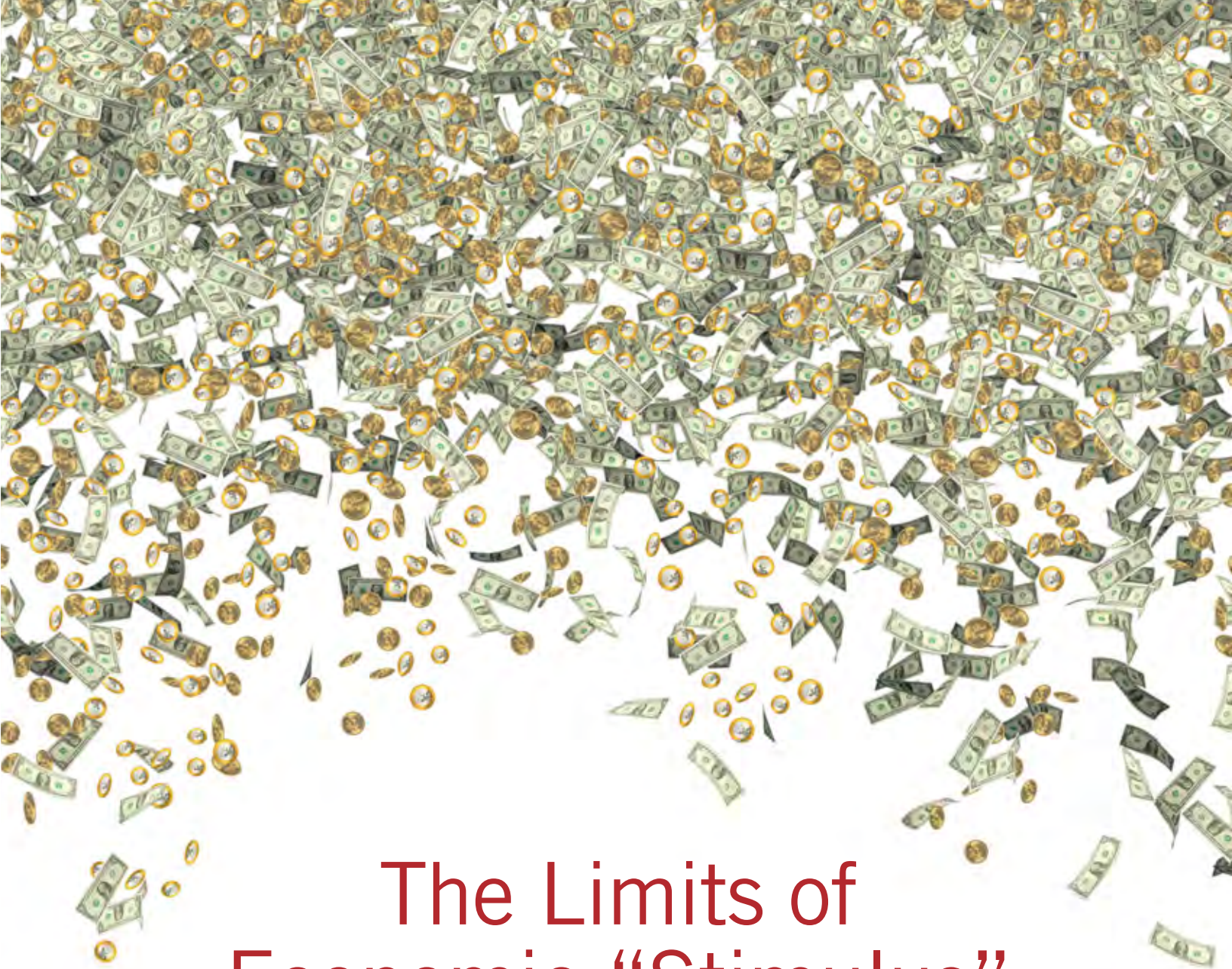

# The Limits of Economic "Stimulus"

## How monetary and fiscal policy have sown the seeds of the next crisis

Philip Cross

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# Executive Summary

## *"Tomorrow eventually becomes today"*

When the financial crisis in the US erupted in full force with the bankruptcy of Lehman Brothers in September 2008, it threatened to engulf the world in a depression. Almost all economic analysts agreed on the need to adopt extraordinary monetary and fiscal stimulus to pull global economies back from the brink.

