



Bank of Canada

**FELLOWSHIP
PROGRAM**

Research Fellowship Program

The Fellowship Program is to recognize and encourage researchers at Canadian universities who have a proven track record of making contributions to research in the fields of macroeconomics, monetary economics, international finance, or the economics of financial markets and institutions.

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Bank of Canada Fellowship Program

Information

The Bank of Canada promotes the economic and financial well-being of Canada through its activities in four main areas: monetary policy, currency, financial system stability, and funds management. To help meet its responsibilities, the Bank seeks to foster excellence in research and analysis and to develop partnerships with key sources of knowledge and expertise outside the Bank.

The Bank of Canada Fellowship Program has been established to encourage leading-edge research and to develop expertise in Canada in a number of areas critical to the Bank's mandate: macroeconomics, monetary economics, international finance, or the economics of financial markets and institutions. The program provides financial support for academics recognized for their excellence and who are undertaking research that contributes to the development of knowledge and research capabilities in these fields.

Program Summary

Each Fellowship is for a renewable five-year period. It is expected that two individuals will be granted Fellowships in 2003. One individual would be added in each subsequent year so that at the end of the fifth year (2007), the program will reach its maximum of six Fellowship recipients.

Eligibility

The Fellowship Program is intended to recognize accomplished researchers who have the potential to continue to make significant contributions to fields of study that are of interest to the Bank.

Fellowship recipients are required to

- be Canadian citizens or eligible to work in Canada
- be employed in a university-level teaching position
- have obtained a PhD
- be employed by a Canadian university during the tenure of the Fellowship

Recipients are not required to remain at the same university during the term of the Fellowship and, with the agreement of the university concerned, would continue to be eligible during a sabbatical year.

Fellowship Grant

Each Fellowship consists of

- a \$50,000 stipend in each of the five years of the program
- up to \$20,000 per year available to recipients for related research expenses
- up to \$30,000 per year available to recipients for research assistants

Nominations

A university may nominate any candidate who meets the qualifications, including individuals who already hold an academic position at the university or who would agree to accept such a position upon receipt of a Fellowship. Individuals interested in becoming potential Fellowship recipients should contact the appropriate university department. Nominations must be submitted by **10 December** of the previous year.

Candidates nominated by a university for the Fellowship will be considered by a Nominating Committee that will make recommendations to the Bank's Governing Council. The Governing Council will make the final decision and announce the Fellowship awards.

Further Information

For further inquiries about the Fellowship Program, contact:

by phone: (613) 782-8888

by e-mail: fellowship-bourses@bank-banque-canada.ca

by mail: Attention: Fellowship Program

Bank of Canada

234 Wellington Street

Ottawa, Ontario

Canada

K1A 0G9

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Bank of Canada Fellowship Program – Terms and Conditions

The Fellowship Program is designed to encourage leading-edge research and to develop expertise here in Canada in a number of areas critical to the Bank's mandate, such as macroeconomics, monetary economics, international finance, or the economics of financial markets and institutions. The program provides financial support for academics recognized for their excellence who are involved in research that contributes to the development of knowledge and research capabilities in these fields.

Fellowship Grant

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Candidates for a Fellowship are required to

- be Canadian citizens or eligible to work in Canada
- have obtained a PhD
- be employed by a Canadian university during the tenure of the Fellowship

With the agreement of their university, candidates and recipients continue to meet the eligibility requirements of the Fellowship during a sabbatical year.

Nomination

This procedure applies to candidates being nominated for a Fellowship for the first time and to Fellowship recipients being nominated for a Fellowship for a further five-year period.

A university may nominate any candidate(s) who meets the eligibility requirements. Individuals interested in becoming Fellowship recipients should contact the appropriate university department.

To be considered for a Fellowship in a given year, the following must be received by the Bank **no later than 10 December** of the previous year:

1. a curriculum vitae
2. a selection of relevant research papers (5 maximum)
3. a statement of the candidate's current research program and plans (up to 6 pages)
4. a list of references
5. a letter of support from the university

Candidates nominated by a university for a Fellowship will be considered by a Nominating Committee composed of

Aldéa Landry, Chair, Member of the Bank's Board of Directors
Gordon G. Thiessen, former Governor of the Bank
David Laidler, former Visiting Special Adviser
John Chant, former Visiting Special Adviser
John Murray, Adviser
David Longworth, Adviser

The Nominating Committee's consideration of eligible candidates will include the following selection criteria:

- demonstrated excellence and innovation in their work as indicated by their record of publications and other research output, citations of and commentaries/critiques of their work, recognition by peers, awards
- potential to continue to achieve recognition as a leader in the specified field(s)
- a suitable match between the candidate's work and/or research plans, and the areas critical to the Bank's mandate

The Nominating Committee will make recommendations to the Bank's Governing Council, who will make the final decision and announce the awarding of a Fellowship. The Nominating Committee may recommend that no Fellowship be awarded if, in their judgment, there is no suitable candidate.

