BANK OF CANADA

# Publications Catalogue

## 2003

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# CONTENTS

# INTRODUCTION

***The Bank of Canada produces a wide variety of publications of interest to business and banking professionals, policy-makers, academics, and the general public. In addition to the research documents listed on the following pages, they include:***

***Annual Report.***
Published in March. No charge.

***Monetary Policy Report.***
Published in April and October. No charge.

***Monetary Policy Report Update.***
Published in July and January. No charge.

***Financial System Review.***
Published semi-annually. No charge.

**Speeches and Statements by the Governor.**
No charge.

***Bank of Canada Banking and Financial Statistics.***
Published monthly.*

***Weekly Financial Statistics.***
Published each Friday.*

***Bank of Canada Publications Catalogue.***
Published annually. No charge.

*For subscription prices see pages 29–30.

***Bilingualism at the Bank of Canada.***

Published annually. No charge.

***Planning an Evolution: The Story of the Canadian Payments Association, 1980–2002.***

Published in 2003. No charge.

***Renewal of the Inflation-Control Target: Background Information.***

Published in 2001. No charge.

***The Thiessen Lectures.***

Published in 2001. No charge.

***A History of the Canadian Dollar.***

James Powell. Published in 1999. Available at Can$4 (plus GST and PST, where applicable).

***The Transmission of Monetary Policy in Canada.***

Published in 1996. Available at Can$20 (plus GST and PST, where applicable).

All Bank publications, except for the *Bank of Canada Banking and Financial Statistics*, are available on our Web site: <http://www.bankofcanada.ca>.

# BANK OF CANADA
# REVIEW

*The* Review *is a quarterly publication of interest to business and banking professionals, academics and educational institutions, libraries, and the general public. It combines economic commentary and feature articles related to the Canadian economy and to central banking with summary statistical tables. Articles are available on the Bank's Web site (http://www.bankofcanada.ca/en/review/revlist.htm).*

## Winter 2002–2003

### Recent Changes to Canada's Financial Sector Legislation
*Fred Daniel*

The author surveys the significant legislative developments and restructuring trends taking place in Canada's financial services sector over the past decade and the legislative changes affecting federal financial institutions over the period 1992–2001. The background to Bill C-8, the 2001 legislation to reform the sector, is described, as well as its main provisions, including the principle of wide ownership of large banks; the new holding company option for banks and life insurance companies; the creation of the Financial Consumer Agency of Canada to enforce consumer-related provisions relating to federal financial institutions; and changes to the Canadian Payments Association and access to and governance of the payments system.

### Exchange Rate Regimes in Emerging Markets

*Jeannine Bailliu and John Murray*

The authors examine the evolution of exchange rate regimes in emerging markets over the past decade, in light of renewed interest in alternative exchange rate systems triggered by a series of international financial crises in the 1990s and the recent introduction of the euro. They compare the strengths and weaknesses of the various available systems, including intermediate regimes, such as the adjustable pegged exchange rate popular throughout much of the post-war period, and the two extreme exchange rate regimes: permanently fixed or freely floating. Two recently proposed alternatives, the Managed Floating Plus and Baskets, Bands, and Crawling Pegs, are also evaluated.

### Transparency and the Response of Interest Rates to the Publication of Macroeconomic Data

*Nicolas Parent*

The widely recognized benefits of transparency include smoother implementation of monetary policy and increased effectiveness as markets better anticipate the Bank of Canada's policy decisions. The author demonstrates that the Bank's recent efforts to increase transparency by adopting a system of fixed announcement dates have increased the impact of Canadian data on short-term interest rates. This is an indication that financial markets now better understand the factors taken into account by the Bank in its conduct of monetary policy.

## Spring 2003

### The Bank of Canada: Moving Towards Transparency

*John Chant*

With the adoption of the inflation-control target in 1991 and several other changes in the 1990s, the Bank of Canada transformed its conduct of monetary policy from what it had been in the 1960s. The author explores the factors that motivated the changes towards openness and accountability, suggesting that the Bank has come a long way but could still do more. He concludes that the public has benefited from the changes in central banking and monetary policy and suggests that the Bank should continue to support research on the benefits of low and stable inflation and to inform other policy-makers and the public of the results.

### Inflation Targeting and Medium-Term Planning: Some Simple Rules of Thumb

*David Longworth*

Despite recent economic shocks, such as the fall in stock market prices and the effects of the terrorist attacks on 11 September 2001, evidence suggests that the Canadian economy has become more stable overall in the past decade. This stability, a result of inflation targeting and a clear fiscal framework, is evident in several key economic indicators, including inflation, inflation expectations, and output. The author examines the average values or growth rates of some important economic values and their ratios to develop useful rules of thumb regarding medium-term planning for inflation, growth rates for real GDP, nominal GDP, labour income, profits, and long-term interest rates.

### Conference Summary: Price Adjustment and Monetary Policy

*Robert Amano and Don Coletti*

Throughout the 1990s and to date, the existence of price stickiness in goods or labour markets, or both, has been accepted, as has the important role that monetary policy can play in an economy. This November 2002 Bank of Canada conference provided a timely opportunity to focus on current research in these areas, particularly within a Canadian context. Researchers use theoretical and empirical methods to study sources of the persistence of inflation, forward-looking models of inflation, models of inflation in open economies, the macroeconomic effects of technology shocks, and models of the interaction between wages, prices, and real economic outcomes.

