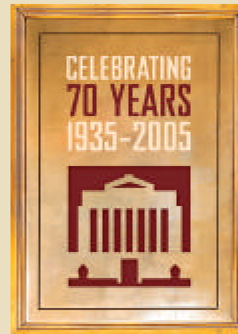

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INTRODUCTION

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.

Business Outlook Survey
Published quarterly. 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.*

*For subscription prices see pages 39–40.

Technical Reports
No charge.

Bank of Canada Publications Catalogue
Published annually. No charge.

Bilingualism at the Bank of Canada
Published annually. No charge.

About the Bank
Published in 2004. 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 website: <**http://www.bankofcanada.ca**>.

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 website (http://www.bankofcanada.ca/en/review/revlist.htm).

Winter 2003–2004

The Comparative Growth of Goods and Services Prices
Edith Gagnon, Patrick Sabourin, and Sébastien Lavoie

For several decades, the prices of services have been rising more rapidly than the prices of goods in Canada and the other major industrialized countries. In 2002, this gap between the two growth rates widened considerably, leading researchers to ask if this was the beginning of a trend. The authors determine that the existence of a gap is not a cause for alarm and examine a number of potential causes for the faster rise in the prices of services. These include the more rapid pace of productivity growth in the goods sector, the greater openness of goods to foreign trade, and stronger growth in the demand for services.

Current Account Imbalances: Some Key Issues for the Major Industrialized Economies

Jocelyn Jacob

In light of the resurgence of sizable current account imbalances in the major economies in recent years, particularly the tripling of the U.S. deficit, the author's objective is to show that current account balances are simply the outcome of various relative structural and cyclical factors between trading partners. He examines the factors behind the changes in the current account positions of the United States, Japan, and the euro area, including the faster increase in U.S. productivity compared with that of other major economies and the recent loosening in the U.S. fiscal stance. He also reviews assessments from the Organisation for Economic Co-operation and Development and the International Monetary Fund and academic literature to determine the possible risks to macroeconomic and financial stability.

The Rationale for Cross-Border Listings

Éric Chouinard and Chris D'Souza

In response to the market segmentation caused by obstacles to international capital flows, corporate managers have been turning, over the past few decades, to international cross-listing in order to reduce the cost of equity capital. The authors explore the costs and benefits of cross-listing, finding that U.S. exchanges are attracting an increasing share of cross-listed firms and that the cost of equity capital declines following a foreign listing owing to lower transactions costs or an improvement in the quality and quantity of firm-specific information available to investors.

Spring 2004

The Bank of Canada's Business Outlook Survey

Monica Martin

The author describes the Bank's quarterly process of consulting with 100 firms that reflect the Canadian economy in terms of region, type of business activity, and firm size. In interviews structured around a questionnaire, the Bank gathers timely information that feeds into its monetary policy decisions. The article includes charts and correlation tables that illustrate the responses to the key questions included in the survey.

Exchange Rate Pass-Through in Industrialized Countries

Jeannine Bailliu and Hafedh Bouakez

The low-inflation period most industrialized countries entered approximately a decade ago coincided with significant exchange rate depreciations that had much smaller effects on consumer prices than expected. This led to a belief that the extent of exchange rate movements being passed through to consumer prices has declined. The authors examine why pass-through could be incomplete and review empirical estimates to determine whether pass-through has indeed declined, suggesting possible reasons and discussing the implications for monetary policy.

Are Wealth Effects Important for Canada?

Lise Pichette

Some analysts believe that a sharp rise in equity values was an important factor in the strong consumer spending between 1995 and 2000. The author reports findings from an earlier

study by Pichette and Tremblay (2003), which used a vector-error-correction model to determine the long-run relationship between various components of wealth and consumer spending. The earlier study found that consumption does not respond significantly to a permanent increase in stock market wealth, whereas a permanent increase in housing wealth leads to a significant rise in consumption.

Summer 2004

The Efficiency of Canadian Capital Markets: Some Bank of Canada Research
Scott Hendry and Michael R. King

The Bank of Canada is interested in the efficient functioning of capital markets through each of its responsibilities for monetary policy, the financial system, and funds management. Hendry and King highlight the key findings of recent Bank research on capital market efficiency and summarize the lessons learned from it. Research to date suggests that Canadian capital markets are efficient, considering the size of Canada's market, but are less diverse than the U.S. capital markets, which suggests that there is room for improvement in certain areas.

The Evolution of Liquidity in the Market for Government of Canada Bonds
Stacey Anderson and Stéphane Lavoie

Anderson and Lavoie use turnover ratios to evaluate how liquidity has evolved in various secondary government bond markets, focusing on the market for Government of Canada securities. They attribute much of the recent variation in liquidity to cyclical factors, including changes in the interest rate environment, investors' appetite for risk, and developments in equity markets. They also examine longer-term structural and policy-related trends: the rate of adoption of financial and technological innovations and the level of government borrowing and debt-management initiatives.

Canada's Capital Markets: How Do They Measure Up?
Sheryl Kennedy

Deputy Governor Sheryl Kennedy discusses the efficiency of Canada's capital markets within a global context. To assess allocational efficiency, she reviews the size and completeness of Canadian capital markets, as well as their access to capital. To assess operational efficiency, she considers liquidity and whether transactions costs are competitive. Finally, she reviews transparency and market integrity to determine the markets' informational efficiency. This review offers insights into how Canadian markets can continue to improve their efficiency and maintain their competitiveness.

The Canadian Experience with Counterfeiting
John Chant

Counterfeiting poses a significant public policy issue because of the important role that paper money plays in Canada's payments system. Yet changes in technology have increased the threat of counterfeiting in all economies in the past decade. To assess the threat from counterfeiting, including possible loss of confidence in the currency, estimating the stock of counterfeits circulating is necessary. In this article, Chant proposes a composite method of detecting counterfeits as an effective alternative to existing methods and offers estimates of the extent of counterfeiting Canadian currency for 2001. An addendum updates the calculations to 2003.

Autumn 2004

Asset Prices and Monetary Policy: A Canadian Perspective on the Issues

Jack Selody and Carolyn Wilkins

The issue addressed in this article is the extent to which monetary policy in Canada should respond to asset-price bubbles. The article concludes that maintaining low and stable consumer price inflation is the best contribution that monetary policy can make to promoting economic and financial stability, even when the economy experiences asset-price bubbles. Housing-price bubbles should be a greater concern for Canadian monetary policy than equity-price bubbles, since rising housing prices are more likely to reflect excessively easy domestic credit conditions than are equity prices, which are largely determined in global markets.

Real Return Bonds: Monetary Policy Credibility and Short-Term Inflation Forecasting

Christopher Reid, Frédéric Dion, and Ian Christensen

The break-even inflation rate (BEIR), which is the average rate of inflation that equates the expected returns on Real Return and conventional bonds, has the potential to contain useful information about long-run inflation expectations. Yet the BEIR has been higher, on average, and more variable than survey measures of inflation expectations, which may be explained by the effects of premiums and distortions embedded in the BEIR. Because of the difficulty in accounting for these distortions, the BEIR should not be given a large weight as a measure of long-run inflation expectations at this time, though it should become a more useful indicator as the Real Return Bond market continues to develop.

The Evolving Financial System and Public Policy: Conference Highlights and Lessons

Pierre St-Amant and Carolyn Wilkins

Papers presented at the Bank's 2003 conference reflected recent research on three key issues affecting the financial system: financial contagion, the implications of bank diversification, and financial sector regulation. Topics included the effect of globalization on Canadian foreign-asset exposures, the probability that contagion can be generated by interbank exposures. the links between the changing behaviour of financial institutions and risk-return trade-offs, the relationship between governance and financial sector soundness, as well as the theoretical basis of bank regulations for capital requirements and their implications for the transmission of monetary policy.

Summary of the G-20 Workshop on Developing Strong Domestic Financial Markets, 26–27 April 2004

Joerg Stephan (Deutsche Bundesbank), and James Powell, Robert Lafrance, and James Haley (Bank of Canada)

G-20 representatives, academics, market participants, and members of international financial institutions met to explore the connection between robust financial markets and economic growth and development, share experiences, and develop policy recommendations. Participants identified several critical areas for fostering strong domestic financial markets and reducing external vulnerability, including sound macroeconomics policies, strengthened

financial infrastructures and banking systems, and exchange rate flexibility for countries with widely open capital accounts. Papers presented in the six sessions and keynote address highlight such issues as currency mismatches, the sequence of financial liberalization and supervisory reforms, the development of local financial markets, infrastructure building and governance, and appropriate incentives.

