



Remarks by Jean Boivin
Deputy Governor of the Bank of Canada
Okanagan CFA Society and UBC Okanagan
(Faculty of Management)
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CHECK AGAINST DELIVERY

Where the Economy and Finance Meet

Introduction

Thank you for having me here tonight. I'm delighted to be in Kelowna to deliver my first public speech as deputy governor of the Bank of Canada. As you heard in the introduction, I used to be a business school professor, so I am especially happy to be back among a group of business professionals, students and former colleagues.

As the title of my speech suggests, I would like to discuss the connections between the real economy—the tangible world of jobs, goods and services—and the more intangible world of finance—of money flows, interest rates and the stock market. They have a long and eventful history.

When a crisis strikes, their connections are very evident and we pay attention. Our understanding of these connections has been extremely useful in the development of a timely and coordinated policy response at the onset of the last crisis. In times of stability, however, we have an unfortunate tendency to downplay their connections. This is a mistake.

The main theme of my remarks tonight is that the connection between finance and the economy is *always* relevant—not only in times of crisis. And while crises occur abruptly, their seeds are sown long before they happen, during periods of stability.

For those of us working in economics and finance, this has two key implications:

- First, we need better tools to understand the highly complex dynamics by which financial imbalances build up and affect the real economy.
- Second, we need to improve our understanding of how the real economy can contribute to the development of financial imbalances, particularly through risk-taking behaviour.

As I will highlight, the Bank of Canada, together with international partners, is making progress on both fronts, but we still have a long way to go.

Before I continue, I want to stress that this speech is not about what we could have done in Canada to avoid the most recent financial crisis. The source of the crisis was outside of

our control and our financial sector has proven extremely resilient in the face of this huge global shock.

But it did provide us with an opportunity to refine our understanding of the constantly evolving economy and how to avoid future crises. We cannot be complacent.

Teaching Economics in a Pre-Crisis World

I have been thinking about the links between the real economy and finance for many years now, starting with my career as a professor in the late 1990s, when I taught macroeconomics to MBA students.

One of the most striking features of a business school environment is the palpable energy of the students, their keen interest to learn, their drive and ambition. That made teaching challenging, interesting and rewarding. But all this genuine interest and energy was not automatically granted to a core macroeconomic course.

We need to remember the mood of the time. Buzzwords like: “new economy,” “Dot Com,” “Great Moderation,” were on everyone’s lips. Questions like “Is the business cycle dead?” were seriously being asked and the Dow 36,000 was seen by some as the likely next frontier.

Many students wanted to pursue a career in finance. In such an environment, where macroeconomic stability was taken as a permanent feature of the economy, students asked why they should “waste time and money” sitting through a core macroeconomics class. Why not jump immediately to the important stuff—finance? We even changed the name of the course to make it more appealing: “Macroeconomics” became “The Global Economic Environment.”

I don’t know that this was very effective...

To be fair to my former students, at the turn of the century, they weren’t the only ones to downplay the links between finance and the macroeconomy. Professionals and academics alike shared this view. I noticed a big change in attitude, however, when I last taught this course in the summer of 2009. Students took for granted that the connections between the economy and finance were crucial.

There is an obvious explanation for this new-found awareness. Between the first and last time I taught this course, the world experienced its worst financial crisis since the 1930s, with real, dramatic consequences on people throughout the world. In the G-7, excluding Canada, GDP fell by 5.6 per cent from the peak in 2008 to the trough in 2009, and almost 12 million jobs were lost. The United States alone shed almost 9 million jobs, and even today, fewer than 15 per cent of those have been regained. In Canada, things were better, thanks to a financial system that has held up remarkably well and buffered us from the worst of the financial storm. Nevertheless, in Canada, real GDP fell by more than 3 per cent from peak to trough and more than 400,000 jobs were lost. We have now recouped those lost jobs, but not the lost momentum and opportunities the crisis left behind.

After living through this, how can we ignore the obvious links between the economy and finance?

The short answer is that when times are good, we can make the mistake of becoming complacent.

The Economy and Finance Have Been Meeting for a Long Time

As I said at the outset, the economy and finance have a long and eventful history.

When financial markets are functioning well, they play a background role in the overall behaviour of the real economy. At the same time, when the economy is stable, macroeconomic considerations might appear to play a more secondary role in the functioning of financial markets. Taken together, this suggests that in stable times it might be tempting to analyze the behaviour of the real economy and financial markets separately, each of them being a black box to the other, not worth opening.

This approach is also convenient: Economists can build economic models without introducing too many financial details; financial wizards can price assets without thinking too much about macroeconomic risks; and business schools can build curricula where economics and finance are taught with little reference to each other.

This is all very well in a stable world. But a stable world is not a perfect world. And imperfections can eventually break the stability.

It has long been understood that imperfections in the financial market can generate and amplify economic fluctuations, driving the dynamics of a crisis. These imperfections typically stem from transaction costs or asymmetric information.

This is economist jargon, but let me give you an example.