### Updating the Bank of Canada Commodity Price Index

*Todd Hirsch*

The Bank of Canada commodity price index (BCPI) summarizes the price movements of 23 commodities produced in Canada. Information provided by the BCPI is used in analyzing movements in GDP, industrial producer prices, inflation, and the exchange rate. To ensure that it accurately reflects the natural resource sectors of the economy, a number of new components and pricing sources were incorporated into the BCPI effective 15 May 2003. Weights in the new BCPI are chained to 1 January 1991 and 1 January 2000 to better reflect contemporary values.

## Summer 2003

### Financial Developments in Canada: Past Trends and Future Challenges

*Charles Freedman and Walter Engert*

The authors focus on the changing patterns of lending and borrowing in Canada in the past thirty to forty years and consider the challenges facing the Canadian financial sector. They review the types of financial instruments used, the relative roles of financial institutions and financial markets, and how borrowing mechanisms have changed over time. Trends examined include syndicated lending, securitization, and credit derivatives. In their review of bond and equity markets, the authors find that there is little evidence to support the view that domestic capital markets have been hollowed out or abandoned by Canadian firms.

### Measuring Interest Rate Expectations in Canada

*Grahame Johnson*

The author describes the expectations hypothesis, which measures financial market expectations of future levels of the target overnight rate as implied by current money market yields, and he explains why the Bank of Canada is interested in such financial market expectations. The theoretical assumptions behind the model used to measure the expectations are explained and tested. The author also demonstrates the actual derivation of implied expectations.

### Dollarization in Canada: An Update

*John Murray, James Powell, and Louis-Robert Lafleur*

The authors report on a special survey conducted by the Bank of Canada's regional offices in 2002 to determine whether the U.S. dollar has started to displace the Canadian dollar as a preferred unit of account. A cross-section of firms was asked what currency they used for quoting sales to Canadian customers and to foreigners, for reporting their financial results, and for quoting salaries and wages. The results indicate very little evidence of dollarization. Canadian firms price their products and keep their financial statements in Canadian dollars, and very few workers in Canada have their salaries paid in U.S. dollars.

## Autumn 2003

### An Evaluation of Fixed Announcement Dates

*Nicolas Parent, Phoebe Munro, and Ron Parker*

When it launched a new system for regularly announcing its decisions regarding the overnight rate of interest in December 2000, the Bank had a number of key objectives: reduced uncertainty in financial markets, greater focus on the Canadian economic environment, more emphasis on the medium-term perspective of monetary policy, and increased transparency regarding interest rate decisions. All four objectives have been met to a substantial degree. Fixed announcement dates have provided regular opportunities for the Bank to improve the Canadian public's understanding of the broad direction of monetary policy and of the rationale behind policy decisions, although the decisions themselves are not always fully anticipated.

### Recent Labour Market Developments in Canada

*Richard Dion and Bill Laur*

In the year and a half leading up to mid-2003, gains in employment were unusually large, relative to output growth, compared with gains in total hours worked. This is explained by a faster rate of increase in the labour force participation rate of the 55 and older age group, many of whom opted for part-time employment. This shift in the composition of employment contributed to a reduction in the length of the average workweek in 2002, causing labour input to progress at a rate that was markedly slower than for employment and more in line with its historical relationship to output growth. As the economy rebounds and uncertainty diminishes, the cyclical component in the growth of part-time work should diminish and that of full-time employment increase.

### Developments, Issues, and Initiatives in Retail Payments

*Sean O'Connor*

Innovations in basic information technologies, in payment applications, and in the availability of global markets, as well as substantial changes in financial sector policy, have fundamentally changed how the retail payments system in Canada operates. The author examines the effect of the technological and legislative changes and the initiatives developed by the public and private sectors in such areas as the market arrangements for services; customer risks and costs for settling large-value retail payments; the security of payment information and the efficiency with which it is transmitted; and the effects of differing regulatory regimes on competition among providers of retail payment services.

### Technical Note: Elimination of Retroactive Settlement in the ACSS

*Eric Tuer*

Effective 1 November 2003, the Bank abandoned its practice of backdating the results of settlement of payments through the Automated Clearing Settlement System (ACSS). It has adopted instead a system of "next-day" settlement under which the results of the settlement process will appear on the Bank's books on the day the items actually settle in the ACSS. ACSS participants have agreed among themselves to implement an interest-compensation mechanism to avoid imposing a float charge on their customer base. The new system should simplify the payment process and improve the reporting of settlement risk, as well as promoting cost-effectiveness within the payment systems.

# WORKING PAPERS AND **TECHNICAL REPORTS**

*Working papers report on research work in progress. Technical reports present studies on economic and financial subjects. Both series are of interest to business and banking professionals, academics and educational institutions, and libraries.*

*The Bank's Web site contains working papers from 1994 on (http://www.bankofcanada.ca/en/wp(y).htm), and technical reports from 1982 on (http://www.bankofcanada.ca/en/trlist.htm).*

## Working Papers

2003-1
**International Banking Crises and Contagion: Empirical Evidence**
*Eric Santor*

The author uses matching-method techniques to construct a suitable control-group sample analogue to a set of crisis countries to accurately quantify the probability of the occurrence of a banking crisis and the probability of banking-system contagion. He finds that the sample choices of previous studies introduced bias into the estimates of the probability that a banking crisis would occur. Furthermore, the probability of a banking crisis increases when countries have macroeconomic characteristics similar to those that have recently experienced a crisis, regardless of the degree of actual economic linkages between the countries. This suggests that information contagion plays a larger role than previously suspected.

