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HEC Montréal
Montréal, Quebec
8 February 2016

Monetary Policy and Financial Stability—Looking for the Right Tools

Introduction

Thank you for the opportunity to speak here today. My remarks will focus on the following question: Should a central bank's decisions on monetary policy account for the stability of the financial system and, if so, how? We at the Bank of Canada are grappling with this question, and it is being debated by economists and policy-makers around the world.

This topic is not new, but finding the right answer now seems more urgent than ever. The global financial crisis that began eight years ago has taken an enormous toll, both economic and, more important, human. Around the world, including in Canada, the crisis ushered in a period of subpar economic growth and inflation, which continues to the present day.

So it's easy to see why promoting financial stability—and preventing crises in the future—is such a high priority for world leaders and all those involved in the financial system. This priority has given rise to an ambitious and comprehensive agenda of reforms to make the global financial system more resilient.

But, in thinking about how to prevent financial crises, it's also natural to look at monetary policy. After all, when a central bank influences the cost of financing through changes in the policy interest rate, its actions affect the economy by changing asset prices, encouraging or discouraging risk taking, and influencing credit flows. This suggests that monetary policy has the ability to influence financial stability, for good or ill.

If a central bank eases monetary policy, it stimulates the economy, largely by encouraging households and companies to borrow more and pushing up the prices of many types of financial assets. The increased borrowing, together with the greater wealth that comes with higher asset prices, encourages households to spend more, generating income for other households and creating opportunities for companies. But, at the same time, more debt and higher asset prices may create vulnerabilities in the financial system.

I would like to thank Don Coletti and Oleksiy Kryvtsov for their help in preparing this speech.

In Canada in the period since the global financial crisis, the most concerning vulnerabilities have been in the household sector—notably the combination of rising indebtedness and elevated house prices. But a wider set of vulnerabilities, in more than one sector, was important in setting the stage for previous crises. For example, heightened risk taking by investors and elevated leverage in large financial institutions and in shadow banking activities were among the factors that turned a downturn in the U.S. subprime mortgage market into a global financial crisis.

While increasing such vulnerabilities at the margin is a normal consequence of an easing of monetary policy, they may become of particular concern if interest rates stay low for an unusually long time. In the presence of such vulnerabilities, an event such as an adverse macroeconomic shock can stress the financial system or even trigger a crisis.

Since monetary policy can contribute to financial vulnerabilities, it could also be argued that it can be adjusted to limit them. But whether and how to do that can't be considered in isolation from the central bank's mandate. For the past quarter century, the Bank of Canada has had the responsibility of using monetary policy to achieve low, stable and predictable inflation, a goal cemented in our 2 per cent inflation target. This is our primary mission, which guides our setting of the policy interest rate. While a failure to maintain financial stability would ultimately impair our ability to achieve the inflation target, it is generally understood that we should aim to get inflation sustainably back to target within about two years.

Within this framework, financial system developments are always part of monetary policy discussions, because of their importance for the real economy and especially because of the transmission of the effects of monetary policy.

We have some flexibility within our inflation-targeting framework: we might accept a slower return of inflation to target, if necessary, to avoid adverse effects on financial stability. But the expectation has been that we would only rarely, if ever, use the framework's flexibility in this way.

This is not to say that our framework is immutable. The law governing the Bank since 1935 says we should “regulate credit and currency in the best interests of the economic life of the nation.” How we fulfill that requirement has evolved over the years. Inflation targeting was established in Canada in 1991 under an agreement with the federal government, which we renew every five years. We are currently working toward the next renewal, which takes place later this year. This process gives us an opportunity to re-examine our mandate and consider other ways of doing things. Financial stability, and its relationship to monetary policy, figures prominently in our current research agenda.

In the time I have, I will discuss how our thinking on the interactions between monetary policy and financial stability has been evolving, tell you about some interesting recent research by our staff and touch on some questions that have yet to be resolved.

Financial Stability, Then and Now

Let me start by saying that central banks have always had a role in providing stability to financial systems. Some of our tools are in the category of crisis management; others for crisis prevention.