CONFERENCE **PROCEEDINGS**

Price Adjustment and Monetary Policy

On 14 and 15 November 2002, the Bank held a conference to examine issues related to price adjustment and its implications for monetary policy. The conference opened with a memorial lecture honouring our friend and colleague John Kuszczak, who passed away in January 2002 following a two-year battle with cancer. Professor William Scarth (McMaster University) thoughtfully discusses John's admirable personal qualities and his research as a graduate student—particularly his interest in highlighting the macroeconomic importance of risk aversion—and reviews some important contributions in the economics literature that have explored this broad theme. He also discusses some of John's work at the Bank, specifically his examination of the optimal reserve requirement for chartered banks. The conference proceedings were released in July 2004. The Bank does not supply individual copies of papers from Bank conference proceedings.

Alternative Sources of the Lag Dynamics of Inflation
Sharon Kozicki (Federal Reserve Bank of Kansas City) and Peter A. Tinsley (University of Cambridge)

The authors examine four variants of the benchmark New Keynesian Phillips curve that are designed to improve the model's ability to account for the observed persistence of inflation in Canada and the United States. The first variant relaxes the assumption of rational expectations; the second introduces staggered contracting expectations, using an extension of Taylor's (1980) framework to obtain more complicated lag dynamics; the third considers costs of adjusting prices, inflation, and, potentially, changes in inflation; and the fourth allows for a non-zero "perceived target" for inflation that could evolve as an additional source of inflation stickiness.

The New Phillips Curve in Canada
Alain Guay (Université du Québec à Montréal and CIRPÉE), Richard Luger (Bank of Canada), and Zhenhua Zhu (Bank of Canada)

The authors study the sensitivity of previous New Keynesian Phillips curves (NKPC) estimates to various econometric assumptions. They propose an approach to estimation that has three advantages: the asymptotic bias of the coefficient estimates does not increase with the number of instruments, an analytical method can be adopted for correcting the bias in the estimates of the structural parameters in a non-linear model, and the estimates are invariant to the normalization of the orthogonality condition. The authors also extend the standard NKPC to the case of an open economy and examine various measures of real marginal cost.

The Effects of Shocks in a Monetary Business Cycle Model with Unemployment
Michelle Alexopoulos (University of Toronto)

A well-known fact about labour markets in the United States is that employment is much more variable than real wages. The author examines the inability of standard limited-participation models to address this issue without relying on unrealistically high elasticities of labour supply with respect to real wages and high price mark-ups over marginal costs. She embeds an efficiency-wage model in a standard limited-participation model with the twist that, instead of firing workers who are shirking, firms simply do not pay them their quarterly bonus. This feature significantly improves the model's ability to explain the relative variability of employment and real wages.

How Certain Are We About the Role of Uncertainty in the Labour Contract Duration Decision? Evidence for Canada and Implications
Robert Fay (Bank of Canada) and Sébastien Lavoie (Bank of Canada)

The authors seek to establish a relationship between the duration of labour contracts and uncertainty using data on Canadian wage settlements from 1978 to 2001. The literature suggests that falling inflation uncertainty should be associated with lengthier labour contracts. The results from the estimation of a simultaneous equation probit model confirm previous findings of such a negative relationship between inflation uncertainty and contract duration. The empirical findings, however, do not corroborate theoretical research that suggests that uncertainty about the real economy plays an important role.

How Do Canadian Hours Worked Respond to a Technology Shock?
Lawrence J. Christiano (Northwestern University), Martin Eichenbaum (Northwestern University), and Robert Vigfusson (Board of Governors of the Federal Reserve System)

The authors argue that Galí's (1999) empirical challenge to the real-business-cycle literature and modelling strategy is fragile. Their empirical re-examination finds that a permanent positive shock to technology leads to a rise in the number of hours worked, as well as rises in output, average productivity, investment, consumption, and a fall in inflation. The difference in results can be attributed to the underlying statistical model of per-capita hours worked. The authors assume that hours worked is mean-reverting, whereas Galí assumed that only the change in

hours worked is mean-reverting. They use evidence from statistical tests to support their conclusion.

New Keynesian, Open-Economy Models and Their Implications for Monetary Policy
David Bowman (Board of Governors of the Federal Reserve System) and Brian Doyle (Board of Governors of the Federal Reserve System)

The authors present a survey of the growing literature on New Keynesian open-economy models; i.e., multi-country dynamic general-equilibrium models with nominal price rigidities, optimizing agents, and stochastic shocks that permit welfare analysis. They review the original Redux model (Obstfeld and Rogoff 1995), its implications, and some of its extensions, specifically those considered qualitatively most important for understanding optimal monetary policy. Static extensions they consider include different preferences for domestic and foreign goods, pass-through from exchange rates to domestic prices, and wage stickiness versus price stickiness.

Monetary Policy in a Small Open Economy
Gabriel Srour (Bank of Canada)

The author begins by analyzing monetary policy in a model of a small open economy. The model's goal is to examine the efficiency of monetary policy in various environments on the basis of its ability to reproduce the flexible-price equilibrium. The author finds that, in one-sector models of a small open economy, monetary policy can reproduce the flexible-price outcome where there are no fixed costs, but not always in a model with fixed costs. In a two-sector model, monetary policy can reproduce the flexible-price outcome as long as labour is mobile. Monetary policy is unable to replicate the flexible-price equilibrium when labour is immobile across sectors because it cannot achieve potentially conflicting goals in two separate labour markets with only one instrument.

Price-Setting and Exchange Rate Pass-Through: Theory and Evidence
Michael Devereux (University of British Columbia) and James Yetman (University of Hong Kong)

The authors develop a simple model of a small open economy in which exchange rate pass-through is determined by the frequency with which importing firms change their prices. The model implies that there should be a positive, but non-linear, relationship between mean inflation and pass-through, and a positive relationship between exchange rate volatility and pass-through. The authors find evidence of this in their sample of 122 countries. Their results suggest that sticky prices are an important factor in determining the average rate of pass-through and that a low rate of pass-through results at least partly from short-term price rigidities.

Panel Discussion 1
Gregor Smith (Queen's University)

Smith focuses on econometric issues, noting in particular that single-equation methods and aggregate macroeconomic data may not provide enough information to answer many of the questions about price adjustment. He also suggests that industry-level models or models with a strategic element may be useful in characterizing price adjustment. In particular, he highlights the importance of paying attention to the cross-sectional dimension of industry-level data.

Panel Discussion 2
Michael Woodford (Princeton University)

Woodford focuses on the importance to monetary policy of structural models for determining wages and prices. He compares alternative models of the aggregate-supply relationship on the basis of the degree of inflation inertia that they imply, specifically models of the hybrid New Keynesian Phillips curve with differing degrees of indexation. He shows that the degree of inflation inertia has important consequences for determining the appropriate stabilization objectives of monetary policy, the optimal long-run inflation target, the degree to which temporary departures from the long-run target should be allowed, and the form of the optimal targeting rule. He concludes by calling for further research on whether inflation inertia should be regarded as truly structural.

Panel Discussion 3
Pierre Duguay (Bank of Canada)

Duguay states that more work is required to understand the pricing strategy of firms. He announces that the Bank of Canada will be undertaking a survey of firms and will be directly asking real-world price-setters how prices are set. This work is currently underway and is expected to be completed in 2003. He expresses reservations about the applicability of the New Keynesian Phillips curve model of inflation to the Canadian GDP deflator, which is heavily influenced by movements in world commodity prices. He also encourages researchers to allow for changes in the monetary policy regime in their empirical analysis of the inflation process.

Macroeconomics, Monetary Policy, and Financial Stability— A Festschrift in Honour of Charles Freedman

On 19 and 20 June 2003, the Bank of Canada hosted a conference to celebrate the career of Charles Freedman. The wide-ranging nature of the program reflected Freedman's varied interests and the many different issues that he had tackled during his career. The conference proceedings were released in November 2004. The Bank does not supply individual copies of papers from Bank conference proceedings.