**2003-2**

**Managing Operational Risk in Payment, Clearing, and Settlement Systems**

***Kim McPhail***

The author describes the key features of systemically important payment, clearing, and settlement systems (PCSS) in Canada and the oversight role of the Bank of Canada with respect to those systems. She also describes the loss-distribution approach, which could be used to assess and manage operational risk in Canadian PCSS. It assesses risk in terms of the potential outcomes of operational events owing to certain risk factors (such as systems problems, human error, process problems, and external events), their likelihood, and their frequency. The loss-distribution approach could be used to supplement core aspects of operational risk management, such as sound corporate governance, internal controls, policies and procedures, knowledgeable people, and robust contingency plans.

**2003-3**

**Modélisation et prévision du taux de change réel effectif américain**

***René Lalonde and Patrick Sabourin***

The authors describe a simple model for predicting the real U.S. exchange rate. Starting with a large number of error-correction models, the authors choose the one giving the best out-of-sample forecasts over the period 1992Q3–2002Q1. In the selected model, the effective real exchange rate is cointegrated with relative productivity and the real price of oil. Out-of-sample forecasts reveal that the model generates mean-squared errors that are systematically and statistically much lower than those from a random-walk or an autoregressive model. This result is largely due to the great stability of the parameters of the cointegration relationship.

**2003-4**

**Are Distorted Beliefs Too Good to be True?**

***Miroslav Misina***

In a recent attempt to account for the equity-premium puzzle within a representative-agent model, Cecchetti, Lam, and Mark (2000) relax the assumption of rational expectations and in its place use the assumption of distorted beliefs. The author shows that the explanatory power of the distorted beliefs model is due to an inconsistency in the model and that an attempt to remove this inconsistency removes the model's explanatory power. Using the theory of rational beliefs, the author constructs a model in which the inconsistency is not present, compares its performance with that of the distorted beliefs model, and gives a simple interpretation of the results obtained.

**2003-5**

**Shift Contagion in Asset Markets**

***Toni Gravelle, Maral Kichian, and James Morley***

The authors develop a new methodology to investigate how crises cause the relationship between financial variables to change. The methodology has three key features: (i) high- and low-variance episodes are model-determined, rather than exogenously assigned; (ii) the markets where crises originate need not be known; and (iii) the approach provides an unambiguous test of shift contagion.

Applications to bivariate returns in currency markets of developed countries and bond markets of emerging-market countries suggest that shift contagion occurs among the former but not the latter.

**2003-6**
**Valuation of Canadian- vs. U.S.-Listed Equity: Is There a Discount?**
***Michael R. King and Dan Segal***

The authors find that Canadian-listed firms trade at a discount to U.S.-listed firms across a range of valuation measures. Differences in accounting do not explain this discount, based on a comparison of Canadian interlisted firms that report under both Canadian and U.S. generally accepted accounting principles. This discount exists despite Canadian-listed firms having a lower cost of equity and higher profitability than comparable U.S-listed firms. The authors find that a country discount persists after controlling for company-specific and market-specific factors, which suggests that Canadian and U.S. financial markets remain segmented.

**2003-7**
**Testing the Stability of the Canadian Phillips Curve Using Exact Methods**
***Lynda Khalaf and Maral Kichian***

Postulating two different specifications for the Canadian Phillips curve (a purely backward-looking model, and a partly backward-, partly forward-looking model), the authors test for structural breaks in the parameters of the equation. In each case, they account for the possibilities that: (i) breaks can be discrete, or continuous, and (ii) available data samples may be too small to justify using asymptotically valid structural-change tests. The authors use recent testing procedures (Dufour-Kiviet 1996; Dufour 2002) that are valid in finite data samples. They find evidence for linear and non-linear breaks, the latter being characterized by continuous and unpredictable-type shifts in the inflation-dynamics coefficients.

**2003-8**
**Comparing Alternative Output-Gap Estimators: A Monte Carlo Approach**
***Andrew Rennison***

The author describes a method for assessing the relative usefulness of various output-gap estimators using simulated data from a small estimated model of the Canadian economy. He evaluates the various estimators by comparing their respective estimates of the output gap with the true gap. His findings indicate that an estimator that combines the Hodrick-Prescott filter with a Blanchard-Quah structural vector autoregression (SVAR) yields an estimate that is accurate compared with competing methods at the end-of-sample. He also finds that the performance of the SVAR relative to that of other methodologies is quite robust to violations in the identifying assumptions of the SVAR.

**2003-9**
**Bank Lending, Credit Shocks, and the Transmission of Canadian Monetary Policy**
***Joseph Atta-Mensah and Ali Dib***

The authors use a dynamic general-equilibrium model to study the role financial frictions play as a transmission mechanism of Canadian monetary policy, and to evaluate the real effects of exogenous credit shocks. Financial frictions, which are modelled as spreads between deposit and loan interest rates, are assumed to depend on economic activity as well as on credit shocks.