When the financial system comes under stress, a central bank may need to calm financial markets through open market operations or act as the lender of last resort to financial institutions to forestall bank runs. These tools were used effectively by many central banks during the global financial crisis of 2007–09.

Some of the Bank of Canada's financial system activities are also designed, in part, to make the system less prone to crisis. An example is the oversight of key financial market infrastructures, such as payment systems and central counterparties. Such oversight is intended to bolster their risk management so that they can support the continued functioning of financial markets in times of stress.

More broadly, central banks are well placed to analyze systemic vulnerabilities and how they might play out. In this vein, in 2002, the Bank of Canada began publishing a semi-annual *Financial System Review* to raise awareness of the most important risks to Canada's financial system.

But the Bank of Canada is only one of several official bodies whose policies have an influence on financial stability. Others control many of the relevant tools—such as capital requirements, the regulation of housing finance, the regulation of financial market conduct and the framework for resolution of financial institutions. The Bank's analysis of emerging risks and vulnerabilities can contribute to informing decisions by those other bodies.

It is in this context that we consider the question I raised at the beginning of this speech: the possible role of monetary policy in underpinning financial stability.

While maintaining stable financial conditions was once understood to be part of the purview of monetary policy, that changed in the wake of the period of high inflation in Canada and many other advanced economies during the 1970s and 1980s. That experience, together with influential research on monetary policy, convinced the economics profession that maintaining price stability is the best—or even the only—contribution monetary policy can make to promoting a country's economic and financial well-being.

The inflation-targeting regime we have today is an outgrowth of that experience. Inflation targets have been very successful at maintaining price stability because they give everyone an easy way to understand monetary policy and, over time, create a virtuous circle in which realized inflation and expectations reinforce each other.

A central tenet of the framework is that a central bank uses the policy interest rate solely to counter risks to inflation. If it tried to do other potentially conflicting things, such as keeping unemployment artificially low or containing volatility in the financial markets, its credibility could erode, the virtuous circle could break down and inflation could go back to being unpredictable.

The question of whether central banks can use monetary policy to promote financial stability as well as price stability has re-emerged from time to time. It has often been couched in terms of using monetary policy to prevent or deflate asset-price bubbles—perhaps to dampen irrational exuberance in stock markets. But the question is really more general, related to the use of monetary policy in countering an excessive buildup of leverage in the economy.

Identifying such financial imbalances is not as straightforward as it sounds, and using monetary policy to address them was seen as a potential distraction from the task of targeting inflation. Moreover, during the Great Moderation, such imbalances were not seen as a serious obstacle to stabilizing the economy. Confronted with the choice of whether to “lean” or to “clean”—leaning against emerging financial imbalances by keeping interest rates higher than they otherwise would be or cleaning up in the event the risks they create are realized by providing stimulus—central bankers at that time generally agreed that cleaning would be best.

That consensus was shattered by the global financial crisis. Unlike past episodes in recent history, the crisis began in the world’s most sophisticated financial systems, causing widespread economic devastation. It stirred up persistent and formidable headwinds to economic growth, also making it very difficult for central banks to bring inflation back to target.

After this brutal wakeup call, economists went back and re-examined the possible role monetary policy plays in setting the stage for crises.

Looking at the historical evidence, it would be fair to conclude that few, if any, crises have been caused by monetary policy alone. The global financial crisis, like the Great Crash of 1929, also reflected widespread regulatory shortcomings and other weaknesses in a number of countries.¹ But it is likely that monetary policy played at least a contributing role in encouraging the buildup of leverage and asset prices in a fragile financial system. The nature and importance of that role in the run-up to these and other crises is the subject of ongoing research and debate.²

Trade-offs

So, can monetary policy target inflation and still promote financial stability? This question can be addressed in two parts. First, let’s consider a case in which monetary policy is the only tool available to promote both macroeconomic and financial stability. Later, I’ll consider how monetary policy might complement other policies that work more directly on the financial system.