The LM Curve: A Not-So-Fond Farewell
Benjamin M. Friedman (Harvard University)

The author traces the evolution of monetary policy thinking over the past four decades and notes two striking trends. The first relates to the growing acceptance of the importance and effectiveness of monetary policy, as well as the greater proficiency with which it is now being conducted. The second trend relates to the diminished attention that money and monetary aggregates now receive in academic discussions, as well as in policy applications.

The Bank of Canada and the Inflation-Unemployment Trade-Off
Pierre Fortin (Université du Québec à Montréal)

The author expresses a number of reservations about the way that the Bank of Canada has applied the concept of an inflation-unemployment trade-off to monetary policy.

He thinks that the Bank overestimated the non-accelerating-inflation rate of unemployment (NAIRU) and pursued an excessively tight monetary policy over much of the 1980s and 1990s. The author also believes that the Bank dismissed the idea of a flat long-run Phillips curve too readily and exaggerated the stabilizing effect that explicit inflation targets might have on expectations.

What I Learned at the Fed
Laurence H. Meyer (Center for Strategic and International Studies)

The author focuses on what he learned during his four years as a Governor at the Federal Reserve Board. He had not anticipated a succession of large and unforeseen shocks in the form of rising productivity growth, a falling non-accelerating-inflation rate of unemployment (NAIRU), and the bursting of an asset bubble. Added to this were the uncertainty and heightened volatility associated with terrorist attacks, the Asian and Russian financial crises, and a series of corporate scandals.

Optimal Policy with Low-Probability Extreme Events
Lars E.O. Svensson (Princeton University)

The author explores the appropriate monetary policy response to low-probability extreme events, such as the bursting of an asset bubble. He constructs a series of simple, stylized models to show how the optimal response might vary according to the policy-maker's loss function. If the loss function were quadratic, for example, policy-makers would be best advised to target the unconditional mean of expected future inflation. Absolute-deviation loss functions and perfectionist loss functions, in contrast, would require median and mode targeting, respectively. The author observes, however, that the perfectionist loss function (and mode targeting) appear rather extreme and unrealistic.

Monetary Policy Without Money: *Hamlet* Without the Ghost
David Laidler (University of Western Ontario)

While the author acknowledges that it is possible to run a coherent and successful monetary policy without giving money much attention, he thinks that something significant would be missing if it were ignored altogether. He suggests that earlier disappointing experiences with monetary aggregate targeting cannot be blamed solely on the misbehaviour of the aggregates.

What Is the Monetary Policy Committee Attempting to Achieve?
Charles Goodhart (London School of Economics)

The author uses data on the GDP growth and inflation forecasts of the Bank of England's Monetary Policy Committee (MPC) to draw inferences about the adjustment lags that the MPC normally associated with output-inflation dynamics, as well as the MPC's utility function. Although the results relating to output-inflation dynamics are consistent with most of the author's prior beliefs, the other evidence is more surprising and seems to suggest that either the MPC had a perfectionist loss function or, more likely, had opted for a strategy of reacting to extreme events ex post, as opposed to acting pre-emptively.

Central Bank Talk: Does It Matter and Why?
Donald L. Kohn and Brian P. Sack (Board of Governors of the Federal Reserve System)

The authors address the issues of transparency and central bank communication. While they

acknowledge that accountability, governance, and public understanding of monetary policy have undoubtedly been enhanced by the more ambitious communication strategies, the authors wonder whether certain types of communication might not be more effective than others. The authors focus on three types of communication used by the Fed and show that it is possible to identify systematic differences, highlighting the importance of matching the medium and the message to the desired impact.

Policy Remedies for Conflicts of Interest in the Financial System
Frederic S. Mishkin (Columbia University)

The author begins by noting the numerous corporate scandals and instances of evident self-dealing that have led to calls for sweeping reforms during the past two years. He suggests that careful consideration should be given to two logically prior questions. First, does the market have the information and incentives necessary to deal with these problems itself? Second, are the conflicts of interest and information asymmetries so severe that they outweigh the negative consequences of government intervention? The author suggests that a lighter regulatory touch should typically be preferred.

Are Changes in Financial Structure Extending Safety Nets?
William R. White (Bank for International Settlements)

The author believes that technology and deregulation have contributed to increased globalization, concentration, and marketization. These three forces, in turn, have generated greater opacity, complexity, and potential contagion in world financial markets. While some form of government intervention is necessary to remedy the situation, the short-term strategies followed by many regulatory authorities and central banks have created perverse incentives, which simply increase the probability of more severe crises in the future. The author notes that there is an obvious need for more stringent regulations and safety nets, but is not sure how this can be brought about.

The Evolving Financial System and Public Policy

On 4 and 5 December 2003, the Bank hosted a conference to discuss three key issues affecting the financial system: financial contagion, implications of bank diversification, and financial sector regulation. The conference proceedings were released in December 2004. The Bank does not supply individual copies of papers from Bank conference proceedings.

Endogenous Value and Financial Fragility
Karine Gobert (Université de Sherbrooke), Patrick González (Université Laval), Alexandra Lai (Bank of Canada), and Michel Poitevin (Université de Montréal)

The authors examine the lending market under centralized and decentralized systems. They develop a general-equilibrium model of a competitive interfirm lending market in which firms can borrow or lend. The authors identify a source of inefficiency in this market that may lead to financial fragility. For instance, a liquidity shock can have a persistent component and lead to firm failures that are inefficient. In this

model, the authorities can help to eliminate this inefficient equilibrium by ensuring that there is sufficient liquidity in the system.

Measuring Bank Contagion Using Market Data

Reint Gropp (European Central Bank) and Jukka Vesala (European Central Bank)

The authors use market-based indicators to determine the probability that a European bank faces financial difficulty, given that other European banks are also facing difficulty. They find significant evidence of contagion both domestically and across borders. This contagion appears to be typically generated by particularly concentrated interbank exposures. The authors' empirical model also indicates that larger banks are the main sources and the main victims of cross-border contagion.

Banking Crises, Contagion, and Foreign-Asset Exposures of Canadian Banks

Eric Santor (Bank of Canada)

The author studies the extent to which Canadian banks have become globalized and how Canadian foreign-asset exposures have adjusted to crisis events. Using firm-level panel data from 1984 to 2003, the author finds that Canadian banks are very active globally, and that the composition of exposures has changed over the past two decades. In particular, Canadian banks now have lower foreign exposures in terms of deposits and loans but higher exposures in terms of foreign securities. The author finds that banks do not adjust their portfolios of foreign securities immediately in the presence of a crisis, and that a banking crisis in one country does not appear to influence whether banks continue to do business with countries that have similar characteristics.

Does Diversification Improve Bank Efficiency?

Chris D'Souza (Bank of Canada) and Alexandra Lai (Bank of Canada)

The authors study how the efficiency of Canadian banks is affected by regional and industrial portfolio diversification, as well as by diversification in business lines and financing sources. They construct a measure of efficiency using a portfolio-allocation approach. The authors find that bank efficiency is increased by diversification of business lines and financing sources, reduced by regional diversification, and unaffected by industrial diversification.

Revenue Shifts and Performance of U.S. Bank Holding Companies

Kevin J. Stiroh (Wesleyan University)

The author studies the implications for risk-adjusted profits of the shift in the activities of U.S. bank holding companies (BHCs) towards a wider range of financial services. This shift was encouraged by many factors, including regulatory changes, such as the Gramm-Leach-Bliley Act of 1999. The Act explicitly allowed BHCs and their subsidiaries to engage in a host of new activities, such as brokerage, portfolio advice, and underwriting. The author finds evidence of diversification benefits in terms of higher measures of risk-adjusted profitability for BHCs that earn most of their revenue from net interest income, but these gains are usually offset by increased exposure to volatile non-interest activities. These results are based on a sample of over 1,800 BHCs over the 1997Q1–2002Q2 period.