A general finding is that almost all of the real response to a monetary policy shock comes from the price rigidity and not the credit frictions. Credit shocks, however, do have substantial real effects on macroeconomic variables. Thus, in this model, imperfections in credit markets are responsible only for a small amplification and propagation of the real effects of monetary policy shocks.

**2003-10**
### A Stochastic Simulation Framework for the Government of Canada's Debt Strategy
***David Jamieson Bolder***

The author gives a thorough qualitative description of the complexities of debt strategy analysis and demonstrates that it is a problem in stochastic optimal control. He constructs a stochastic simulation framework, primarily to learn about the nature of the risk and cost trade-offs associated with different financing strategies. He describes the framework in detail; a set of possible debt cost and risk measures, including one potentially useful conditional risk measure; illustrative results under normal stochastic conditions; an analysis of the sensitivity of the results to various key model parameters; a novel approach to stress testing; and a possible framework for selecting a financing strategy, given assumptions about government risk preferences.

**2003-11**
### Collateral and Credit Supply
***Joseph Atta-Mensah***

The author examines the role of collateral in an environment where lenders and borrowers possess identical information and similar beliefs about its future value. Using option-pricing techniques, he shows that a secured loan contract is equivalent to a regular bond and an embedded option to the borrower to default. He finds that the lender will not advance to the borrower a loan that exceeds the market value of the collateral, and that the supply of loans increases with a rise in the market value of the collateral. Increases in the volatility of the value of the collateral, interest rate, and dividend rate of the collateral independently depress the loan supply. The author also derives the cost of a third-party guarantee of a loan and an implied risk premium.

**2003-12**
### The Macroeconomic Effects of Military Buildups in a New Neoclassical Synthesis Framework
***Alain Paquet, Louis Phaneuf, and Nooman Rebei***

The authors show that the predictions of the New Neoclassical Synthesis (NNS) framework generally are consistent with the *sign*, *timing*, and *magnitude* of how hours worked, after-tax real wages, and output actually respond to an upsurge in military purchases. The key factors leading to these findings are: (i) variations in the ratio of price to marginal cost resulting from nominal-price inflexibilities, (ii) staggered nominal-wage setting, and (iii) time-varying marginal tax rates. Unlike the standard neoclassical model, the NNS framework successfully explains the macroeconomic effects of military buildups when taxes are distortionary.

**2003-13**

**Un modèle « PAC » d'analyse et de prévision des dépenses des ménages américains**

*Marc-André Gosselin and René Lalonde*

The authors use polynomial-adjustment-cost (PAC) models to analyze and forecast U.S. household spending. They find that the estimated models are rather rich from a theoretical and dynamic viewpoint. For example, the authors find that household spending is a function of forward-looking expectations, short- and long-term interest rates, human and non-human wealth, liquidity constraints, and uncertainty with respect to future business cycles. Moreover, out-of-sample forecasts and stability tests show that this theoretical structure is not added at the expense of the model's empirical features.

**2003-14**

**An Index of Financial Stress for Canada**

*Mark Illing and Ying Liu*

Stress is defined as the force exerted on economic agents by uncertainty and changing expectations of loss in financial markets and institutions. It is a continuous variable with a spectrum of values, where extreme values are called financial crises. Information about financial stress is extracted from a wide array of financial variables using several techniques. An internal Bank of Canada survey is used to condition the choice of variables and to evaluate their ability to reflect the responses to the survey regarding highly stressful financial events. The authors show that alternative measures of financial crises suggested by the literature do not accurately reflect the results of the survey, while several measures developed in this paper do reflect them.

**2003-15**

**The Syndicated Loan Market: Developments in the North American Context**

*Jim Armstrong*

The author suggests that there has been a notable change in large corporate lending over the past decade, as the old bilateral bank-client lending relationships have been replaced by a world that is much more transaction-oriented and market-oriented. The Canadian syndicated loan market has been strongly influenced by its U.S. counterpart, but it is not yet at the same level of development. The author explores potential risk issues for the new corporate loan market, including implications for the distribution of credit risk in the system, risks in the underwriting process, the monitoring function, and the potential for risk arising from asymmetric information.

**2003-16**

**Some Notes on Monetary Policy Rules with Uncertainty**

*Gabriel Srour*

The author explores the role that Taylor-type rules can play in monetary policy, given the degree of uncertainty in the economy. He shows that if the degree of persistence of inflation in the Phillips curve is not high, a simple rule such as the original Taylor rule that offsets demand shocks and puts a relatively small weight on inflation shocks may be an appropriate benchmark for the conduct of monetary policy. Conversely, he argues that if the degree of persistence of inflation in the Phillips curve is high, then finding a Taylor-type rule that can act as a benchmark for monetary policy is likely to be difficult.