Sometimes inflation targeting and financial stability are complementary. For example, if the economy is running above potential, creating inflationary pressures, while financial vulnerabilities are also building, then both

¹ See, for example, B. Eichengreen, *Hall of Mirrors: The Great Depression, the Great Recession, and the Uses — and Misuses — of History* (New York: Oxford University Press, 2015).

² See for example, M. K. Brunnermeier, “Bubbles and Central Banks: Historical Perspectives” (paper presented at the Econometric Society Winter Meetings, San Francisco, 3 January 2016).

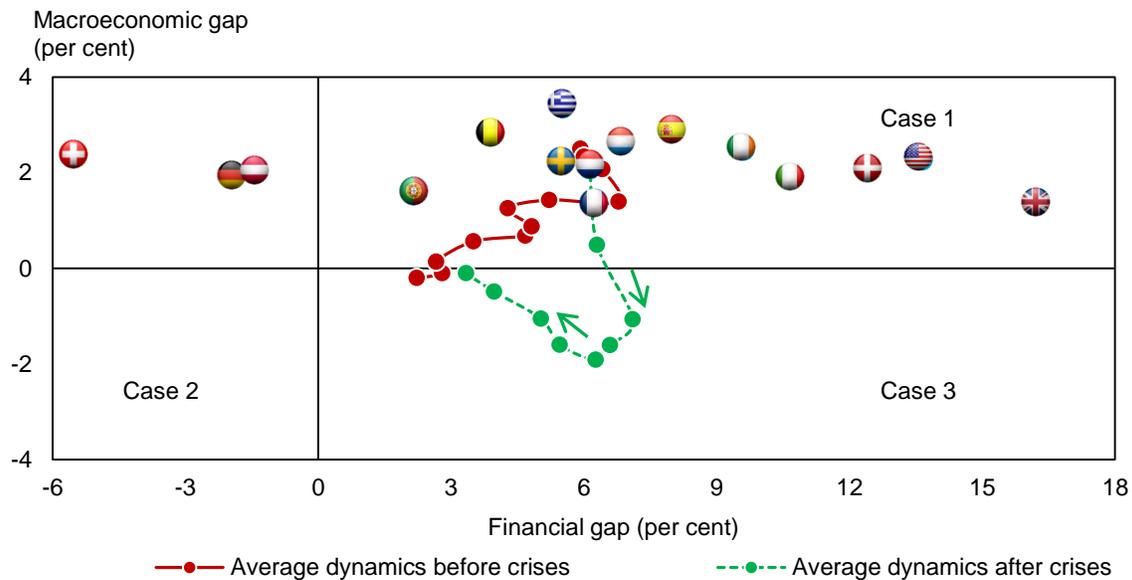
considerations point to tighter monetary policy. In retrospect, this appears to have been the case in many countries in the period leading up to the 2007–09 global financial crisis (**Chart 1**, see “Case 1”).

The chart shows estimates by the International Monetary Fund of output gaps and credit gaps during that period; while such estimates are obviously imprecise, they suggest that in most of those countries, inflation targeting and financial stability may have been complementary, rather than conflicting goals.

A second example is one in which the economy is in recession, or operating below potential, and the financial system is going through a phase of deleveraging and low asset prices (**Chart 1**, see “Case 2”). In this case, easing monetary policy is the right action for both inflation control and financial stability purposes. An example is the United States after the 2007–09 crisis: easy monetary policy cushioned the economy and also helped heal a broken financial system.

In both of these cases, there is no trade-off for monetary policy. There are other situations, however, where there could be tension between the two objectives. One is when the economy has been hit by a highly persistent adverse foreign demand shock—such as a recession in the economy of a major trading partner—while the domestic financial system is unimpaired (**Chart 1**, see “Case 3”).