An entrepreneur who needs to borrow funds typically knows more about the quality of her project than the lender. Moreover, the success of the project—and the likelihood of the loan being repaid—will depend on the behaviour of the entrepreneur. This information gap is an imperfection that the financial system needs to address. Financial intermediaries—for instance, banks—play an important role in partly bridging this information gap through screening and monitoring of prospective borrowers. Another way is for the borrower to put some skin in the game by pledging collateral—for example, real estate—which becomes a key determinant of borrowing capacity.

Appreciating the role of information and the importance of collateral helps to explain how a financial crisis, such as the Great Depression, can unfold by setting in motion an adverse feedback loop between the real economy and financial markets. Collateral facilitates credit. If a weakening economy reduces the value of collateral, access to credit will be reduced. Reduced access to credit constrains consumption and capital investment, further weakening the economy and—closing the loop—the value of collateral that can

be pledged. And if along the way, some banks are forced to shut their doors, the information gap at the origin of this problem becomes even harder to bridge.¹

These are crucially important mechanisms. They have been understood for a long time and formed part of the economist toolkit.² This understanding proved to be a huge asset during the last crisis, motivating policy-makers throughout the world to act swiftly to break the adverse feedback loop once the crisis started.

Meeting in Unsuspected Places

Many of the connections between the economy and finance were perceived to be relevant mainly to countries in crisis, limiting interest to the study of historical episodes or economies with poorly developed financial markets. Consequently, many of the models used by economists to analyze usually stable, advanced economies abstracted from features of the financial sector. This was seen as a reasonable approximation.

But as we know, the recent crisis detonated in advanced economies after a long period of exceptional calm, often referred to as the “Great Moderation.”

How does the economy shift from stability to crisis?

While the links between the financial sector and the real economy are sometimes smooth and continuous, they can also be highly non-linear. These non-linear effects can manifest themselves by the slow buildup of imbalances in stable times—when many have been lulled into a false sense of security—followed by abrupt crashes.

This underlines the need to improve our understanding of where the economy and finance meet during stable times and how crises erupt:

- First, we need better tools to understand the highly non-linear dynamics through which financial imbalances build up and affect the real economy. This involves improving our models, but also developing indicators that can help us to better track the risk of potential financial disruptions to the overall economy.

¹ Many important breakthroughs in our understanding of the role of financial market imperfections on the real economy are rooted in the work of Joseph Stiglitz, Michael Spence and George Akerlof, who were awarded the 2001 Bank of Sweden Nobel Prize in economics for their 1970s analysis of markets with asymmetric information. Bernanke and Gertler (1989) later formalized these financial market imperfections in a macroeconomic model to improve our understanding of the Great Depression. This is often referred to by economists as the financial accelerator model. See Bernanke (2007a) for a summary of the financial accelerator and the credit channel. Models incorporating the financial accelerator in the business sector are found in Bernanke, Gertler, and Gilchrist (1999); Kiyotaki and Moore (1997); Christiano, Motto, and Rostagno (2010); and Christensen and Dib (2008). Models demonstrating how the balance sheets of households affect their borrowing capacity are described in Iacoviello (2005), Christensen and Meh (2010), and Christensen et al. (2009).

² There is a long history of macroeconometric models that incorporate financial variables, for example, the Bank of Canada MUSE model used in the context of international analysis.

- Second, we need to improve our understanding of how the real economy and system-wide forces can contribute to the development of financial imbalances, particularly through risk-taking behaviour.

Developing Better Tools

Regarding better tools, we are developing a new generation of models that, unlike those that came before, consider the financial sector, including banks, not just as a transmitter of shocks, but as a potential shock in its own right.

We are developing macroeconomic frameworks that take into account the balance sheets of financial intermediaries, multiple interest rates and credit spreads so that we can understand better how developments in the financial sector affect economic performance. This work is being done by academics and central bank researchers, including those at the Bank of Canada.³

Research at the Bank of Canada has made important strides in modelling balance sheets of banks into standard macroeconomic frameworks with financial frictions.⁴ Bank staff have also introduced multiple financial assets into the Bank of Canada's main policy model (ToTEM), as well as credit and banking into the Global Economic Model (BoC-GEM-FIN).

The Bank of Canada has used this research to make important contributions to international reports by the Financial Stability Board (FSB) and the Basel Committee on Banking Supervision (BCBS), assessing the impact of stronger capital and liquidity requirements on economic activity. Bank staff ran simulations to provide a comprehensive assessment of the potential impact on the Canadian economy of the new Basel III global capital and liquidity standards. A report was published summarizing the Bank's core results for Canada, including a comparison with the results published by the FSB and the BCBS.⁵

It is also critical that economists and financial professionals develop empirical tools that provide statistical indicators of increased risks to the whole financial system—including various measures of credit. A credit boom—a positive feedback loop sparked by a sustained increase in collateral value—is a key feature of the buildup towards financial crisis. Historically, finding such indicators has been a difficult task and we should not expect a magic bullet. But the information gleaned from a collection of these indicators could serve as an important guide for stabilization policies, including a system-wide regulatory policy. In that respect, I am encouraged to see the large amount of work being done at the International Monetary Fund, the Financial Stability Board and the Bank for International Settlements in developing statistical tools to serve as “early warning

³ See Brunnermeier and Sannikov (2010); Curdia and Woodford (2010); Christensen, Meh, and Moran (2010); Dib (2010); Gertler and Karadi (2010); Gertler and Kiyotaki (2010); Gerali et al. (2010); Meh and Moran (2010); and Van den Heuvel (2008).