**2003-17**

**Explaining and Forecasting Inflation in Emerging Markets: The Case of Mexico**

***Jeannine Bailliu, Daniel Garcés, Mark Kruger, and Miguel Messmacher***

The authors apply three inflation models (a mark-up model, a money-gap model, and a Phillips curve) that have worked well in industrialized countries to Mexico, an emerging market. Their empirical results suggest that the evolution of the exchange rate remains a very important factor for forecasting inflation in Mexico. Indeed, in the best-performing model, the mark-up model, the exchange rate plays the most significant role. The Phillips curve explains and forecasts inflation well when using actual values for the explanatory variables, but does not perform well when using forecasted values for the explanatory variables. The money-gap model does not appear to be useful in its current form, because it is unable to beat even a simple AR1.

**2003-18**

**Technological Change and the Education Premium in Canada: Sectoral Evidence**

***Jean Farès and Terence Yuen***

In a multi-sector economy where technological innovations are skewed towards certain industries, imperfect labour mobility implies a positive relationship between the education premium and the technological change in industry. Using data from the Survey of Consumer Finance and the Labour Force Survey, the authors obtain empirical results that would appear to confirm this link: university graduates in research and development-intensive industries are better paid. Yet, this positive correlation is largely due to the fact that high-tech industries attract more professionals who are more educated than the average university graduate.

**2003-19**

**A Small Dynamic Hybrid Model for the Euro Area**

***Ramdane Djoudad and Céline Gauthier***

The authors estimate and solve a small structural model for the euro area over the 1983–2000 period. Given the assumption of rational expectations, the model implies a set of orthogonality conditions that provide the basis for estimating the model's parameter by generalized method of moments. The authors' main results are: (i) the impulse-response functions implied by the model are consistent with the standard stylized facts about the dynamic effects of monetary policy, (ii) evidence suggests that flexibility in Europe has increased since the adoption of the Maastricht Treaty, and (iii) the inflation expectations captured by the model might explain the European Central Bank's reluctance to ease monetary conditions in 2000.

**2003-20**

**The U.S. Stock Market and Fundamentals: A Historical Decomposition**

***David Dupuis and David Tessier***

The authors identify the fundamentals behind the dynamics of the U.S. stock market over the past 30 years. They specify a structural vector-error-correction model following the methodology of King, Plosser, Stock, and Watson (1991). This methodology identifies structural shocks with the imposition of long-run restrictions. It allows the authors to calculate an equilibrium measure of stock market value based on the permanent components of the time series. A better understanding of the components that drive stock market movements could provide insight into the potential effects of the recent technological revolution on the dynamics of the stock market's equilibrium value, as suggested by Hobijn and Jovanovic (2001).

**2003-21**
### Dynamic Factor Analysis for Measuring Money
***Paul D. Gilbert and Lise Pichette***

Technological innovations in the financial industry pose major problems for the measurement of monetary aggregates. The authors describe work on a new measure of money that has a more satisfactory means of identifying and removing the effects of financial innovations. The new method distinguishes between the measured data (currency and deposit balances) and the underlying phenomena of interest (the intended use of money for transactions and savings). Although the classification scheme used for monetary aggregates was originally designed to provide a proxy for the phenomena of interest, it is breaking down. The authors feel it is beneficial to move to an explicit attempt to measure an index of intended use.

**2003-22**
### The Construction of Continuity-Adjusted Monetary Aggregate Components
***Jeannie Kottaras***

Changes in the financial industry result in new data that are inconsistent with the former presentation, and therefore adjustments are required to "adjust" or smooth out these breaks to establish continuity. The author explains the methodology for newly calculated continuity adjustments to components of the monetary aggregates. Continuity adjustments have previously been done only for the aggregates themselves. The author lists the aggregates and their components and shows the adjustments that have been made.

**2003-23**
### What Does the Risk-Appetite Index Measure?
***Miroslav Misina***

The risk-appetite index (RAI) is based on the rank correlation between assets' riskiness and excess returns. The author seeks to provide a theoretical foundation for this measure. He summarizes the arguments behind the index in two propositions and attempts to derive these propositions within a class of well-specified asset-pricing models. His results indicate that, whereas the exclusive attribution of the rank effect to changes in risk aversion is problematic in general, a specific set of circumstances can be identified in which this attribution is permissible. The key assumption is identified, and its empirical implications are examined. In cases where this assumption is shown to be empirically valid, the model provides a theoretical foundation for the RAI.

**2003-24**
### Forecasting and Analyzing World Commodity Prices
***René Lalonde, Zhenhua Zhu, and Frédérick Demers***

The authors develop simple econometric models to analyze and forecast two components of the Bank of Canada commodity price index: the Bank of Canada non-energy (BCNE) commodity prices and the West Texas Intermediate crude oil price. Their main results indicate that: (i) the world economic activity and real U.S.-dollar effective exchange rate explain much of the cyclical variation of real BCNE prices, (ii) real crude oil prices have two structural breaks over the sample period, and recently their link with the world economic activity has been quite strong, and (iii) the models outperform benchmark models, namely a vector autoregressive model, an autoregressive model, and a random-walk model, in terms of out-of-sample forecasting.

**2003-25**
**Income Trusts—Understanding the Issues**
***Michael R. King***

An income trust is an investment vehicle that distributes cash generated by a set of operating assets in a tax-efficient manner. The market capitalization of income trusts has grown rapidly over the past two years, reaching $45 billion at year-end 2002. The sharp rise of income trust valuations, the large supply of new issues, and the complexity of their legal structure have increased scrutiny of this asset class. Because retail investors are the principal owners of income trusts, the author explores whether the cash returns from income trusts are in line with the risks. The structure and valuation of a typical income trust are outlined. The benefits of income trusts and the issues related to investment are elaborated, focusing on legal and regulatory issues, corporate governance, operational issues, and market issues.