Chart 1: Macroeconomic and financial imbalances increased before the global financial crisis

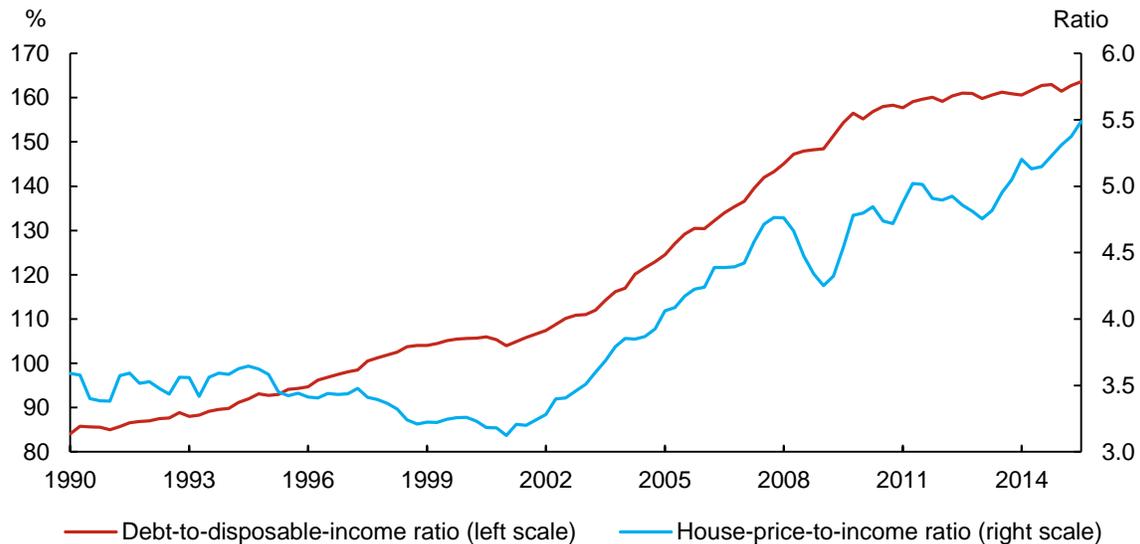


Note: Data for selected advanced economies that faced a banking crisis in 2007–08. Vertical axis shows economic gap, measured as average of estimated output gap and inflation deviation from target. Horizontal axis shows financial gap, measured as average of deviations in the credit-to-GDP ratio and real house prices from historical trends.
Sources: International Monetary Fund staff estimates. Based on presentation by Giovanni Dell'Ariccia at Bank of Korea-IMF conference on *Leverage in Asia*, December 2015.

In this case, inflation targeting calls for policy easing to support economic activity and return inflation sustainably to target. But that easing would also disproportionately affect domestic sectors that are highly sensitive to interest rates like housing and other consumer durable goods, encouraging the buildup of

financial vulnerabilities. This has been the situation in Canada for the past seven years, as reflected in increasing levels of household indebtedness and elevated house prices—although, as I’ll discuss later, regulatory measures have been used to mitigate the resulting financial system risks (**Chart 2**).³

Chart 2: Household debt and house prices are high relative to disposable income



Sources: Statistics Canada, Canadian Real Estate Association and Bank of Canada calculations

Last observation: 2015Q3

What Can Monetary Policy Do?

Given the situation in Canada, we have focused our research on the low-demand, high-debt scenario. Empirical research shows that a buildup of household debt in the economy makes a financial crisis more probable, so we wanted to understand the costs and benefits of leaning against financial imbalances through tighter monetary policy. Our researchers used several of the Bank’s economic models to examine these issues.⁴

On the benefits side, they estimated that increasing the Bank’s policy rate by 1 percentage point for one year would reduce real household debt by 2 per cent

³ There is now a growing body of academic research examining these issues. See, for instance: M. Woodford, "Inflation Targeting and Financial Stability," NBER Working Papers 17967, National Bureau of Economic Research, 2012; International Monetary Fund Staff Report, "Monetary Policy and Financial Stability," IMF, September 2015; M. Brunnermeier and Y. Sannikov, "Monetary Analysis: Price and Financial Stability," paper presented at the ECB Forum on Central Banking, May 2014.