However, few of those analysts imagined such stimulus would be maintained — and even augmented – nine years after the onset of the crisis. Increasingly, Western governments, including Canada, are using stimulative monetary and fiscal policies to address persistently slow growth. Most famously, Japan has adopted 15 fiscal stimulus packages since 1990, maintained zero interest rate policies for 15 years, and implemented nine rounds of quantitative easing, all without lasting benefit.

> *"These policies threaten to aggravate the global financial turmoil they were originally intended to address."*

A growing body of evidence suggests that the negative impact of deficit spending, ultra-low interest rates, and other short-term stimulative measures on long-term potential growth exceeds the short-term benefits, if these even exist any more. On the contrary, these policies threaten to aggravate the global financial turmoil they were originally designed to redress. As the Bank for International Settlements stated, "tomorrow eventually becomes today."

This paper argues that policy-makers should reverse this experiment of monetary and fiscal policies aimed at short-term stimulus. The cost to growth of this reversal in the short-term may be minimal since the stimulative impact of maintaining these policies has waned as interest rates approached the zero bound and as government debt accumulated. Continuing on the present course will sow the seeds of the next crisis while depriving policy-makers of the tools they used in 2008 with which to stave off another financial crisis.

## Monetary policy

Almost all central banks in the developed world are maintaining interest rates near or below the zero bound. However, extraordinary monetary stimulus has not jump-started a strong recovery. For all advanced economies, real GDP growth averaged 2.9 percent from 2005/2007. Since then, it has averaged 0.9 percent, including 1.7 percent for the last four years. The eurozone has been particularly weak, with growth averaging just 0.3 percent in that time.

Low interest rates allowed some firms to stay in business that should have disappeared, while the launch of new businesses fell behind. In Canada, the latter fell from a high of 15.3 percent of all firms in 2004 to 13.2 percent in 2010, and has since dipped below 13 percent.

Low interest rates also depress savings and therefore investment. Before the 2007 financial crisis, Canada's national saving rate was consistently above 10 percent. After plunging to near 3 percent in 2009, it has since remained low, including a drop to 4 percent in 2015. Business investment remains below its pre-recession level throughout the G7, partly because firms anticipate that short-term stimulus will be at the expense of future growth.

## Fiscal policy

A decade of recession and slow growth has resulted in sharply-increasing government debt throughout the advanced market economies. Deficits were the product of economic circumstances and also of the political environment; we live in an age where crude Keynesians point

to stagnant growth to justify more government spending, while crude supply-siders advocate tax cuts to stimulate the economy. Both create large government deficits, and neither recognizes any limits to the capacity of governments to borrow.

Canada is often perceived as having the healthiest public debt position of the G7 nations. However, this ignores the growing indebtedness of the provinces. So while the ratio of federal debt-to-GDP is low for a G7 nation, the ratio of all government debt to GDP in Canada is only 10–13 percentage points below the levels in the US, the UK, and the euro area.

## Deepening recessions trigger the next cycle

Recessions often have their origins in policies adopted to fight the previous downturn. The marked easing of monetary policy after the 1987 stock market crash helped fuel the subsequent burst of inflation that ended with the 1990/1991 recession. Keeping US interest rates low in the 1990s laid the groundwork for the Asian financial crisis by encouraging capital flows to Asian countries in search of higher returns. The sudden reversal of these capital flows in 1997 triggered sharp devaluations, much higher interest rates, and recession throughout Southeast Asia.

Subsequent cuts to US interest rates in 1998 to fight the fall-out from the Asian crisis have been described as marking "the transition from the boom stage of the speculative bubble to euphoria" in North American stock markets. The memory of steep capital losses in investments in Asia in the late 1990s and then in the US stock market in 2001 pushed Asian investors to seek the apparent security of US debt instruments that helped to fuel the bubble in the US housing market. Dealing with the fall-out of the 2007/2008 crisis resulted in nearly a decade of unprecedented monetary stimulus, the long-term consequences of which are unknown but likely to destabilize the global financial system.

The long run is not just the sum of a series of short runs, but a place of its own into which Western economies seem to have taken up residence, living with the negative long-term consequences of policies designed to be stimulative in the short term. In the words of American novelist William Faulkner, "The past is never dead. It's not even past."