**2003-26**
**Measuring Interest Rate Expectations in Canada**
***Grahame Johnson***

The author develops a simple expectations-based model to focus on measuring interest rate expectations that are implied by the current level of money market yields. The explanatory power of this model increases markedly in the period following the implementation of the Bank's regime of fixed announcement dates in November 2000, and it appears to accurately describe the behaviour of short-term yields. Term premiums are estimated for the various instruments examined, and observed market yields are adjusted by those amounts. Once the market yields are adjusted, they can be used to calculate implied forward rates for a series of dates in the future. These forward rates can be interpreted as representing the market's expectations for the future level of overnight rates at a specific date.

**2003-27**
**Monetary Policy in Estimated Models of Small Open and Closed Economies**
***Ali Dib***

The author develops and estimates a quantitative dynamic-optimizing model of a small open economy (SOE) with domestic and import price stickiness and capital-adjustment costs. A monetary policy rule allows the central bank to systematically manage the short-term nominal interest rate in response to deviations of inflation, output, and money growth from their steady-state levels. The structural parameters of the SOE model, as well as those of a sticky-price model for a closed economy (CE), are estimated econometrically using data from Canada and the United States and a maximum-likelihood procedure with a Kalman filter. Estimation results show that the SOE and CE models lead to similar estimates for the Canadian economy.

**2003-28**

**An Empirical Analysis of Liquidity and Order Flow in the Brokered Interdealer Market for Government of Canada Bonds**

***Chris D'Souza, Charles Gaa, and Jing Yang***

The authors empirically measure Canadian bond market liquidity using a number of indicators proposed in the literature and detail, for the first time, price and trade dynamics in the Government of Canada secondary bond market. They find, consistent with Inoue (1999), that the Canadian brokered interdealer fixed-income market is relatively liquid for its size. The authors also document Canadian participants' prevalent use of an order expansion protocol, whereby order size can be negotiated upward once a trade has been initiated; although Boni and Leach (2002) identify this practice as consistent with a market where there is relatively strong concern regarding information asymmetry, the authors observe no consistent link between the frequency of its use and observations of trading activity, market liquidity, or price volatility.

**2003-29**

**Nominal Rigidities and Exchange Rate Pass-Through in a Structural Model of a Small Open Economy**

***Steve Ambler, Ali Dib, and Nooman Rebei***

The authors analyze exchange rate pass-through in an estimated structural model of a small open economy that incorporates three types of nominal rigidity (wages and the prices of domestically produced and imported goods) and eight different structural shocks. The model is estimated using quarterly data from Canada and the United States. It predicts a remarkably similar dynamic relationship between the nominal exchange rate and prices in response to the different structural shocks: the nominal exchange rate overshoots its long-run level, and changes in the nominal exchange rate are passed through slowly to the domestic price level. The authors show that, although pricing to market (the slow adjustment of the domestic-currency prices of imported goods) is necessary to generate slow pass-through to the prices of imported goods, it is not necessary to generate slow pass-through to the overall price level.

**2003-30**

**Are Wealth Effects Important for Canada?**

***Lise Pichette and Dominique Tremblay***

The authors examine the link between consumption and disaggregate wealth in Canada. They use a vector-error-correction model in which permanent and transitory shocks are identified using the restrictions implied by cointegration proposed by King, Plosser, Stock, and Watson (1991) and Gonzalo and Granger (1995). This procedure allows the authors to identify the reaction of consumption to both types of shocks and to calculate average marginal propensities to consume out of disposable income, human wealth, stock market wealth, and housing wealth. The authors find evidence of a significant housing wealth effect for Canada. Conversely, the evidence regarding the stock market wealth effect is weak. In terms of policy implications, other things being equal, the analysis of future inflationary pressures would require that more weight be put on fluctuations in housing prices than on fluctuations in stock prices.

**2003-31**

### A Simple Test of Simple Rules: Can They Improve How Monetary Policy is Implemented with Inflation Targets?

***Nicholas Rowe and David Tulk***

The authors evaluate whether an assortment of simple rules could improve how the Bank of Canada implements its inflation-targeting monetary policy. They focus on measuring the correlation between the deviations of inflation from the target and the lagged deviations of rule recommendations from the actual policy interest rate. This empirical procedure evaluates the rules in a model-free environment and uses historical data over the Bank's inflation-targeting regime. The authors find that the Bank would not improve its policy of targeting inflation by paying more attention to the advice provided by these rules.

**2003-32**

### The Canadian Phillips Curve and Regime Shifting

***Frédérick Demers***

The author investigates the linearity and constancy assumptions of a standard reduced-form Phillips curve for Canada using two different techniques: (i) the methodology proposed by Bai and Perron (1998), which allows for an unknown number of breaks at unknown dates, and (ii) a three-regimes Markov-switching regression model. Both methodologies strongly reject the linearity and parameter constancy assumptions. The author finds that the output-inflation relationship does not hold under the current monetary policy of inflation targeting, with its low and stable inflation. Since the inflation-control targets were adopted, inflation expectations appear to be more forward looking and well anchored at 2 per cent, the official target rate.