⁴ The Macroprudential and Monetary Policy Model, the Terms-of-Trade Economic Model and the Large Empirical and Semi-structural Model. These models are described in detail in the following research documents: S. Alpanda, G. Cateau and C. Meh, "A Policy Model to Analyze Macroprudential Regulations and Monetary Policy," Staff Working Paper 2014-6, Bank of Canada, 2014; J. Dorich, M. Johnston, R. Mendes, S. Murchison and Y. Zhang, "ToTEM II: An Updated Version of the Bank of Canada’s Quarterly Projection Model," Technical Report No. 100, Bank of Canada, 2013; O. Gervais and M.-A. Gosselin, "Analyzing and Forecasting the Canadian Economy through the LENS Model," Technical Report No. 102, Bank of Canada, 2014.

over five years.⁵ Everything else being equal, less household debt reduces the vulnerability of the economy and the financial system; the results, however, suggest that this difference may be very small. On the cost side, the same increase in the policy rate might cut output by up to 1 per cent and push inflation down by 0.5 percentage point relative to what it would have been otherwise. While, like any empirical results, these findings are a product of the methodology used, it is noteworthy that they are consistent across standard models—and indeed, similar results have been found using broadly similar approaches in other countries.

These results suggest that, even though monetary policy could, in principle, be used to reduce vulnerabilities in the financial system, it may be too costly in practice. Interest rates affect all parts of the economy and are too blunt an instrument to address an imbalance in just one part of the economy—household credit. If you have a specific imbalance, you need a specific tool to address it.

The analysis relies on a number of assumptions about how monetary policy affects debt and how debt affects financial stability. The relationship between monetary policy and financial stability may depend on the specific economic conditions in which we find ourselves.⁶ Moreover, the processes resulting in financial cycles, with periods of unsustainable debt buildup, occasional crises and periods of deleveraging, are not well captured by standard models.⁷ We have more work to do before we can be fully confident about our conclusions.

Here, I would like to focus on one critical aspect of the discussion: that monetary policy can affect financial stability only through its effects on household debt, even though it affects a wide swath of the real economy. However, we also need to envisage a case where the effects of monetary policy on financial stability are not limited to one sector, as in the case we just saw, but spread across many different parts of the financial system. In that case, monetary policy's ability to get in all the cracks of the financial system—to paraphrase former Federal Reserve Governor Jeremy Stein—would give it a more powerful influence on financial stability.⁸

Another aspect to consider is that risks to financial stability have two elements: the underlying vulnerability and the trigger that could cause a risk to materialize. Both elements are part of our risk-management approach to monetary policy.

Over time, stimulative monetary policy may cause vulnerabilities to build up. That was part of our thinking in late 2013, when inflation was running persistently below target: we were concerned about the downside risks to inflation, but

⁵ These values are based on work by Goria, Kryvtsov and Takamura (forthcoming).

⁶ This issue is analyzed in more detail in Alpanda and Ueberfeldt (forthcoming).

⁷ Work is under way on models that capture some of these factors. See, for example, A. Auclert, "Monetary Policy and the Redistribution Channel," Princeton University, 2015.

⁸ J. Stein, "Overheating in Credit Markets: Origins, Measurement, and Policy Responses," (speech to a research symposium sponsored by the Federal Reserve Bank of St. Louis, St. Louis, Missouri, 7 February 2013). A similar conclusion flows from the analysis reviewed in J. Boivin, T. Lane and C. Meh, "Should Monetary Policy Be Used to Counteract Financial Imbalances?" *Bank of Canada Review* (Summer 2010): 23–36.

decided against easing policy further to avoid exacerbating growing household indebtedness and elevated house prices.

Failing to ease monetary policy in an economic downturn could, however, worsen the contraction and cause a crisis. This scenario was part of our thinking at the beginning of last year, when Canada's economy was hit by the collapse in oil prices and we cut our policy interest rate. Although we knew that lowering the policy rate could worsen vulnerabilities related to household debt, we also knew that it would counter the risk that growth would crater and lessen the probability that the oil price shock would trigger financial stability risks.

Two Tools—or Three?

This discussion suggests that any adaptation of monetary policy to financial stability objectives is, to say the least, far from straightforward.

Fortunately, monetary policy is not the only game in town. There are also macroprudential tools—regulatory measures that can be used to promote not just the safety of an individual financial institution, but also that of the entire financial system.