Does Bank Capital Matter for the Transmission of Monetary Policy?
Skander J. Van den Heuvel (University of Pennsylvania)

The author examines how capital-adequacy requirements alter the role of bank lending in the transmission of monetary policy. He constructs a dynamic model of bank asset and liability management that incorporates risk-based capital requirements. This model shows that monetary policy effects on bank lending depend on the capital adequacy of the banking sector and that shocks to bank profits can have a persistent effect on lending. Bank capital affects bank lending even when the regulatory constraints on bank capital are not binding. Given new capital requirements under Basel II and their potential to change the dynamics of bank capital, more research in the area of the interaction between bank capital standards and monetary policy is very important.

The Foundations of Risk Regulation for Banks: A Review of the Literature
Georges Dionne (HEC Montréal)

Through an extensive review of the literature, the author analyzes the optimal design of regulation for the banking sector. He argues that bank regulation can be justified in principle by the possibility that bank runs could prevent banks from playing their crucial role as the main provider of liquidity to the economy. The author views deposit insurance as one type of regulation capable of mitigating that risk. That said, he thinks that national authorities should continue to improve deposit insurance by better aligning its pricing with the risks faced by individual banks. Authorities should also explore the possibility of using other regulatory tools, such as subordinated debt, and should work on improving bank governance. With respect to minimum capital-adequacy requirements, the author argues that there is little evidence that this approach reduces bank risk and some evidence that it may be the source of costly distortions.

Memorial Lecture for John Kuszczak: Notes on Optimal Capital Regulation
Douglas Gale (New York University)

The author builds a simple model of an economy with a financial sector in which banks play a pivotal role due to incomplete markets. The main conclusion from this model is that imposing constraints on capital adequacy does not improve overall welfare, because market forces ensure that banks choose the right capital structure in equilibrium. Extensions of the basic model generate cases where the allocation of resources determined by the market is not necessarily optimal, but minimum capital requirements still do not seem to be welfare improving. While this work raises important questions, the applicability of its findings for policy may be limited by the simplicity of the model.

Corporate Linkages and Bank Lending in Canada: Some First Results
John F. Chant (Simon Fraser University)

The author focuses on the governance of Canadian banks, investigating whether linkages between bank boards and the boards of non-financial corporations influence the pattern and performance of bank lending. Based on a preliminary exploration of Canadian data on bank loans, board linkages, and credit ratings over the 1996 to 1998 period, he reaches four main conclusions: (i) Canadian banks are

more likely to lend to corporations with which they share board linkages than to corporations linked with other banks; (ii) the tendency to lend to linked corporations is stronger where the link involves a corporate officer than where it consists of shared directors; (iii) there is weak evidence that corporations that receive loans from banks linked by officers have a higher probability of experiencing a downgraded credit rating than corporate borrowers in general; and (iv) there is no evidence that the credit-rating experience of borrowers linked to the lending bank through directors differs from that of other borrowers. The author points out that more work is needed to test the robustness of these results, particularly given the short sample period used in the analysis. Future research could also focus on the factors that may be driving these results, including the possibility that there may be informational advantages to banks from corporate links.

Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis
Udaibir S. Das (International Monetary Fund), Marc Quintyn (International Monetary Fund), and Kina Chenard (Université Laval)

The authors study the relationship between regulatory governance and the soundness of the banking sector. They construct indexes of banking sector soundness, regulatory governance, and public sector governance for approximately 50 countries. They then test whether these indexes are related to the capacity of the banking sector to withstand shocks. Their regression results indicate that good regulatory governance has a statistically significant, positive influence on banking sector soundness. The results also indicate that macroeconomic conditions, as well as the quality of political institutions and public sector governance, also contribute to banking system soundness. The main lesson from this paper for policy-makers is that good regulatory governance will pay off in the soundness of the domestic financial system. The authors suggest that future work could extend these tests beyond the banking sector to the entire financial system.

Panel Discussion 1
Charles Freedman (Carleton University)

Freedman links the conference papers to the two main reasons that the Bank of Canada has been interested in research on financial system issues, even though it does not have regulatory or supervisory responsibilities for individual financial institutions. First, the Bank gains a better understanding of the transmission of monetary policy through the financial system to the real economy; and, second, it fulfills its role as an adviser to the government on the periodic revisions of financial institution legislation. Freedman and Borio agree that central banks have tended to emphasize the asset side of balance sheets in their recent research of the transmission mechanism, as in the Van den Heuvel paper, but that they should also remain concerned with the liability side in work on financial stability issues.

Discussion 2
Angela Redish (University of British Columbia)

Redish notes that the answers to the questions addressed in some of the conference papers are rather inconclusive, perhaps a reflection

of the fact that the theoretical and empirical models are in early stages of development. She points to the lack of support in theoretical models for key elements in the financial sector, such as bank capital requirements and deposit insurance. She urges the development of a framework to organize future research in this area, starting with perhaps an understanding of why the financial system differs from other sectors in the economy.

Discussion 3
Claudio Borio (Bank for International Settlements)

Borio comments on the idea of systemic risk implicit in the papers. Its origin lies in the failure of an individual institution resulting from some kind of exogenous shock to liquidity or asset values, which in turn leads to broader financial instability. Borio points out that this interpretation of risk is problematic, in part because it is static in nature and treats risk as exogenous. In his view, this does not correspond well with reality, where financial instability tends to build up over time and is endogenous to the state of the economy, with its origin not so much in contagion but rather in the shared exposures of financial firms to common risk factors. These risk factors are closely linked to the business cycle, leading to excessive procyclicality of the financial system. The implication of this alternative view of risk is that policy-makers should promote the prudential operation of the entire regulatory and supervisory framework, rather than focusing on the risk profiles of individual institutions.

WORKING **PAPERS**

Working papers report on research work in progress. They are of interest to business and banking professionals, academics and educational institutions, and libraries.

The Bank's website contains working papers from 1994 on (http://www.bankofcanada.ca/en/wp(y).htm).

Working Papers

2004-1
The Effect of Adjustment Costs and Organizational Change on Productivity in Canada: Evidence from Aggregate Data
Danny Leung

Using aggregate annual Canadian data from 1961 to 2001, the author explores the magnitude of the effect that investment in new technology, in the form of new computer hardware, can have on output growth. He finds that such investment has a positive effect on output growth that cannot be explained by growth in inputs. This effect, however, is not instantaneous and is strongest only three years after the initial investment. Furthermore, the author's findings suggest that the effect of computer hardware investment has grown over time.

2004-2

Exact Tests of Equal Forecast Accuracy with an Application to the Term Structure of Interest Rates

Richard Luger

The author proposes a class of exact tests of the null hypothesis of exchangeable forecast errors and, hence, of the hypothesis of no difference in the unconditional accuracy of two competing forecasts. The class includes analogues of the well-known Diebold and Mariano parametric and non-parametric test statistics. Simulations confirm the reliability of the new test procedure, and its power is found to be comparable with that of the size-corrected parametric Diebold-Mariano test. The test procedure is illustrated with an application to the term structure of interest rates. The application shows that exchangeable forecast errors can be found empirically even when comparing forecasts from estimated models.

2004-3

Modélisation « PAC » du secteur extérieur de l'économie américaine

Marc-André Gosselin and René Lalonde

The authors use polynomial adjustment cost (PAC) models to analyze and forecast the main components of the U.S. trade sector. PAC models provide a theoretical justification for the presence of lags within a dynamic equation where optimizing agents' expectations are completely rational and forward looking. This approach thereby adds theoretical depth to a model that has a good forecasting performance. To the authors' knowledge, this paper is the first study to model the U.S. trade sector using a PAC approach. Overall, the models' main elasticities are reasonable. Moreover, the authors find that the out-of-sample forecasting performance of their PAC models is at least as good as that of other models. Their results show that this theoretical structure is not added at the expense of the empirical features of the models.

2004-4

A Structural Small Open-Economy Model for Canada

Stephen Murchison, Andrew Rennison, and Zhenhua Zhu

The authors develop a small open-economy dynamic stochastic general-equilibrium (DSGE) model in an attempt to understand the dynamic relationships in Canadian macroeconomic data. The model differs from most recent DSGE models in two key ways. First, for prices and wages, the authors use the time-dependent staggered contracting model of Dotsey, King, and Wolman (1999) and Wolman (1999), rather than the Calvo (1983) specification. Second, to model investment, the authors adopt Edge's (2000) framework of time-to-build with ex-post inflexibilities. The model's parameters are chosen to minimize the distance between the structural model's impulse responses to interest rate, demand (consumption), and exchange rate shocks and those from an estimated vector autoregression (VAR). The majority of the model's theoretical impulse responses fall within the 5 and 95 per cent confidence intervals generated by the VAR.