**2003-33**

### Do Peer Group Members Outperform Individual Borrowers? A Test of Peer Group Lending Using Canadian Micro-Credit Data

***Rafael Gomez and Eric Santor***

Microfinance institutions now serve over 10 million poor households in the developing and developed world, and much of their success has been attributed to their innovative use of peer group lending. There is very little empirical evidence, however, to suggest that group lending schemes offer a superior institutional design over lending programs that serve individual borrowers. The authors find empirical evidence that group lending does indeed lower borrower default rates more than conventional individual lending, and that this effect operates through the dual channels of selection into the peer lending program and, once inside the program, greater group borrower effort.

**2003-34**

### Governance and Financial Fragility: Evidence from a Cross-Section of Countries

***Michael Francis***

The author explores the role of governance mechanisms as a means of reducing financial fragility. First, he develops a simple theoretical general-equilibrium model in which instability arises due to an agency problem resulting from a conflict of interest between the borrower and lender. Second, using a data set that contains over 90 industrialized and developing economies, the author tests the hypothesis that governance is important in explaining financial fragility (measured as the likelihood of a banking crisis and investment volatility). His results show that institutions, rules, and laws that govern the financial environment are of first-order importance for the stability of financial systems.

**2003-35**

**Real Exchange Rate Persistence in Dynamic General-Equilibrium Sticky-Price Models: An Analytical Characterization**

***Hafedh Bouakez***

The author assesses analytically the ability of dynamic general-equilibrium sticky-price models to generate persistent real exchange rate fluctuations. He develops a tractable general-equilibrium model with Calvo-type price stickiness. The model has a closed-form solution and the persistence of the real exchange rate is explicitly characterized. The author shows that real exchange rate persistence is pinned down by the probability of not changing prices. This result suggests that standard sticky-price models are unable to generate endogenous persistence.

**2003-36**

**Excess Collateral in the LVTS: How Much is Too Much?**

***Kim McPhail and Anastasia Vakos***

The authors build a theoretical model that generates demand for collateral by Large Value Transfer System (LVTS) participants under the assumption that they minimize the cost of holding and managing collateral for LVTS purposes. The model predicts that the optimal amount of collateral held by each LVTS participant depends on the opportunity cost of collateral, the transactions costs of acquiring assets used as collateral and transferring them in and out of the LVTS, and the distribution of an LVTS participant's payment flows in the LVTS. The authors conclude that the aggregate amount of collateral pledged to the LVTS is quite close to that predicted by the model. They also apply panel-data regressions to the level of collateral held in the LVTS, and find that the results are broadly supportive of the theoretical model.

**2003-37**

**Financial Constraints and Investment: Assessing the Impact of a World Bank Loan Program on Small and Medium-Sized Enterprises in Sri Lanka**

***Varouj Aivazian, Dipak Mazumdar, and Eric Santor***

The authors examine the investment behaviour of a sample of small, credit-constrained firms in Sri Lanka. Using a unique panel-data set, they analyze and compare the activities of two groups of small firms distinguished by their different access to financing; one group consists of firms with heavily subsidized loans from the World Bank, and the other consists of firms without such subsidies. The use of program-evaluation techniques reveals that the relaxation of financing constraints did not affect economic efficiency for the group of firms that received subsidized capital.

**2003-38**

**Simple Monetary Policy Rules in an Open-Economy, Limited-Participation Model**

***Scott Hendry, Wai-Ming Ho, and Kevin Moran***

The authors assess the stabilization properties of simple monetary policy rules within the context of a small open-economy model constructed around the limited-participation assumption and calibrated to salient features of the Canadian economy. The authors' analysis identifies general principles to which a rule should adhere to possess favourable stabilization properties. The rule should direct monetary authorities to increase nominal interest rates significantly when lagged interest rates are already high. By contrast, upward pressures on output (and perhaps also on inflation) should lead to decreases in interest rates. Further, monetary policy should be essentially unconcerned with exchange rate movements. In addition, responding to future inflation, rather than the current rate, does not generate significant welfare improvements.

**2003-39**

### Alternative Targeting Regimes, Transmission Lags, and the Exchange Rate Channel

***Jean-Paul Lam***

Using a closed-economy model, Jensen (2002) and Walsh (2003) have, respectively, shown that a policy regime that optimally targets nominal income growth (NIT) or the change in the output gap (SLT) outperforms a regime that targets inflation, because NIT and SLT induce more inertia in the actions of the central bank, effectively replicating the outcome obtained under precommitment. The author obtains a very different result when the analysis is extended to open-economy models. Flexible CPI-inflation targeting outperforms both SLT and NIT and is the most robust targeting regime. The gains from targeting CPI inflation are particularly large when the model features transmission lags and/or departures from the uncovered interest parity condition. The author also finds that the stabilization bias inherent in discretionary policy is smaller in an open-economy setting.