Macroprudential tools can be used in two ways. One is to foster a more resilient financial system on an ongoing basis. To give just one example, regulators can establish ceilings on mortgage loan-to-value ratios on an ongoing basis, so that any correction in housing prices is less likely to create stress for the financial system. With a more resilient system, all of the financial stability concerns I have been discussing become more manageable.

Authorities could also, in principle, adjust macroprudential tools to dampen financial cycles—tightening them when leverage is building up and risk taking is increasing, and easing those requirements when that cycle turns. For example, regulators can lower loan-to-value ratios in response to indications of rising household sector vulnerabilities. Another example is the countercyclical capital buffer introduced as part of the Basel III reform of bank capital requirements.

Such countercyclical measures are designed, in part, to weaken the feedback loop between asset prices and credit growth that can lead to the kind of financial excesses that set the stage for a crisis. The track record of countercyclical measures in leaning against a financial cycle is not yet nearly sufficient to form a definite view of their practical effectiveness, however.

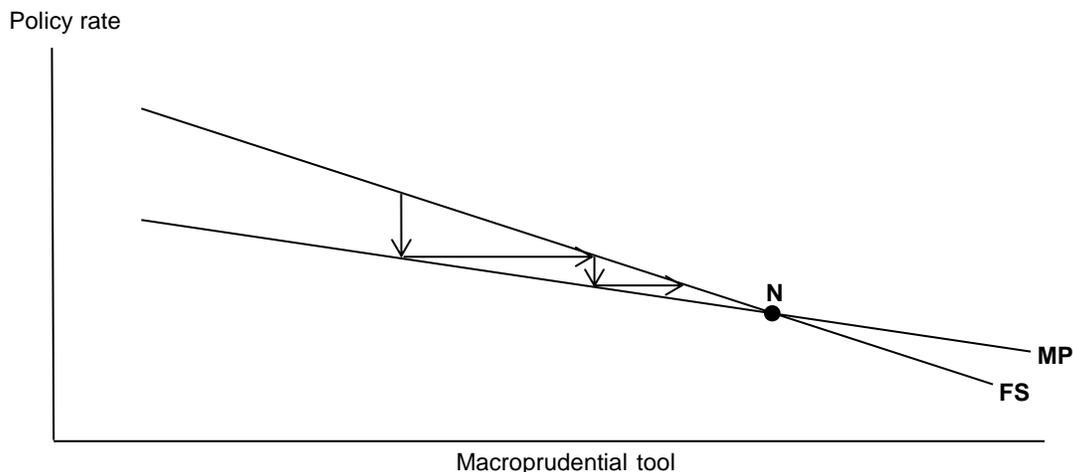
The changes in mortgage finance regulations that we have seen in the last eight years in Canada include a combination of these elements. When the government successively increased the required down payments and tightened other regulations, it was partly to reduce the taxpayer's longer-term exposure to the housing market and partly to restrain the ongoing buildup of financial system vulnerabilities associated with rising household indebtedness and housing prices.

If the effectiveness of macroprudential policies could be relied on, would that mean that monetary policy is off the hook, allowing the Bank to focus on its inflation target and leave macroprudential policies to take care of financial stability?

Perhaps, but not necessarily. There might be significant spillovers between monetary policy and macroprudential policies. When the government imposes tighter requirements on mortgage insurance, for example, it likely reduces demand for housing, which may, in turn, have a negative effect on growth and inflation. Household indebtedness may also affect the transmission mechanism of monetary policy, for instance, by influencing households' willingness to spend out of their disposable incomes. On the flip side, if prolonged low interest rates encourage people to take on more debt, financial stability concerns grow. So we need a better grasp of how monetary policy and macroprudential measures interact.

Even if such spillovers are important, a clear assignment of policies could be effective in achieving both objectives: monetary policy to target inflation, macroprudential measures to target financial stability. Each could operate independently, focusing only on its own objective.⁹ The resulting combination of policies—a Nash equilibrium—could both achieve the inflation target and ensure an acceptable degree of financial stability (**Chart 3**).