Awarding of a Fellowship

In the first quarter of each year, the Bank's Governing Council, which is composed of

David A. Dodge, Governor
Malcolm Knight, Senior Deputy Governor
Charles Freedman, Deputy Governor
Paul Jenkins, Deputy Governor
Sheryl Kennedy, Deputy Governor
Pierre Duguay, Deputy Governor

will consider the recommendations received from the Nominating Committee and will decide upon the awarding of this Fellowship. The announcement of the Fellowship award will be made shortly after this, and the Fellowship will commence in September of the same year.

It is planned that the following number of fellowships will be awarded over the next five years. However, a Fellowship will be awarded only when the Governing Council determines that there is a suitable recipient among the qualified candidates.

Year Awarded	Number of Fellowships
2003	2
2004	1
2005	1
2006	1
2007	1

Terms

Each Fellowship can last for a period of up to five years, subject to an annual confirmation (see "[Annual Confirmation](#)" below). At the end of five years, the Fellowship can be renewed.

For publicity purposes, Fellowship recipients grant permission to the Bank of Canada to publicly communicate their names and qualifications.

All Fellowship recipients are required to visit the Bank's head office in Ottawa for the same period each year (anticipated to be three days) for a "Learning Exchange," during which they will

- present their research findings
- meet with Bank staff to discuss issues of mutual interest
- confer on future directions for their research

During their visit, the Fellowship recipients are invited to attend a dinner in their honour.

The Bank of Canada does not retain or claim ownership of, or exploitation rights to, intellectual property developed by Fellowship recipients. However, Fellowship recipients are required to cite the Bank as a source of funding in any relevant publication that appears during the Fellowship period or that results from work done during the term of the Fellowship.

A recipient must continue to meet the Fellowship's eligibility requirements (see "[Eligibility](#)" above) during the term of the Fellowship. A Fellowship is suspended during an unpaid leave of absence and is resumed upon the recipient's return to a university-level teaching position at a Canadian university.

The Bank endorses the policies of the Social Sciences and Humanities Research Council of Canada (SSHRC) regarding research ethics. The Bank may discontinue a Fellowship at any time if it decides that a recipient has contravened the policies of the SSHRC. These policies may be viewed at the SSHRC Web site: www.sshrc.ca

Annual Confirmation

A Fellowship can last for a period of five years, subject to an annual

confirmation. Upon ascertaining that the recipient continues to meet the eligibility requirements and has continued to make a professional contribution in the fields for which the Fellowship was established, the Governing Council confirms the Fellowship. Prior to the annual confirmation, the recipient will be contacted and asked to provide

1. a letter from their university confirming their status at the university
2. copies of material (e.g., publications, research work) produced in the past year that demonstrate their ongoing professional contribution to knowledge and research in the fields of macroeconomics, monetary economics, international finance, or the economics of financial markets and institutions

Financials

The \$50,000 Fellowship grant is paid directly through the university as a supplement to the recipient's normal salary.

Annual expenses of up to \$20,000 per year are approved by the respective university and reimbursed by the Bank in accordance with an agreed-upon payment schedule. Eligible expenses are intended to include the acquisition, maintenance, and operation of research equipment; travel to scholarly conferences to present research; the costs of workshops held relating to research; as well as the costs of computing, publication, material, and supplies.

Applications for up to \$30,000 per year for research assistants are to be submitted to the respective university for approval. The Bank will reimburse the approved expenses directly to the university in accordance with an agreed-upon payment schedule. The Bank will pay the university an administrative fee of up to \$5,000.

Please address applications and all inquiries about the Fellowship Program to:

Attention: Fellowship Program
Bank of Canada
234 Wellington Street
Ottawa, Ontario
K1A 0G9

Telephone: (613) 782-8888

E-mail: fellowship-bourses@bank-banque-canada.ca

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Research at the Bank of Canada – Overview

Research is a key factor in the Bank's success in fulfilling its mandates. The Bank is the acknowledged centre of expertise in Canada for research relevant to central banking activities. Most of the research at the Bank is directed at enhancing its understanding of the functioning of the Canadian economy and financial system, including the importance of international economic and financial issues for Canada.

This note describes key aspects of the Bank's research program, including broad themes in the program for 2002. It should be noted that research themes do not change significantly from year to year; in fact, most apply to the medium term. Over the next few years, the Bank expects to expand its research effort, particularly with regard to structural and macroeconomic issues.