> *"The long run is not just a series of short runs."*

The economics profession has failed to communicate that its knowledge of business cycles is embryonic not encyclopedic. Since financial crises cannot be forecast, this implies a need to keep a reserve of potential monetary and fiscal responses. Currently, advanced economies are not doing so, leaving them unusually vulnerable to another economic or financial shock. That shock will probably originate in the distortions introduced by the past decade of extraordinary monetary and fiscal policies.

# Sommaire

## *« Lorsque demain finit par arriver »*

Avec la faillite de Lehman Brothers en septembre 2008, la crise financière atteignait sa pleine ampleur aux États-Unis et menaçait de plonger le monde dans une dépression. Presque tous les analystes économiques se mirent d'accord sur la nécessité d'adopter des mesures de relance budgétaire et monétaire extraordinaires pour empêcher l'effondrement de l'économie mondiale.

Cependant, la plupart de ces analystes ne s'attendaient pas à ce que ces mesures soient maintenues – et même bonifiées – neuf ans après l'apparition de la crise. De façon croissante, les gouvernements occidentaux, dont le Canada, adoptent des politiques monétaires et fiscales

expansionnistes pour remédier à la faiblesse endémique des taux de croissance. Le cas le plus célèbre est celui du Japon, qui a adopté 15 programmes de relance budgétaire depuis 1990, maintenu sa politique de taux d'intérêt zéro pendant 15 ans et lancé neuf rondes d'assouplissement quantitatif, le tout sans bénéfice durable.

Un nombre croissant d'éléments suggère que les répercussions négatives des déficits budgétaires, des taux d'intérêt extrêmement bas et des autres mesures de relance à court terme sur le potentiel de croissance à long terme excèdent les bienfaits à court terme – si bienfaits à court terme il y a encore à l'heure actuelle. En fait, ces politiques menaceraient d'aggraver les turbulences financières mondiales qu'elles étaient censées apaiser initialement. Comme l'a souligné la Banque des règlements internationaux, « lorsque demain finit par arriver ».

On soutient dans cette étude que les décideurs politiques doivent inverser cette expérience de mise en œuvre de politiques monétaires et fiscales expansionnistes à court terme. D'autant plus qu'à court terme, le coût de ce mouvement à rebours serait sans doute minime, le maintien de ces politiques expansionnistes ayant donné de moins en moins de résultats à mesure que les taux d'intérêt se sont approchés de la barre du zéro et que les gouvernements ont accumulé un lourd endettement. Continuer sur la voie actuelle ne fera que semer les germes de la prochaine crise tout en privant les décideurs des outils utilisés en 2008 pour éviter une autre crise financière.

## La politique monétaire

Presque toutes les banques centrales des pays développés maintiennent leurs taux d'intérêts tout près ou sous la barre du zéro. Cependant, la stimulation monétaire extraordinaire n'est pas arrivée à imprimer un fort élan à la reprise. Alors que de 2005 à 2007, la croissance réelle du PIB a été en moyenne de 2,9 pour cent dans les économies avancées, elle s'est chiffrée à 0,9 depuis. Cela comprend une croissance de 1,7 pour cent au cours des quatre dernières années, croissance tirée vers le bas par la zone euro, où elle a été de 0,3 pour cent.

Certaines entreprises auraient probablement disparu n'eut été les faibles taux d'intérêt, tandis le nombre d'entreprise en démarrage a baissé. Au Canada, les entreprises nouvellement créées en pourcentage des entreprises existantes sont passées d'un taux record de 15,3 pour cent en 2004 à 13,2 pour cent en 2010, puis sous la barre de 13 pour cent.

Les faibles taux d'intérêt réduisent également l'épargne et par conséquent, l'investissement. Avant la crise financière de 2007, le taux d'épargne national au Canada a constamment excédé 10 pour cent. Il a chuté subséquemment et est demeuré faible depuis, enregistrant deux creux successifs, le premier en 2009, à près de 3 pour cent, et le deuxième en 2015, à 4 pour cent. L'investissement des entreprises n'a pas retrouvé son niveau d'avant la récession dans l'ensemble des pays du G7, en partie parce que les entreprises s'attendent à ce que la stimulation à court terme soit obtenue aux dépens de la croissance à venir.

