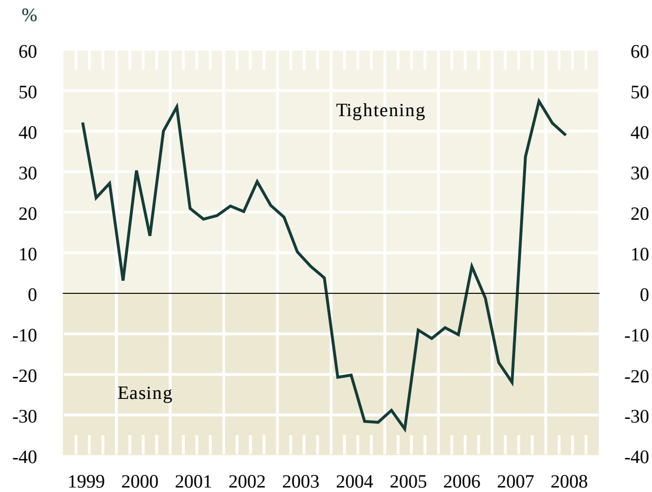
The balance of opinion is defined as the weighted "tightened" responses minus the weighted "eased" responses.

The first step in compiling the aggregate information is to construct a balance of opinion for the pricing and non-pricing dimensions of lending conditions for each of the corporate, commercial, and small business borrowers. The balance of opinion is defined as the weighted "tightened" responses minus the weighted "eased" responses for each dimension of lending conditions, where each respondent's weight is based on its relevant market share.[8]

The second step is to construct the aggregate balance of opinion for each of the pricing and non-pricing

Chart 1

Overall Business-Lending Conditions: Balance of Opinion*



* The balance of opinion is calculated as the weighted percentage of surveyed financial institutions reporting tightened credit conditions minus the weighted percentage reporting eased credit conditions. Thus, a positive balance of opinion implies a net tightening. The chart shows the average of the balance of opinions for the pricing and non-pricing dimensions of lending conditions.

dimensions of business-lending conditions (Chart 2). For each dimension, this involves taking the simple average of the balance of opinion for corporate, commercial, and small business borrowers.[9] Finally, overall business-lending conditions are calculated as a simple average of the pricing and non-pricing dimensions (Chart 1).

For the survey results (overall business-lending conditions and pricing and non-pricing lending conditions), a positive balance of opinion corresponds to a net tightening of credit conditions, whereas a negative value implies an easing of lending conditions. By construction, the balance of opinion always ranges between -100 and +100. Responses falling at either extreme of this range would indicate that all respondents agreed on the direction of the change in business-lending conditions. The measure indicates only the

6. The release of each quarter's results will consist of a short summary (including both charts) and associated time series and will be available on the Bank of Canada's website at <http://www.bankofcanada.ca>.

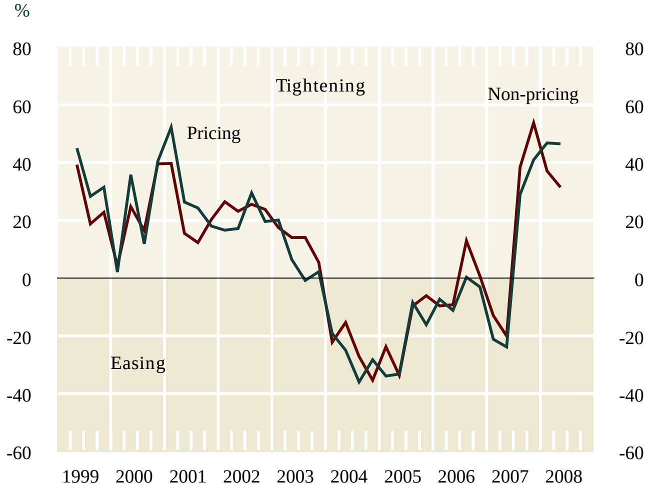
7. A tightening (easing) response in more than one of the three non-price subquestions (i.e., (ii)–(iv)) would also translate into an overall tightening (easing) in non-price lending conditions. In the rare case where a respondent indicates a tightening (easing) in one non-price subquestion and an easing (tightening) in another subquestion, the responses would be netted out.

8. Survey weights are updated annually using regional loans data for small and commercial credit and national loans data for corporate credit.