Research Themes for 2002

The Bank is best known for its contribution to research relating to inflation targeting and to exchange rate regimes. Its research agenda is much broader than this, however, as evidenced by the major themes of its current program.

Research in support of the Bank's monetary policy function,¹ is currently focused on enhancing our understanding of the inflation process and the way in which wages and prices are determined. We also continue to examine the monetary policy transmission mechanism, productivity, structural change, and issues related to the choice of exchange rate regimes. Ongoing investment in analytic "tools," including the models that underlie policy analysis and formulation, is another important part of our research program. The Bank makes extensive use of economic models to produce economic projections, to analyze important changes in the economy, and to better understand economic relationships.

Research associated with the financial system function is aimed at guiding the Bank in influencing the operation and development of financial infrastructure and improving the oversight of clearing and settlement systems. Here, we are currently focusing on issues such as financial volatility, the implications of increased cross-border linkages in securities markets, the modelling of payments systems, and the assessment of operational risk associated with clearing and payments systems. Research also continues on measuring financial system stability, the structure of financial markets, the efficiency and future direction of Canadian financial markets, and the international financial architecture.

In the funds management function, the primary goal of research is to provide a sound analytic base for operations. We are currently focusing on documenting best practices for central bank risk management, improving our understanding of credit risk models, building a simulation model to compare alternative financing strategies for the government's debt portfolio, and developing tools such as yield curve models and options-pricing methodologies, to extract information from asset prices and deepen our understanding of financial markets.

In the Bank's currency function, research focuses on strategic, operational, and tactical issues concerning topics such as bank note security, quality, as well as bank note demand and future forms of retail payment instruments. The Bank is actively engaged with other central banks, as well as international and national institutions, in research on bank note security.

A full range of corporate administrative services supports the Bank's business functions. Research in this area is related, for the most part, to keeping abreast of, or anticipating developments in, information processing, technology, compensation, and the identification and implementation of best practices.

The Bank's research program is reviewed and renewed annually. Staff at all levels are encouraged to be involved in the planning process. Detailed work proposals and plans are prepared and priorities identified (or re-confirmed) each year, following a scan of external developments and discussions among staff and the management of the Bank. Progress against the plan is reviewed regularly within work groups, and more formally with management on an annual basis. This includes external assessments of our research output, where this is feasible.

Significant resources are devoted to research and analysis at the Bank. For example, close to 200 economists and financial market specialists are on staff, with most having at least some involvement in the research program. Much of the research we do is conducted entirely by Bank staff. In recent years, however, Bank researchers have increasingly been working in collaboration or partnership with staff at other institutions, including foreign central banks, research institutes, and universities. Bank staff also participate in various national and international task forces set up to address specific issues, and regularly provide technical assistance in the research domain. Collaboration is viewed as being particularly important, since it allows us to expand our research capabilities, to tap different sources of knowledge, and to stay at the leading edge of research relevant to central banking.

A vibrant research community, not only within the Bank, but across the country, is important to the Bank's work, as are strong links between the Bank and the broader research community. The Bank hosts research conferences and seminars, the proceedings of which are published in full and in summary. Two additional initiatives that relate to research with links to the broader community deserve special mention: the annual appointment of a visiting economist to the position of Special Adviser, and the [Bank of Canada Fellowship Program](#). The Special Adviser contributes to Bank research directly and through advice to staff on research issues. The new Fellowship Program aims to support the development of advanced research in macroeconomics, monetary economics, international finance, and the economics of financial markets and institutions in Canada, through awards to selected academics.

The communication of research findings is a critical aspect of our work. The Bank makes its research available publicly through its Working Paper and Technical Report series, as well as through the *Bank of Canada Review*, which is aimed at a more general audience. In addition, staff regularly present their research, act as discussants, or chair sessions at conferences and seminars held in Canada and abroad. Staff are also strongly encouraged to publish their work in refereed journals. The Bank's Web site includes a topic search facility. As well, the research contributions of individual staff members can be found in the Economics Staff home pages.

1. Note that research related to the monetary policy function frequently informs work in the financial system function and vice versa.

See also:

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Research at the Bank of Canada – Major Themes for 2002

Monetary Policy

All four economic departments at the Bank - Research, Monetary and Financial Analysis, International, and Financial Markets - conduct research into monetary policy.

Work on price and wage determination includes an empirical evaluation of alternative models of inflation, analysis of the determinants of contract length, and a dynamic general equilibrium analysis of monetary policy in a small open economy. These papers will be presented at the Bank's annual conference on "Price Adjustment and Monetary Policy" to be held in November. The Bank's regional offices (located in Halifax, Montréal, Toronto, Calgary, and Vancouver) are conducting a survey of price-setting behaviour by Canadian firms.