2004-5
Structural Change and Forecasting Long-Run Energy Prices
Jean-Thomas Bernard, Lynda Khalaf, and Maral Kichian

The authors test the statistical significance of Pindyck's suggested class of econometric equations that model the behaviour of long-run real energy prices. The models postulate mean-reverting prices with continuous and random changes in their level and trend, and are estimated using Kalman filtering. In such contexts, test statistics are typically non-standard and depend on nuisance parameters. The authors use simulation-based procedures to address this issue; namely, a standard Monte Carlo test and a maximized Monte Carlo test. They find statistically significant instabilities for coal and natural gas prices, but not for crude oil prices. Out-of-sample forecasts are calculated to differentiate between significant models.

2004-6
Bank Capital, Agency Costs, and Monetary Policy
Césaire Meh and Kevin Moran

The authors develop a quantitative, monetary business cycle model in which agency problems affect both the relationship between banks and firms and the relationship between banks and their depositors. As a result, bank capital and entrepreneurial net worth jointly determine aggregate investment and are important determinants of the propagation of shocks. The authors find that the effects of monetary policy and technology shocks are dampened but more persistent in their model than in an economy where the information friction that banks face is reduced or eliminated. After documenting that the bank capital-asset ratio is countercyclical in the data, the authors show that their model, in which movements in this ratio are market-determined, can replicate the countercyclical ratio.

2004-7
The Demand for Money in a Stochastic Environment
Joseph Atta-Mensah

The author re-examines the demand-for-money theory in an intertemporal optimization model. The demand for real money balances is derived to be a function of real income and the rates of return of all financial assets traded in the economy. Unlike the traditional money-demand relation, however, where the elasticities are assumed to be constant, the coefficients of the explanatory variables are not constant and depend on the degree of an agent's risk aversion, the volatilities of the price level and income, and the correlation of asset returns. The author shows that the response of households to increased volatilities in the financial markets, economic activity, and prices cannot be predicted, because a rise in general uncertainties has an ambiguous impact on the demand for money.

2004-8
The Economic Theory of Retail Pricing: A Survey
Oana Secrieru

The types of contracts that arise in a typical vertical manufacturer–retailer relationship are more sophisticated than usually assumed in standard macroeconomic models. In addition to setting per-unit prices, manufacturers and retailers revert to non-linear pricing and non-price instruments. These instruments or contracts are referred to as vertical restraints and can

take the form of franchise fees, resale-price maintenance, exclusive dealing, exclusive territories, and slotting allowances. The author surveys the industrial organization literature on retail pricing and shows that vertical restraint instruments have important effects on producer and consumer prices, market structure, efficiency, and welfare. Some potentially important macroeconomic implications of vertical restraints are suggested.

2004-9
Estimating Policy-Neutral Interest Rates for Canada Using a Dynamic Stochastic General-Equilibrium Framework
Jean-Paul Lam and Greg Tkacz

The real interest rate gap—the difference between the real equilibrium rate and the rate set by the central bank—can serve as a leading indicator of future inflationary or deflationary pressures in the economy. The authors estimate equilibrium interest rates for Canada using a sticky-price dynamic stochastic general-equilibrium model. They follow closely the methodology of Neiss and Nelson and derive measures of the interest rate gap for Canada. Their results indicate that the interest rate gap can be a useful guide for policy and is a good indicator of future output and inflation. The authors also find that their measures of the interest rate gap perform as well as the yield spread, a typical measure of policy stance that is assumed to contain significant information about future economic activity.

2004-10
Public Venture Capital and Entrepreneurship
Oana Secrieru and Marianne Vigneault

The authors develop a model that endogenously determines the number of entrepreneurs and the optimal quantity of financing and managerial advice provided by a public venture capital program. Their analysis is based on a model of occupational choice that has informational asymmetries regarding the ability of entrepreneurs. The authors identify circumstances under which over- or underinvestment can occur. They also show that the equilibrium is characterized by an inefficient number (too many or too few) of less-able entrepreneurs. Furthermore, the authors find that the government faces disincentives in providing small amounts of managerial advice; larger amounts of such advice may be optimal.

2004-11
Estimating New Keynesian Phillips Curves Using Exact Methods
Lynda Khalaf and Maral Kichian

The authors use simple new finite-sample methods to test the empirical relevance of the New Keynesian Phillips curve (NKPC) equation. Unlike tests based on the generalized method of moments, the generalized Anderson-Rubin tests are immune to the presence of weak instruments and allow, by construction, the identification status of a model to be assessed. The authors illustrate their results using Galí and Gertler's NKPC specifications and data, as well as a survey-based inflation-expectation series from the Federal Reserve Bank of Philadelphia. The test the authors use rejects Galí and Gertler's estimates (conditional on the latters' choice of instruments). Nevertheless, and in contrast with results obtained by Ma, the authors do obtain relatively informative confidence sets. This provides support for NKPC equations and illustrates the usefulness of using exact procedures in estimations based on instrumental variables.

2004-12

Durées d'utilisation des facteurs et fonction de production : une estimation par la méthode des moments généralisés en système

Eric Heyer, Florian Pelgrin, and Arnaud Sylvain

Using French data on industrial firms over the period 1989–2001, the authors estimate a Cobb-Douglas production function that accounts for the volumes and durations of factor utilization. They draw on the framework proposed by Blundell and Bond, assuming that serially correlated shocks allow a dynamic representation of the production function, and they choose the system-generalized method of moments as the reference estimation method. Their estimates yield identical elasticities for shifts of work and capital: the increase in output resulting from doubling the number of work teams is equivalent to that from doubling the stock of capital. Finally, they cannot reject the null hypothesis of constant returns to scale in their sample.

2004-13

Contraintes de liquidité et capital humain dans une petite économie ouverte

Florian Pelgrin

In an overlapping-generations model that represents a small open economy, where agents live two periods, liquidity constraints lead to low economic development when the only accumulable factor is human capital. In the context of multiple equilibria, an under-development trap can result in which the growth rate of the economy and the level of education are low. A financial liberalization policy may lead to improvements in such a situation.

2004-14

National Saving–Investment Dynamics and International Capital Mobility

Florian Pelgrin and Sebastian Schich

The authors interpret the close relationship between national saving and investment in the long run as reflecting a solvency constraint, rather than as evidence of limited capital mobility. They also examine the short-term saving–investment relationship, especially the speed at which the variables return to the long-run equilibrium relationship once they have deviated from it. The authors apply panel error-correction techniques to data for 20 OECD countries from 1960 to 1999, and find that saving and investment display a long-run relationship that is consistent with the interpretation that a long-run solvency constraint is binding for each country. Furthermore, capital mobility has increased over time.

2004-15

The Bank of Canada's Business Outlook Survey: An Assessment

Monica Martin and Cristiano Papile

Since the autumn of 1997, the Bank of Canada's regional offices (located in Halifax, Montréal, Toronto, Calgary, and Vancouver) have conducted consultations with businesses across Canada on a quarterly basis. These consultations are now referred to as the Business Outlook Survey (BOS). The BOS provides a timely source of information on what businesses are experiencing and planning. Because the BOS is a relatively new tool, the survey time series is short. The assessment presented in this paper, which is based on charts and correlations, is intended as an initial guide. The findings suggest that the survey serves as a

barometer of the Canadian economy and provides leading signals of future activity. The interview responses also inform the Bank about production-capacity constraints, labour shortages, and inflation expectations.

2004-16
The Effect of Economic News on Bond Market Liquidity
Chris D'Souza and Charles Gaa

The authors contrast the impact of two sources of information flow on the volatility of prices, trading activity, and liquidity in the brokered interdealer market for Government of Canada bonds. Liquidity varies with the amount of asymmetric information in the market, and order flow plays a central role in the processing of information. The authors find a two-stage adjustment process in the period before and after a scheduled 8:30 a.m. macroeconomic news announcement that is similar to the adjustment process documented by Fleming and Remolona for the U.S. Treasury market. They contrast these dynamics with the adjustment that occurs around a Government of Canada bond auction. Results are somewhat inconsistent with the patterns observed around macroeconomic news events, but are explained by theory.