9. Historical survey results show that the variation in lending conditions for corporate loans is larger than that for small business and commercial borrowers. While using weighted averages to aggregate across the small business, commercial, and corporate sectors would be preferable, data limitations force us to use the simple average approach. Since corporate loans are substantially larger in total volume than small business and commercial loans, the simple average approach tends to give credit conditions in the corporate sector a lower weight than they would otherwise receive. Our analysis suggests, however, that the effect of our aggregation methodology on the balance of opinion is small.

Chart 2

Pricing and Non-Pricing Lending Conditions: Balance of Opinion*



Note: Each series is the simple average of the balance of opinions for the small business, commercial, and corporate sectors.

* The balance of opinion is calculated as the weighted percentage of surveyed financial institutions reporting tightened credit conditions minus the weighted percentage reporting eased credit conditions.

direction of the change in conditions and the amount of agreement; it does not provide any information on the magnitude of the change.

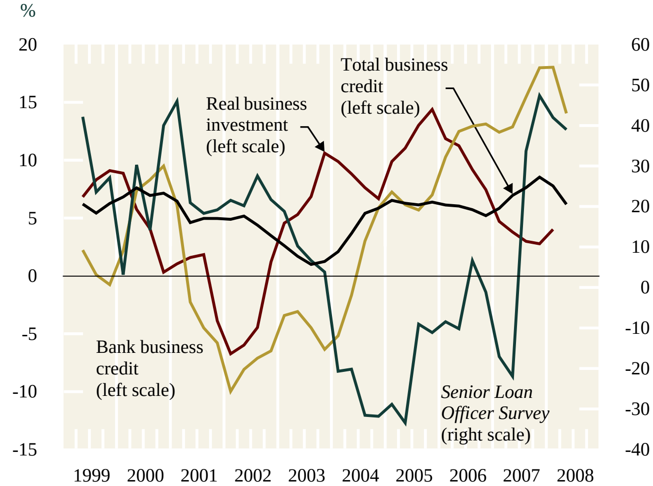
Survey Results as an Indicator of Economic Activity

Overall, the historical profile of changes in lending conditions derived from the *Senior Loan Officer Survey* is consistent with our broader understanding of the domestic credit cycle. Charts 1 and 2 illustrate that, during the economic slowdown earlier this decade, credit conditions (as proxied by the balance of opinion) tightened. Also evident are the easing in lending conditions over the 2004–06 period and the tightening through the financial market turmoil that began in mid-2007.

Since one important use of the survey results is to provide leading information about borrowing and business investment decisions of firms, we look at correlations between the survey results and measures of financial and economic activity in Canada. Table 1 shows the correlation of the overall balance of opinion with year-over-year growth rates for three economic and financial variables: business investment, total business credit, and bank business credit. Business

Chart 3

Credit and Investment Growth (year-over-year) and Survey Results



investment used for this analysis comprises real investment in structures and equipment by firms.[10] Total business credit includes all borrowing by the non-financial sector in Canada, including capital-market financing (issuances of bonds and equity).[11] Bank business credit is the portion of total business credit extended to non-financial firms by chartered banks.[12] Chart 3 shows the survey level and the growth rates of these economic variables.

The correlation analysis employs year-over-year growth rates for credit and investment, reflecting the expectation that changes in credit conditions may affect economic and financial decisions by businesses across several quarters, or in different quarters (Chart 3). The use of year-over-year growth rates also implies that both backward-looking (known) and forward-looking (unknown) information is embodied in the growth of credit and investment up to period $t+3$; beyond that horizon, the year-over-year growth rates represent only forward-looking information. The survey history is relatively short for calculating correlations, so the results below should be considered with caution, especially at longer horizons.

10. Source: Statistics Canada series v1992144

11. Bank of Canada series v122647, converted from monthly to quarterly by averaging months (Bank of Canada, various issues)

12. Bank of Canada series v122645 + v122634 + v122649 + v122656 + v122661, converted from monthly to quarterly by averaging months (Bank of Canada, various issues)

Table 1

Correlation between Survey Overall Balance of Opinion and Credit and Investment Growth

	Quarter												
Year-over-year growth	*t*–2	*t*–1	*t*	*t*+1	*t*+2	*t*+3	*t*+4	*t*+5	*t*+6	*t*+7	*t*+8	*t*+9	*t*+10
Real business investment	-0.53*	-0.56*	-0.54*	-0.50*	-0.52*	-0.56*	-0.67*	-0.65*	-0.59*	-0.42*	-0.25	-0.14	-0.04
Total business credit	0.54*	0.39*	0.20	-0.06	-0.24	-0.36*	-0.40*	-0.39*	-0.42*	-0.49*	-0.55*	-0.58*	-0.63*
Bank business credit	0.19	0.11	0.01	-0.19	-0.39*	-0.55*	-0.66*	-0.66*	-0.69*	-0.75*	-0.78*	-0.77*	-0.78*

Note: The sample period for the correlation analysis between the survey results and real business investment is 1999Q2–2008Q1. For total and bank business credit, the sample period is 1999Q2–2008Q2.