Chart 3: Independent monetary and macroprudential authorities reach a Nash equilibrium under certain conditions



Under certain conditions, as long as monetary policy has a larger effect on inflation than it does on financial stability risk and macroprudential policy has a larger effect on financial stability risk than it does on inflation, there would be no need, in theory, for the agencies responsible to coordinate their actions explicitly. They would need to share information with each other only so that each could use its own policy tool to account for the spillovers from the other policy on its own objective.

This might mean, for example, that the central bank would need to run a more stimulative policy than it would have otherwise to offset the effect of macroprudential policies, and the macroprudential authority would impose more

⁹ This argument is advanced, for example, in L. E. O. Svensson, “Monetary Policy and Macroprudential Policy: Different and Separate” (presentation to the Federal Reserve Bank of Boston’s 59th Economic Conference, Boston, Massachusetts, 2 October 2015).

stringent measures than it would have otherwise to counteract the leverage and risk taking generated by looser monetary policy. In the end, we could see an increase in the level of households' indebtedness without a significant deterioration in their creditworthiness. This has been the situation in Canada over the past few years.

This logic suggests that it is very important to have a public sector body with both the power and the paramount responsibility to use macroprudential tools to promote financial stability. This setup would leave monetary policy free to target inflation unfettered by possible financial stability concerns. The appropriate body might be a committee, as is currently the case in Canada, where the potentially relevant tools are shared among several public sector institutions.

However, even with an ideal set of institutional arrangements, there may be limits to how independently monetary policy and macroprudential policy can work. Regulatory measures designed to contain risk might, if carried to extremes, distort incentives to allocate resources to their most productive uses. For example, some financial institutions may reduce their lending to riskier but innovative companies. It is also possible that, mindful of such adverse consequences, regulators may refrain from going as far as would be needed to preserve financial stability. And that, in turn, could inhibit the central bank from providing sufficient policy easing to support the economy.

Thus, it is possible that, in a situation of sustained weak aggregate demand, relying primarily on monetary policy to provide stimulus may lead to financial vulnerabilities that macroprudential policy cannot, or should not, offset. In such circumstances, fiscal policy may be called upon to provide stimulus, particularly since it is likely to be more effective at low interest rates. Of course, fiscal policy also has its limits, since an excessive buildup of public debt can create its own problems for both the economy and the financial system. We saw that in Canada in the 1990s. But these costs need to be set against concerns that prolonged monetary policy stimulus may result in an excessive buildup of private sector vulnerabilities. These issues are relevant to the renewed discussion of fiscal policy that is now taking place in Canada.

Conclusion

Allow me to conclude.

During the years since the global financial crisis, we have been doing a lot of thinking and research to improve our understanding of the nexus between monetary policy and financial stability. This is a key question in this year's renewal of our inflation-control agreement.

We will need to continue to examine these issues in the period ahead. Indeed, research on the nexus between monetary policy and financial stability is an important element of the Bank of Canada's 2016–18 medium-term plan.¹⁰

¹⁰ *Central Banking for a New Era: The Bank of Canada's 2016–18 Medium-Term Plan.*

One thing is clear, though: monetary policy cannot take primary responsibility for maintaining financial stability. Other, prudential, tools are required to build a resilient financial system and, where needed, to address increasing vulnerabilities.

Questions remain, however, about the financial stability effects of monetary policy itself and what, if anything, should be done to address them. Some of these questions pertain to how aggressively a central bank should strive to return inflation sustainably to target in the face of other economic forces. When the economy is hit by a large and persistent adverse shock, should we accept greater downside risks to inflation to avoid exacerbating financial imbalances? Or indeed, given such imbalances, should we tighten policy less aggressively as the economy returns to potential to avoid triggering financial system risks?

For the foreseeable future, we are not likely to agree on a formula for addressing these issues. We are inevitably in the realm of judgment informed by the available evidence and analysis. That element of judgment in weighing financial stability considerations, including the implications of our own actions, is central to our risk-management approach to monetary policy.