2004-17
International Cross-Listing and the Bonding Hypothesis
Michael R. King and Dan Segal

The authors describe a new view of cross-listing that links the impact on firm valuation to the firm's ability to develop an active secondary market for its shares in the U.S. markets. Contrary to previous research, cross-listing may not provide benefits for all firms, even when those firms meet the highest regulatory requirements for disclosure and supervision. When cross-listed firms are divided into two groups on the basis of their share turnover in the home market relative to the U.S. market, the firms that develop active trading in the U.S. market experience an increase in valuation. Cross-listed firms that remain predominantly traded in the home market following cross-listing are valued similarly to non-cross-listed firms. To gain the full benefits of cross-listing, a foreign firm must convince investors that their shareholder rights will be protected.

2004-18
When Bad Things Happen to Good Banks: Contagious Bank Runs and Currency Crises
Raphael H. Solomon

The author develops a twin crisis model featuring multiple banks. At each bank, domestic and foreign depositors play a banking game. This game has a run and a no-run equilibrium. Bank failures drain reserves in addition to those drained when foreign agents convert domestic currency to foreign. The fixed exchange rate collapses if a threshold number of banks fail. Agents observe sunspots to aid their equilibrium selection. The numerical solution matches somewhat the Turkish financial sector prior to the crisis of 2001. The Turkish exchange rate appears to have exposed the financial system to a 10 per cent risk of collapse.

2004-19

Translog ou Cobb-Douglas? Le rôle des durées d'utilisation des facteurs

Eric Heyer, Florian Pelgrin, and Arnaud Sylvain

Using French data on industrial firms over the period 1989–2001, the authors estimate a "flexible" Translog production function that accounts for the volumes and durations of factor utilization. They draw on the framework proposed by Blundell and Bond, assuming that serially correlated shocks allow a dynamic representation of the production function, and they choose the system-generalized method of moments as the reference estimation method. The authors show that the duration of capital utilization is statistically significant and that the dynamic common-factor representation cannot be rejected. Furthermore, the duration of work is not statistically significant. Finally, the authors cannot reject the assumption of a Cobb-Douglas technology. Their result can be explained by the fact that durations of factor utilization are explicitly taken into consideration in the production function. Otherwise, the Translog specification is preferred to the Cobb-Douglas production function.

2004-20

Commodity-Linked Bonds: A Potential Means for Less-Developed Countries to Raise Foreign Capital

Joseph Atta-Mensah

The author suggests that commodity-linked bonds could provide a potential means for less-developed countries (LDCs) to raise money on the international capital markets, rather than through standard forms of financing. The issue of this type of bond could provide an opportunity for commodity-producing LDCs to hedge against fluctuations in their export earnings. The author's results show that the value of a commodity-linked bond increases as the price of the commodity indexed to the bond rises; this suggests that, if LDCs had issued debt contracts that were tied to their main export commodities, then their debt load would decline along with plummeting export prices (or export revenues). A simple portfolio rule derived by the author suggests that LDCs should issue more commodity-linked bonds than conventional debt if the variance of the portfolio is greater than twice the spread between the expected total return of the conventional debt and the commodity-linked bond.

2004-21

Exchange Rate Pass-Through and the Inflation Environment in Industrialized Countries: An Empirical Investigation

Jeannine Bailliu and Eiji Fujii

The authors investigate whether a transition to a low-inflation environment, induced by a shift in monetary policy, results in a decline in the degree of pass-through of exchange rate movements to consumer prices. Their work differs from previous empirical work in its focus on the identification of changes in the inflation environment and its use of a panel-data approach. Evidence from a panel-data set of 11 industrialized countries over the period 1977 to 2001 supports the hypothesis that exchange rate pass-through declines with a shift to a low-inflation environment brought about by a change in the monetary policy regime. More specifically, the results suggest that pass-through to import, producer, and consumer price inflation declined following the inflation stabilization that occurred in

many industrialized countries in the early 1990s, but did not decline following a similar episode in the 1980s.

2004-22

Financial Conditions Indexes for Canada

Céline Gauthier, Christopher Graham, and Ying Liu

The authors construct three financial conditions indexes (FCIs) for Canada based on three approaches: an IS-curve-based model, generalized impulse-response functions, and factor analysis. Each approach is intended to address one or more criticisms of the monetary conditions index (MCI) and existing FCIs. To evaluate their three FCIs, the authors consider five performance criteria: the consistency of each FCI's weight with economic theory, its graphical ability to predict turning points in the business cycle, its dynamic correlation with output, its in-sample fit in explaining output, and its out-of-sample performance in forecasting output. Using monthly data, the authors find, in general, that housing prices, equity prices, and bond yield risk premiums, in addition to short- and long-term interest rates and the exchange rate, are significant in explaining output from 1981 to 2000. They also find that the FCIs outperform the Bank of Canada's MCI in many areas.

2004-23

Convergence of Government Bond Yields in the Euro Zone: The Role of Policy Harmonization

Denise Côté and Christopher Graham

The authors find evidence that increased harmonization of monetary and fiscal policies on the path to Economic and Monetary Union contributed greatly to the convergence of long-term government bond yields in the euro zone. More importantly, their findings suggest that the convergence of national long-term government bond yields in the euro zone cannot be attributed primarily to the introduction of the common currency itself. The authors also find evidence that currency risk premiums declined gradually following the adoption of the Maastricht Treaty and were largely eliminated by the time the single currency was introduced in January 1999. These findings suggest that, in the context of integrated international financial markets, harmonization of sound monetary and fiscal policies across countries will cause national long-term bond yields to converge. Based on evidence from the euro zone, the adoption of a common currency will have, at most, a secondary effect on the convergence of national bond yields.

2004-24

Competition in Banking: A Review of the Literature

Carol Ann Northcott

The author reviews the theoretical and empirical literature to examine the traditional perception that the following trade-off exists between economic efficiency and stability in the banking system: a competitive banking system is more efficient and therefore important to growth, but market power is necessary for stability in the banking system. That this trade-off exists is not clear. Neither extreme (perfect competition nor monopoly) is likely ideal. Rather, it may be optimal to facilitate an environment that promotes competitive behaviour (contestability), thereby minimizing the potential costs of market power while realizing benefits from any residual that remains. It can be very difficult to assess the contestability of a banking market.

Recent work suggests that the number of banks and the degree of concentration are not, in themselves, sufficient indicators of contestability. Other factors play a strong role.

2004-25
Money Demand and Economic Uncertainty
Joseph Atta-Mensah

The author examines the impact of economic uncertainty on the demand for money. Using a general-equilibrium theory, he argues that in a world inhabited by risk-averse agents, who are constantly making portfolio decisions against a backdrop of macroeconomic uncertainty, the demand for money is a function of real income and interest rates, and an index of economic uncertainty. The author then uses the Johansen procedure of cointegration to estimate the long-run stationary relationships between a Canadian monetary aggregate (M1, M1++, and M2++) and the explanatory variables. Allowing for an index of economic uncertainty to enter the short-run dynamics of the estimated model, the author obtains empirical results that show that, in general, increased economic uncertainty leads, in the short run, to a rise in the desired M1 and M1++ balances that agents would like to hold. The impact of economic uncertainty on M2++ is, however, observed to be negative.

2004-26
Regulatory Changes and Financial Structure: The Case of Canada
Christian Calmès

The author documents some stylized facts about the Canadian financial structure. He explores these empirical facts in the context of Canadian financial legislation and finds that, over the 1990s, Canadian businesses became more heavily dependent on financial markets as their primary source of external funding. Data display a trend towards a more "market-oriented" financial system. The analysis suggests that this new trend started after the 1980 amendments to banking legislation and was considerably accentuated after the 1992 amendments. The author constructs a new series for the off-balance-sheet activities of Canadian banks that converts the non-interest income of banks into a credit equivalent. Combined with other evidence, this credit-equivalent series suggests a healthy growth trend in banking activity. Financial institutions are broadening their business lines and participating more actively in the arrangement of market financing.