**2003-40**

### Poignée de main invisible et persistance des cycles économiques : une revue de la littérature

***Christian Calmès***

The author explains how self-enforcing labour contracts can enhance the performance of macroeconomic models. He exposes the benefits of using these dynamic contracts to account for some puzzling macroeconomic facts regarding the dynamics and persistence of employment, consumption, and output. In particular, the dynamic properties of employment and consumption differ from those derived with the standard flexible-wage model, in a way that could shed new light on the dynamics puzzle typical of macroeconomic models.

**2003-41**

### Anatomy of a Twin Crisis

***Raphael H. Solomon***

The author presents a model of a twin crisis, in which foreign and domestic residents play a banking game. Both "honest" and run equilibria of the post-deposit subgame exist; some run equilibria lead to a currency crisis, as agents convert domestic currency to foreign currency. In the subgame, sunspot variables can affect the equilibrium. The author calculates the unique equilibrium of the game numerically, taking into account the possible realizations of the sunspot variables. He also calibrates the model to the Turkish economy, providing insight into the Turkish twin crisis of 2001.

**2003-42**

**A Structural VAR Approach to the Intertemporal Model of the Current Account**

***Takashi Kano***

The intertemporal current account approach predicts that the current account of a small open economy is independent of global shocks, and that responses of the current account to country-specific shocks depend on the persistence of the shocks. The author shows that these predictions impose cross-equation restrictions (CERS) on a structural vector autoregression (SVAR). To test the CERs, the author develops identification schemes of the SVAR that exploit the orthogonality of the world real interest rate to country-specific shocks as well as the lack of a long-run response of net output to transitory shocks. Tests of the SVAR reveal two puzzling aspects of the Canadian and U.K. current account: (i) the response of the current account to a country-specific transitory shock is too large, and (ii) the fluctuations in the current account are dominated by country-specific transitory shocks that explain almost none of the fluctuations in net output growth.

**2003-43**

**Why Does Private Consumption Rise After a Government Spending Shock?**

***Hafedh Bouakez and Nooman Rebei***

Recent empirical evidence suggests that private consumption is *crowded-in* by government spending. This outcome violates existing macroeconomic theory, according to which the negative wealth effect brought about by a rise in public expenditure should decrease consumption. In this paper, the authors develop a simple real business cycle model where preferences depend on private and public spending, and households are habit forming. The model is estimated by the minimum-distance and the maximum-likelihood methods using U.S. data. Estimation results indicate a strong Edgeworth complementarity between private and public spending. This feature enables the model to generate a positive response of consumption following a government spending shock. In addition, the impulse-response functions generated by the estimated model mimic closely those obtained from a benchmark vector autoregression.

**2003-44**

**Common Trends and Common Cycles in Canadian Sectoral Output**

***Francisco Barillas and Christoph Schleicher***

The authors examine evidence of long- and short-run co-movement in Canadian sectoral output data. Their framework builds on a vector-error-correction representation that allows them to test for and compute full-information maximum-likelihood estimates of models with codependent cycle restrictions. They find that the seven sectors under consideration contain five common trends and five codependent cycles and use their estimates to obtain a multivariate Beveridge-Nelson decomposition to isolate and compare the common components. Among the main conclusions is that manufacturing, construction, and the primary sector are the most important sources of business cycle fluctuations for the Canadian economy.

## Technical Reports

**No. 93**
**Money in the Bank (of Canada)**
***David Longworth***

With the demise of monetary targeting over the past 20 years in many major countries, the question has arisen as to whether central banks should look at money at all when formulating and conducting monetary policy. The author argues that the mainstream paradigm, which gives no useful role to money, is unlikely to capture the full richness of the transmission mechanism. Moreover, on the face of it, the empirical evidence in Canada is inconsistent with the mainstream paradigm. For these reasons, the Bank of Canada devotes significant attention in its research, analysis, and communication to the behaviour of monetary aggregates and their possible role in the transmission mechanism. This report describes the use of the aggregates as of the end of 2001.

**No. 94**
**A Comparison of Twelve Macroeconomic Models of the Canadian Economy**
***Denise Côté, John Kuszczak, Jean-Paul Lam, Ying Liu, and Pierre St-Amant***

The authors examine and compare twelve private and public sector models of the Canadian economy with respect to their paradigm, structure, and dynamic properties. They also examine the dynamic properties of the various models when those models use the simple monetary reaction function proposed by Taylor (1993). The eight deterministic shocks considered in this report reveal significant differences in the dynamic properties of the participating models. A comparison of the models' impulse-response functions with those of a vector autoregression suggests that some models do better than others in reflecting the typical response of the Canadian economy to certain shocks.

**No. 95**
**Essays on Financial Stability**
***John Chant, Alexandra Lai, Mark Illing, and Fred Daniel***

The four essays published here provide a useful overview for anyone interested in understanding the issues and policy environment surrounding financial system stability. The first three essays consider different aspects of the question, What is financial stability/instability? The fourth essay provides a context for more general discussions of the role of policy in promoting financial stability, by providing an overview of the current institutional arrangements that condition financial behaviour in Canada and how the Bank of Canada interacts with other agencies who share responsibility for financial stability.

# OUTSIDE **PUBLICATIONS**

***Bank economists publish the results of their research in a wide range of journals, conference proceedings, and books. The Bank does not supply copies of articles published by outside journals or organizations.***

## Published in 2003

R. Amano and S. Hendry
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