On the tools side, development work on the Quarterly Projection Model (for Canada) is focused on improving the model dynamics and the links from foreign activity and commodity prices to the domestic economy.

We are developing specialized models to improve our analysis and monitoring of key relationships. One of these projects is the building of an index of inflationary pressures based on information from estimates of capacity pressures in goods and labour markets.

Projects related to productivity include analysis of the lags between IT investment and productivity growth and the relationship between exchange rate movements and productivity. Regarding structural change, projects are evaluating alternative methods for estimating potential output and analyzing indicators of the new economy.

Various studies focus on issues related to business cycles, sectoral developments, and labour market adjustment. Specific projects include analysis of whether there was over-investment in Canada in the late 1990s, the determinants of sectoral cycles and the implications of these cycles for financial stability, and the response of firms to demand shocks (variations in employment, hours, inventories, etc.).

Building on the Bank's October 2001 Workshop on Taylor Rules, we are continuing to work on monetary policy rules. In particular, we are reviewing the reasons why a rule that contains the exchange rate does not perform well in open-economy models. We are also exploring policy rules with a role for hybrid inflation and price-level targets. And we are continuing to study the performance of Taylor rules and other types of rules in a small open economy, limited-participation model of the Canadian economy. This work is complemented by research on measuring the stance of monetary policy.

Because of the reduced emphasis on the M1 vector-error-correction model, we are working towards a new financial model for monetary policy advice that focuses on a wider array of financial channels in the transmission mechanism (e.g., bond prices, stock prices, and money). This is being complemented by significant research on credit, including a sectoral, or industry-level, approach to identifying the credit channel. We are also continuing to investigate the effects of "credit crunches" and related policy responses, as well as studying how credit

constraints influence investment behaviour, and we are reviewing evidence on the leading indicator properties of credit variables.

In the area of indicator and forecasting models for inflation and output, we are assessing the benefits of a reduced-form, money-based, vector autoregressive (VAR) model and, if warranted, will develop one. We also intend to review our GDP-indicator models and are likely to focus further development on recently developed term-spread, factor-analysis models. Finally, we are continuing to develop a hybrid dynamic general equilibrium (DGE) model (where some VAR elements with no structural interpretation are introduced into a structural model) to analyze the forecasting power of DGE models with nominal rigidities and VAR elements.

We are examining new definitions of transactions money, based on dynamic factor analysis to extract measures of transactions money from existing monetary data.

We are revisiting the methodology for extracting market expectations of future interest rates. We are also updating previous work on the reaction of financial markets to macroeconomic news to examine whether any changes have occurred since the introduction of fixed announcement dates.

We are improving our understanding of the U.S. economy by developing a policy-simulation model, analyzing wage-price dynamics, assessing the role of consumer confidence, explaining investment behaviour, and estimating the equilibrium real interest rate.

Our work on exchange rate regimes focuses on border effects, reviewing the extent of dollarization in Canada and estimating the trade creating effects of currency unions. Closely related to this are a number of projects on the Canadian exchange rate such as estimating equilibrium exchange rates and examining possible links to productivity.

Financial System

An important goal of the research conducted by the four economic departments and by the Department of Banking Operations is to assist the Bank in giving advice on the financial sector framework and to improve oversight of the financial sector. Note that there is also an important complementarity between financial system research and monetary policy research. In 2002 we have been focusing on the following.

We are completing a review of the literature on the effects of financial structure on economic welfare and are studying issues related to firms raising capital in domestic or foreign markets. We are also researching the way monetary policy would operate in the extreme case of the absence of Canadian dollar financial markets. We are studying financial volatility, including contagion among financial-service firms, such as in the interbank market. We are exploring the link between stock market volatility and business cycles. We are also examining the efficiency of the Canadian banking sector.

The preceding is being complemented by continuing research on measuring financial stability, centred on a financial-stress index. We are also developing measures of risk for the household sector and improving our knowledge of credit-risk transfer instruments.

We are taking steps towards the development of a stress-testing model, focusing on modelling the financial system in Canada. This is a very demanding undertaking, and it likely will be several years before tangible progress is evident.