2004-27
Financial Market Imperfection, Overinvestment, and Speculative Precaution
Christian Calmès

The author uses panel data to assess the sensitivity of investment to cash flow in non-financial firms, taking into account the role their financial health plays in investment decisions. Firms are categorized using a method called the Z-score, a contemporaneous indicator of financial stress that is inversely related to firms' probability of financial failure. Based on this method, empirical evidence suggests that firms that have the greatest sensitivity of investment to cash flow display the lowest average Z-score. The author also shows that, in this class of firms, investment seems to be partly driven by excessive conservatism, or precaution.

2004-28
Monetary and Fiscal Policies in Canada: Some Interesting Principles for EMU?
Virginie Traclet

Choosing a well-designed framework for fiscal and monetary policies is a challenge for economic authorities. Although they have chosen the same objectives to promote economic growth—price stability and fiscal sustainability—the Canadian and European economic authorities have adopted different frameworks in which to attain them. The author examines some principles of the Canadian framework that have gained broad public support and provide a good degree of macroeconomic stabilization, and examines whether the European authorities might wish to consider adopting some of those principles.

2004-29
Uninsurable Investment Risks
Césaire A. Meh and Vincenzo Quadrini

The authors study a general-equilibrium economy in which agents have the ability to invest in a risky technology. The investment risk cannot be fully insured with optimal contracts, because shocks are private information. The authors show that the presence of these risks may lead to an underaccumulation of capital relative to an economy where idiosyncratic shocks can be fully insured. They also show that, although the availability of state-contingent (optimal) contracts cannot provide full insurance, it brings the aggregate stock of capital close to the complete markets level. Institutional reforms that make the use of these contracts possible have important welfare consequences.

2004-30
The New Basel Capital Accord and the Cyclical Behaviour of Bank Capital
Mark Illing and Graydon Paulin

The authors conduct a counterfactual simulation of the proposed rules under the new Basel Capital Accord (Basel II), including the revised treatment of expected and unexpected credit losses proposed by the Basel Committee in October 2003. When the authors apply the simulation to Canadian banking system data over the period 1984–2003, they find that capital requirements for banks will likely fall in absolute terms even after allowing for the new operational risk charge (bearing in mind that the induced behavioural response of banks to the changed incentives under Basel II is not captured). The impact on the volatility of required bank capital is less clear. It will depend importantly on the credit quality distribution of banks' loan portfolios and on the precise way in which they calculate expected and unexpected losses. Changes in required capital and provisions for commercial and industrial, interbank, and sovereign exposures will likely be countercyclical under Basel II (i.e., capital requirements will increase during recessions). This raises questions about the new accord's potentially procyclical impact on banks' lending behaviour, and the resultant macroeconomic implications.

2004-31
The New Keynesian Hybrid Phillips Curve: An Assessment of Competing Specifications for the United States
David Dupuis

Inflation forecasting is fundamental to monetary policy. In practice, however, economists are faced with competing goals: accuracy and theoretical consistency. Recent work suggests

that the two objectives need not be mutually exclusive in the context of inflation forecasts. The New Keynesian Phillips curve is theoretically appealing, because its purely forward-looking specification is based on a model of optimal pricing behaviour with rational expectations. This specification, however, does not properly capture observed inflation persistence. The author estimates three structural models of U.S. inflation that incorporate price frictions to justify the presence of lags in the forward-looking New Keynesian Phillips curve. The models are tested on the basis of forecast performances. The results show that the new Keynesian hybrid Phillips curve with the output gap as an explanatory variable performs marginally better than the two alternative specifications.

2004-32

Investment, Private Information, and Social Learning: A Case Study of the Semiconductor Industry

Rose Cunningham

Social learning models of investment provide an interesting explanation for sudden changes in investment behaviour. Caplin and Leahy develop a model of social learning in which agents learn about the true state of demand from the investment suspension decisions of other agents. The author tests the main predictions of Caplin and Leahy's model using a unique database of investment projects undertaken by semiconductor plants. She finds that firms that are installing a significant new technology appear to be influenced by social learning, because they are more likely to suspend their investment project when other suspensions occur. Suspensions by other agents also significantly affect plants that use conventional technology, but that effect is negative. The conventional technology plants are less likely to suspend their investment project when other firms suspend, which suggests that their payoffs are strategic substitutes, as in a "war-of-attrition" game.

2004-33

Counterfeiting: A Canadian Perspective

John Chant

Counterfeiting is a significant public policy issue, because paper money, despite rumours of its demise, remains an important part of our payments system. The author considers the economic issues that counterfeiting raises. He proposes an innovative method for estimating the quantity of counterfeit currency in circulation and develops estimates for Canada for 2001. Such a measure can make a significant contribution to public policy by providing a basis, through international comparisons, for assessing the effectiveness of different currency features in combatting counterfeiting.

2004-34

Market Valuation and Risk Assessment of Canadian Banks

Ying Liu, Eli Papakirykos, and Mingwei Yuan

The authors apply the asset-valuation model developed by Rabinovitch to six publicly traded Canadian banks over the period 1982–2002. The model is an extension of the Merton option-pricing model with the incorporation of stochastic interest rates. The authors introduce the Z-score, a measure of distance-to-default, which can be a useful tool for regulators in assessing the risk of bank failures. The Z-scores, overall, suggest that Canadian banks are far from the point of default. The authors also find that both the market valuation of the

bank assets and the Z-score of the Canadian banks demonstrate similar regime shifts in the late 1990s, which may be related to regulatory changes during the 1990s.

2004-35

The U.S. New Keynesian Phillips Curve: An Empirical Assessment

Alain Guay and Florian Pelgrin

The authors examine the evidence presented by Galí and Gertler and by Galí, Gertler, and Lopez-Salido that the inflation dynamics in the United States can be well-described by the New Keynesian Phillips curve (NKPC). The authors address several important econometrics issues that arise in estimating the NKPC model. Using the continuously updated generalized method of moments (GMM) estimator proposed by Hansen, Heaton, and Yaron and the three-step GMM estimator developed by Bonnal and Renault, the authors find that the empirical evidence for the real marginal cost is rather weak. Specifically, results are sensitive to the instrument sets, normalization, estimators, sample period, and data revisions.

2004-36

Optimal Taylor Rules in an Estimated Model of a Small Open Economy

Steve Ambler, Ali Dib, and Nooman Rebei

The authors compute welfare-maximizing Taylor rules in a dynamic general-equilibrium model of a small open economy. The model includes three types of nominal rigidities (domestic-goods prices, imported-goods prices, and wages) and eight different structural shocks. The authors estimate the model's structural parameters by maximum likelihood using Canadian and U.S. data, and use a second-order approximation of the model to measure the welfare effects of different Taylor rules. By estimating the model, the authors can compare welfare levels with that attainable under the Taylor rule estimated for their sample period. They find that the welfare gains from moving to the optimal Taylor rule are larger than those obtained by previous researchers.

2004-37

The Implications of Transmission and Information Lags for the Stabilization Bias and Optimal Delegation

Jean-Paul Lam and Florian Pelgrin

In this paper, the authors modify an otherwise conventional New Keynesian model to include transmission and information lags, two key problems faced by policy-makers, and they examine whether the results from the baseline model are robust to these two modifications. The authors find that the gains from commitment are considerably reduced when the model includes these two features, which implies that optimal delegation is less important. Furthermore, a regime that targets CPI inflation in a conservative manner is found to perform well and even outperforms the targeting regimes advocated by Jensen and Walsh under certain conditions.

2004-38

Finance Constraints and Inventory Investment: Empirical Tests with Panel Data

Rose Cunningham

The author empirically tests two aspects of the interaction between financial variables and inventory investment: negative cash flow and finance constraints due to asymmetric information. This is one of the first studies of inventory investment and finance constraints using Canadian data. A sample of Canadian

manufacturing firms over the period 1992Q2–1999Q4 is split into subsamples based on age, bond rating, and size to reflect expected differences in degrees of asymmetric information problems. The findings are consistent with a model in which inventory investment is a U-shaped function of cash flow. Higher degrees of information asymmetry do not appear to generate differences in the sensitivity of inventory investment to cash flow during the sample period.