* The absolute value of the correlation coefficient is larger than 2 divided by the square root of the number of observations. This value is often used as an indication that the correlation between series is significantly different from 0 (at the 5 per cent level). While technical assumptions are violated in the present case, it still serves as a rough indicator that the correlations are important.

The analysis shows that the expected negative correlations exist in the data: Periods of tightening in credit conditions are correlated with future reductions in the growth rates of business investment, total business credit, and business credit provided by banks. Not surprisingly, correlations are strongest with the bank-provided portion of business credit (Table 1). In addition, these correlations rise steadily and remain strong over the horizon considered. The relationship between the survey results and the growth of total business credit is somewhat weaker, possibly because the survey covers only lending by financial institutions, which is a small portion of the total business-credit market. Finally, the correlations between the survey results and future year-over-year growth in business investment are fairly strong, especially around the 1-year-ahead (*t*+4) time horizon. Overall, the correlation analysis suggests that the survey results provide useful leading information about future investment and the availability of business credit.

Survey Perspectives on Credit Conditions

The SLOS provides a "supply-side" view of borrowing, i.e., an overview of credit conditions from the lenders' standpoint. The BOS asks businesses about the availability of credit (among other things), which gives insights into credit conditions from the demand side, i.e., from the perspective of the borrower.[13] Together, these two surveys provide complementary information on business-credit conditions in Canada.

Before proceeding to a comparison of the results of the two surveys, other relevant differences in their methodologies regarding timing, weighting, and coverage should be noted, even though the impact of these differences on the comparability of the results has been small. First, the SLOS focuses on business lending by financial institutions, primarily banks, while the BOS asks firms about all sources of business financing.[14] Second, while both surveys ask about changes in credit conditions over the past three months, the surveys are conducted at slightly different times, implying that the resulting reference periods are not identical. In particular, the SLOS is conducted over a two-week period near the end of the quarter and pertains to changes in conditions over the quarter in which it is conducted. The BOS interviews, on the other hand, start mid-quarter and are conducted over a three- to four-week period, implying that the three-month reference period overlaps part of the previous quarter. Finally, in calculating the balances of opinion, the individual responses of the 11 institutions in the SLOS are weighted according to each institution's share of business lending in Canada, whereas the responses of the 100 firms surveyed in the BOS are weighted equally.[15]

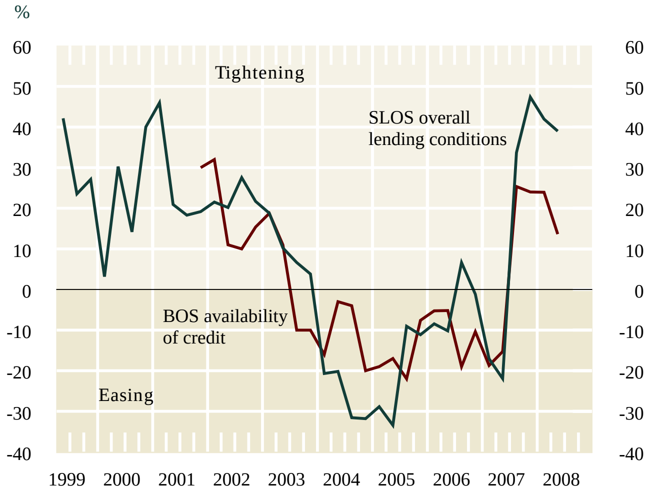
13. The BOS question on credit conditions is: "Over the past three months, how have the terms and conditions for obtaining financing changed compared with the previous three months? (For example, have banks changed their spread over prime or collateral requirements on loans or are capital markets more / less receptive to new issues of debt or equity?)."

14. For instance, the BOS question would capture developments in capital and equity markets and firm-specific events in addition to lending by financial institutions.