⁴ See Meh and Moran (2010) and Dib (2010).

⁵ See Bank of Canada (2010), Basel Committee on Banking and Supervision (2010), and Basel Committee on Banking and Supervision and Financial Stability Board (2010).

indicators” and evaluating a variety of statistical indicators of excessive credit growth.⁶ The Bank of Canada and other central banks are also actively developing tools to support their financial system surveillance activities.⁷

Financial Imbalances, Risk-Taking Behaviour and System-Wide Forces

The second key area of work for economists and financial professionals concerns the need to understand better risk-taking behaviour and how system-wide forces contribute to the development of imbalances.⁸

We see excessive risk-taking behaviour develop during periods of stability when people become complacent and believe the good times are here to stay. They become overconfident and underestimate risk. Contract incentives can also induce excessive risk-taking behaviour.

Let’s take an example of an insurance company that has promised premium holders returns of 6 per cent, while the long-term bond rate is 4 per cent. To meet its obligations when the short-term rate is low, the insurance company has no choice but to take on greater risk, either directly or through investments in alternative assets.⁹

We also see how incentives encourage risk-taking at financial institutions where compensation depends on short-run returns. Although, the financial crisis is seen as having many significant causes, the compensation structure of some institutions is viewed as an important contributing factor.

Through these channels, a tranquil macroeconomic environment can lead to the buildup of risks and financial imbalances on the balance sheets of banks. These imbalances can increasingly expose the wider economy to the risk of financial crisis. If confidence disappears, banks call back credit, balance sheets shrink and a difficult readjustment is needed, with negative effects on financial and economic stability. In particular, the buildup of big leverage within the financial system can unwind swiftly, causing more stringent general financing conditions.

So what needs to be done?

First, we need to be collectively aware of these connections and better understand their importance. Firms are run by people. Risk is taken by people. The more complete the understanding, the better the chance of properly assessing risk and designing appropriate contracts.

But there is also a need to adopt measures to make the financial system as a whole more resilient. This includes enhanced system-wide supervision and regulation.

⁶ See Drehmann, et al. (2010).

⁷ See Misina and Tkacz (2009) and Gauthier, He, and Souissi (2010).

⁸ See Adrian and Shin (2009), Borio and Zhu (2008), Brunnermeier and Sannikov (2010), Diamond and Rajan (2009), and Farhi and Tirole (2009).

⁹ See Rajan (2005).

The recent Basel III agreement will go far to enhance supervision and regulatory practices in the financial sector. G-20 leaders have agreed to strengthen their banking systems by raising the amount and quality of capital and liquidity that financial institutions must carry. These higher standards will lower the incidence of financial crises, reduce their severity and provide for smoother economic cycles. They will also reduce the risk that resources are misallocated.

The agreement also includes a countercyclical capital buffer that provides for additional capital to be built up during the periods of excessive credit growth that are associated with an increase in system-wide risk. This will provide additional loss-bearing capacity in a downswing in a credit cycle. The countercyclical buffer itself should also help dampen excess credit growth.

Recent research at the Bank of Canada estimated that for Canada, the net economic benefits to be gained from improving the safety and robustness of the Canadian and international financial system could amount to about \$200 billion—or about 13 per cent of GDP.¹⁰

While it is neither possible, nor desirable, to eliminate risk-taking, by understanding it, identifying it, tracking it, and spotting dangerous trends, we can do much to prevent the buildup of imbalances that can lead to a crisis erupting.

There is no magic bullet to safeguard the financial system. We work in an exceedingly complex and dynamic environment, one that presents new—and very difficult—challenges. The task we have set for ourselves is far from easy, but when the best and the brightest in the fields of economics and finance combine their efforts and work together, we can make important progress. Complacency is the enemy.

Conclusion

As we move away from the crisis, we all have an obligation to remember that imbalances build during periods of calm. Our vigilance is required at all times, not just during a crisis.

Better tools will help us to identify risks and better understand the human behaviour behind risk-taking. And certainly, system-wide supervision and regulation will do much to improve the global financial system.

However, as I conclude tonight, I would like to reinforce the fact that all of us here are part of the “system.” Economists, finance professionals, business school professors and students are part of this “system.” We have a role, and a responsibility, to improve our understanding of, and account for, the system-wide consequences of our individual actions. We have a chance to ensure that the painful lessons of the last few years lead to a better financial system, and by extension, to a more prosperous and stable world.

Thank you very much.

¹⁰ See Bank of Canada (2010).

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