2004-39
A Forecasting Model for Inventory Investments in Canada
Marwan Chacra and Maral Kichian

The authors present an empirical model to forecast short-run inventory investment behaviour for Canada. As with other recent studies that examine this series, they adopt an error-correction framework. Estimations using non-linear least squares and quarterly data yield both a good model fit and good out-of-sample forecasts. Given the debate in the United States on whether the adoption by firms of new information-technology-based methods of inventory management led to a decline in the volatility of U.S. output growth, the authors examine this issue for Canada. The authors conclude that the "inventory hypothesis" is likely not an important explanation for the decline in the volatility of Canadian GDP growth.

2004-40
Prévision et analyse de la production manufacturière au Canada : comparaison de modèles linéaires et non linéaires
Frédérick Demers

The author describes reduced-form linear and non-linear econometric models developed to forecast and analyze quarterly data on output growth in the Canadian manufacturing sector from 1981 to 2003. Empirical evidence reported in the paper suggests that economic activity in the United States and the real exchange rate are the main factors that influence output in the manufacturing sector in Canada.

2004-41
Characterization of the Dynamic Effects of Fiscal Shocks in a Small Open Economy
Nooman Rebei

The author studies the macroeconomic consequences of discretionary changes in the fiscal policy instruments for Canada. He adopts a semi-structural vector autoregression framework. Restrictions are based on institutional interactions between some policy and non-policy instruments that mimic a government's decision process. The author characterizes the actual economy's response to fiscal shocks, and proposes a theoretical model for a small open economy with nominal and real rigidities to test for the endogenous transmission mechanisms following shocks to government spending. Generally, the results of the model are very close to the observed reactions, especially for consumption, investment, exports, imports, and inflation; however, the model fails to predict the real exchange rate reaction.

2004-42
International Equity Flows and Returns: A Quantitative Equilibrium Approach
Rui Albuquerque, Gregory H. Bauer, and Martin Schneider

The authors model trading by foreign and domestic investors in developed-country equity markets. The key assumptions are that (i) both the foreign and domestic investor populations contain investors of different sophistication,

and (ii) investor sophistication matters for performance in both public equity and private off-market investments. A quantitative model with these assumptions delivers a unified explanation for three stylized facts about U.S. investors' international equity trades that have been documented in the literature: (i) trading by U.S. investors occurs in bursts of *simultaneous* buying and selling, (ii) Americans build and unwind foreign equity positions gradually, and (iii) U.S. investors increase their market share in a country when stock prices in that country have recently been rising.

2004-43

Real Return Bonds, Inflation Expectations, and the Break-Even Inflation Rate

Ian Christensen, Frédéric Dion, and Christopher Reid

According to the Fisher hypothesis, the gap between Canadian nominal and Real Return Bond yields (or break-even inflation rate) should be a good measure of inflation expectations. The authors find that this measure was higher, on average, and more variable than survey measures of inflation expectations between 1992 and 2003. They examine whether risk premiums and distortions embedded in this interest rate gap can account for these facts. Their results indicate that distortions were likely an important reason for the high level and variation of this measure over much of the 1990s. There is little evidence that the distortions examined were as important between 2000 and 2003, but the high level of the break-even inflation rate in 2004 may be evidence of their return. Given the potential distortions, and the difficulty in identifying them, the authors conclude that it is premature to consider this measure a reliable gauge of monetary policy credibility. In addition, it is not as useful as competing tools for short- and medium-term inflation forecasting.

2004-44

The Transmission of World Shocks to Emerging-Market Countries: An Empirical Analysis

Brigitte Desroches

The first step in designing effective policies to stabilize an economy is to understand business cycles. No country is isolated from the world economy and external shocks are becoming increasingly important. The author documents the sources of macroeconomic fluctuations in 22 emerging-market countries, and measures two specific shocks that could be transmitted from one country to another: a world real output shock and a world real interest rate shock. Her analysis shows that there are major differences in the transmission mechanism across emerging-market countries. To assess whether they are due to different economic structures or to the exchange rate regime, she divides the sample into groups of countries. The results indicate that the exchange rate regime is a critical factor, although restrictions on capital flows also play a crucial role. The author also shows that regional groups and trade openness do not play as important a role as the exchange rate regime and capital flows in determining the transmission of business cycles.

2004-45

Modelling the Evolution of Credit Spreads in the United States

Stuart M. Turnbull and Jun Yang

The authors use Jarrow and Turnbull's reduced-form methodology to model the evolution of the term structure of interest rates in the United States for different credit classes and different industries. The authors also estimate a liquidity function for each credit class and industry. Using data from individual firms, the authors estimate the probability of default under the natural measure and compare it with the estimated default frequencies produced by KMV.

2004-46

Une approche éclectique d'estimation du PIB potentiel pour le Royaume-Uni

Charles St-Arnaud

The author describes results obtained by using a new methodology to estimate potential output for the United Kingdom. The estimation method shows that combining the use of a Hodrick-Prescott filter and a structural vector autoregression (SVAR) is optimal to estimating potential output. Using this method, the author estimates two components of U.K. potential output: the full-employment labour input and the trend rate of labour-productivity growth. This type of decomposition is similar to the one used by HM Treasury and is particularly useful for identifying the source of fluctuations in potential output. The author's results show that growth in potential output was primarily driven by growth in labour productivity over the 1971–2003 period, whereas its volatility is accounted for by the labour-input component. In addition, the author attempts to explain movements in inflation using this new methodology.

2004-47

The Monetary Origins of Asymmetric Information in International Equity Markets

Gregory H. Bauer and Clara Vega

Existing studies using low-frequency data show that macroeconomic shocks contribute little to international stock market covariation. Those studies, however, do not account for the presence of asymmetric information, where sophisticated investors generate private information about the fundamentals that drive returns in many countries. In this paper, the authors use a new microstructure data set to better identify the effects of private and public information shocks about U.S. interest rates and equity returns. High-frequency private and public information shocks help forecast domestic money and equity returns over daily and weekly intervals. In addition, these shocks are components of factors that are priced in a model of the cross-section of international returns. Linking private information to U.S. macroeconomic factors is useful for many domestic and international asset-pricing tests.

2004-48

An Empirical Analysis of the Canadian Term Structure of Zero-Coupon Interest Rates

David J. Bolder, Grahame Johnson, and Adam Metzler

The authors introduce the first public-domain database of constant-maturity zero-coupon yield curves for the Government of Canada bond market. They first outline the mechanics of the curve-fitting algorithm that underlie the model, and then perform some preliminary statistical analysis on the resulting yield curves. The full sample period extends from January 1986 to May 2003; it is broken down into two subsamples, reflecting the structural and

macroeconomic changes that impacted the Canadian fixed-income markets over that time. The authors examine the evolution of a number of key interest rates and yield-curve measures over the period, perform a principal-components analysis of the common factors that have influenced yield changes over time, and compare holding-period returns over the sample for assets of various maturities.

2004-49
Trade Credit and Credit Rationing in Canadian Firms
Rose Cunningham

Burkart and Ellingsen's model of trade credit and bank credit rationing predicts that trade credit will be used by medium-wealth and low-wealth firms to help ease bank credit rationing. The author tests these and other predictions of Burkart and Ellingsen's model using a large sample of more than 28,000 Canadian firms. She uses an endogenous method to divide the firms into the appropriate wealth categories, rather than arbitrarily selecting firms likely to be credit rationed. The data support the main predictions of Burkart and Ellingsen's model quite well. The author finds that medium-wealth firms substitute trade credit for bank credit consistent with using it to alleviate bank credit rationing. The low-wealth firms use trade credit, but it is positively linked to their bank credit, which suggests that those firms are constrained in both bank credit and trade credit markets, and so cannot use trade credit to adjust as much to negative shocks. The findings also suggest that there are very few unconstrained, high-wealth Canadian firms. The author also finds that low-wealth, declining, and distressed firms supply proportionally more trade credit than firms that have healthier balance sheets. This is surprising, but has been found in earlier studies as well. It may reflect some exploitation of market power by the customers of such firms.

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