15. Firms in the *Business Outlook Survey* are selected such that the regional and industrial mix of companies approximates their share of business sector gross domestic product (GDP), and the sample covers a cross-section of firm sizes. This approach accomplishes similar goals to weighting the results.

Chart 4

SLOS Overall Business-Lending Conditions vs. BOS Availability of Credit*



Note: SLOS = *Senior Loan Officer Survey*; BOS = *Business Outlook Survey*

* The SLOS series starts in 1999Q2, the BOS series in 2001Q4.

The similarities and differences between the two surveys suggest that while we should expect their results to follow similar patterns, they will not provide identical information.

Chart 4 shows that, despite these methodological variations, the balance of opinion in the BOS on the availability of credit and the SLOS balance of opinion on credit conditions generally move together throughout the common sample period (2001Q4–2008Q2). The correlation between the two series is 0.8, a strong positive contemporaneous relationship, which suggests that the indicators of the two surveys should provide very similar information about future economic activity. While it is beyond the scope of the present article, one would usually expect the combined information to be more valuable than that for the separate series (see, for example, Gilbert and Meijer 2006). This would be especially important when the samples are so short.

To compare the leading information for credit and economic activity provided by these two series, it is instructive to examine their correlations with bank business credit and investment. Once again, however, these statistics should be used with caution, since the small sample size implies that the confidence bands for these correlations are wide, and become wider at longer horizons.

Table 2

Survey Correlation with Future Values of Year-over-Year Growth of Bank Business Credit (2001Q4–2008Q2)

	Quarter								
	t	*t*+1	*t*+2	*t*+3	*t*+4	*t*+5	*t*+6	*t*+7	*t*+8
SLOS	0.01	-0.14	-0.33	-0.55*	-0.69*	-0.68*	-0.70*	-0.73*	-0.75*
BOS	-0.18	-0.27	-0.45*	-0.67*	-0.85*	-0.83*	-0.79*	-0.76*	-0.79*

Note: SLOS = *Senior Loan Officer Survey*; BOS = *Business Outlook Survey*

* The absolute value of the correlation coefficient is larger than 2 divided by the square root of the number of observations. This value is often used as an indication that the correlation between series is significantly different from 0 (at the 5 per cent level). While technical assumptions are violated in the present case, it still serves as a rough indicator that the correlations are important.

Table 3

Survey Correlation with Future Values of Year-over-Year Growth of Business Investment (2001Q4–2008Q2)

	Quarter								
	t	*t*+1	*t*+2	*t*+3	*t*+4	*t*+5	*t*+6	*t*+7	*t*+8
SLOS	-0.61*	-0.58*	-0.58*	-0.52*	-0.52*	-0.40*	-0.20	0.07	0.32
BOS	-0.72*	-0.73*	-0.64*	-0.47*	-0.28	-0.15	-0.08	0.08	0.31

Note: Reflecting updated data for business investment growth, the correlation figures for the BOS presented in this table differ slightly from those in the "Backgrounder on Questions in the *Business Outlook Survey* Concerning Past Sales and Credit Conditions."
SLOS = *Senior Loan Officer Survey*; BOS = *Business Outlook Survey*

* The absolute value of the correlation coefficient is larger than 2 divided by the square root of the number of observations. This value is often used as an indication that the correlation between series is significantly different from 0 (at the 5 per cent level). While technical assumptions are violated in the present case, it still serves as a rough indicator that the correlations are important.

Table 2 shows the correlations of both surveys with future year-over-year growth rates of bank-supplied business credit for the common sample period (2001Q4–2008Q2). Both surveys are strongly correlated with bank business credit, although the correlations are higher for the BOS, especially over the shorter time horizon (*t*+2 to *t*+5). Table 3 shows the correlations of both surveys with future year-over-year growth in business investment. In this case, the BOS measure is more closely correlated over the near term (*t* to *t*+2), while the SLOS measure shows a higher correlation with business investment growth over the *t*+3 to *t*+5 horizon.

Concluding Remarks

The *Senior Loan Officer Survey* provides information on changes in the price and non-price dimensions of business-lending conditions from the perspective of the lenders and is useful for analyzing credit-market trends.

Results of the survey were initially published in October 2008. The Bank of Canada will continue to publish quarterly updates to the overall balance of opinion and the balance of opinion on the pricing and non-pricing dimensions. Publication of this information will coincide with the release of the results of the *Business Outlook Survey*, i.e., just before the publication of the *Monetary Policy Report* and the *Monetary Policy Report Update*.

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