To provide an expert contribution to well-functioning financial markets, research

on financial markets is proceeding in two main directions. First, we are examining the future direction of Canadian financial markets. This research is intended to strengthen our understanding of the structure of the Canadian financial system and to ascertain how the Bank can facilitate the development of Canadian markets. Research is comparing stock market valuations of Canadian and U.S. companies, identifying differences in the cost of capital, and examining the foreign exchange exposure of Canadian corporations. Second, we are continuing our research on market microstructure, focusing on the structure of currency and fixed-income markets. In particular, we are examining issues related to market efficiency and liquidity. This research helps us identify optimal regulatory regimes and provides insights into the dynamics of markets, a key to understanding the implications of alternative market structures for financial stability.

On the international front, the U.S. financial sectors and Japan are the main focus of our financial stability agenda. The main focus of our research on international architecture issues relates to specific aspects of our participation in improving private sector involvement in the resolution of international financial crises.

The Bank has a particular responsibility for the soundness of payments, clearing and settlement systems, and we are continuing to develop our modelling of payments systems, which so far has focused on one particular application, ACSS. We are broadening the scope of this research by developing a more general modelling strategy for payments systems. We are also exploring the implications of increased cross-border linkages in securities markets for clearing and settlement systems.

Research is also being conducted in the areas of operational risk and the monitoring of clearing and settlement systems.

Research into the operational risks of clearing and settlement systems in Canada is aimed at developing a systematic, rigorous framework for identifying and measuring such risks. In addition, specific events that have the potential to cause severe outcomes in clearing and settlement systems will be analyzed with a view to assessing the robustness of contingency measures aimed at mitigating the impact of these events.

A solid understanding of the trends and regularities in clearing and settlement systems will aid in monitoring the operations of these systems and allow the impact and severity of disruptions to be assessed more effectively. An understanding of the economic behaviour of participants in the payments systems will also help decision-making in unusual situations. A review of international practices for the pledging of collateral to support payment flows in large-value payments systems is being carried out, and their potential implications for Canada is being considered.

Funds Management

In 2002, the primary goal of research in the area of funds management, conducted largely by the Financial Markets and Banking Operations departments, is to provide a firm analytic foundation for our business operations. A significant amount of research relates to risk management topics, because sound risk management principles are a key element in effective funds management.

A comprehensive framework for the management of Treasury risk at the Bank of Canada is currently being developed. This work requires a solid understanding of international practices. Staff are therefore working with the Bank of England, the European Central Bank, the Bank of Japan, and the U.S. Federal Reserve to document "best practices" in central banking risk management.

Understanding credit risk is critical to both risk management and to analyzing financial markets. One project examines how asset-backed securities help transfer credit risk between financial counterparties. Another project is helping to improve our understanding of various mathematical models for measuring credit risk.

In the area of debt management, the primary initiative is the development of a simulation model to help compare various financing strategies for the government's debt portfolio. To do this, however, some important issues must be resolved. These include the construction of models describing the stochastic evolution of the term structure of interest rates and the random dynamics of the business cycle.

The extraction of zero-coupon and forward interest rates from a set of observed bond prices and the pricing of financial options that depend on interest rate outcomes are tasks of fundamental importance to various funds management operations. Projects examining advanced methods to accomplish these tasks are currently underway. The results of this work will both enhance our ability to extract information from asset prices and deepen our understanding of financial markets.

Funds management research focuses on practical questions of interest to those conducting funds management operations within the Bank. However, Bank research in other areas is also of interest to those making policy decisions in the area of funds management. For example, research on secondary market liquidity is of interest to those conducting auctions in fixed-income markets.

Currency

The currency research program, carried out in the Department of Banking Operations, focuses on strategic, operational, and technical issues. It covers a wide range of topics such as bank note security, quality, and production, as well as more fundamental research on bank note demand and future forms of retail payment instruments.

i) Strategic / fundamental

Conclusions from fundamental research on currency and other forms of retail payment will influence the department's long-term strategy. Therefore factors determining the use and demand for bank notes are being evaluated. The findings will feed into the research on alternative payment mechanisms and the future form of final means of retail settlement.

ii) Operational / tactical

Tactical investigations – often involving market research – are also conducted to answer many of the operational questions faced by the Bank. For example: How successful are our efforts at currency education? What is the optimal level of bank note inventories? What quality standards should be maintained for bank notes in circulation? Is there a link between note quality and counterfeiting? What is the effectiveness of various anti-counterfeiting features?

iii) Technical

The Bank is monitoring the development of bank note features around the world and regularly shares views and technical information with other central banks and suppliers of security features and substrates. Studies aimed at enhancing the security and durability of our bank notes are on the agenda, including improving the durability of the tactile feature. Contingency bank note designs are being developed to provide the Bank with more flexibility to react to unforeseen threats.

Corporate Administration

In 2002, research by those departments involved in providing administrative services to the Bank largely consists of monitoring or anticipating trends in information processing, technology, and compensation.

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