## La politique fiscale

Une décennie de récession et de croissance lente a considérablement creusé l'endettement public dans toutes les économies avancées. Les déficits ont trouvé leur origine dans la conjoncture, mais aussi dans l'environnement politique; nous vivons à une époque où les partisans de l'approche simpliste keynésienne invoquent le niveau durablement bas de la croissance pour justifier l'accroissement des dépenses gouvernementales, tandis que les partisans de l'économie de l'offre préconisent le recours aux réductions d'impôt pour stimuler l'économie. Les deux approches creusent d'importants déficits budgétaires, et ni l'une ni l'autre ne tient compte de la limite à la capacité d'emprunt des gouvernements.

Le Canada est souvent perçu comme disposant de la meilleure position budgétaire des pays du G7. Cependant, cette perception ne tient pas compte de l'endettement croissant des provinces. Ainsi, tandis que le ratio de la dette fédérale au PIB est peu élevé pour un pays du G7, le ratio de la dette publique totale au PIB n'est que de 10 à 13 points de pourcentage en-dessous des niveaux enregistrés aux États Unis, au Royaume-Uni et dans la zone euro.

## Les récessions profondes induisent le cycle suivant

Les récessions trouvent souvent leur origine dans les politiques adoptées pour lutter contre la récession précédente. Ainsi, l'assouplissement de la politique monétaire après le krach boursier de 1987 a contribué à alimenter la montée de l'inflation qui a suivi et s'est terminée avec la récession de 1990/1991. Puis, le maintien des faibles taux d'intérêt aux États-Unis dans les années 1990 a jeté les bases de la crise financière asiatique en favorisant les sorties de capitaux vers l'Asie où les rendements étaient plus élevés. L'inversion soudaine de ces flux de capitaux en 1997 a déclenché de fortes dévaluations, une envolée des taux d'intérêt et la récession partout en Asie du Sud-Est.

*"Le long terme n'est pas uniquement une série de courts termes mis bout à bout."*

L'abaissement subséquent des taux d'intérêt aux États-Unis en 1998 pour contrer les effets de la crise asiatique a été, de l'avis de plusieurs, l'événement ayant marqué le « passage entre la formation de la bulle financière et l'euphorie » sur les marchés boursiers nord-américains. Le souvenir des fortes pertes de capital d'investissement en Asie à la fin des années 1990, puis sur le marché boursier aux États-Unis en 2001 ont incité les investisseurs asiatiques à miser sur la sécurité apparente des titres de dette américaine, ce qui a du même coup contribué à alimenter la bulle immobilière dans ce pays. La gestion des retombées de la crise de 2007/2008 a donné lieu à près d'une décennie de stimulation monétaire sans précédent dont les répercussions à long terme sont inconnues, mais risquent fort de déstabiliser le système financier mondial.

Le long terme n'est pas uniquement une série de courts termes mis bout à bout, mais une construction indépendante à l'intérieur de laquelle les économies occidentales semblent séjourner, elles qui subissent actuellement les conséquences négatives à long terme des politiques expansionnistes conçues pour être efficaces à court terme. Pour reprendre les mots de l'écrivain américain William Faulkner, « Le passé n'est pas mort, il n'est même pas passé ».

Les économistes ont omis de nous dire que leurs connaissances des cycles économiques sont davantage embryonnaires qu'encyclopédiques. L'impossibilité de prévoir les crises financières signifie qu'il est primordial de conserver une marge de manœuvre monétaire et budgétaire. En ce moment, les économies avancées ne disposent pas d'une marge suffisante, ce qui les rend particulièrement vulnérables à un nouveau choc économique ou financier. Ce choc émanera probablement des distorsions causées par une décennie entière de mesures monétaires et fiscales extraordinaires.

# Introduction

The financial crisis surfaced in August 2007 when BNP Paribas closed two hedge funds invested in US mortgages, and erupted in full force with the bankruptcy of Lehman Brothers on September 15, 2008. According to the International Monetary Fund, it triggered the fourth global recession since the Second World War, and the first where GDP fell outright (Kose and Terrones 2016). A depression was likely averted only by applying extraordinary amounts and forms of monetary and fiscal stimulus. However, nearly a decade later, many advanced market economies are still running large fiscal deficits and implementing emergency-level monetary stimulus.

Almost all economic analysts agreed on the need to adopt extraordinary monetary and fiscal stimulus at the worst of the recession in 2008/2009. However, few imagined such stimulus would be maintained – and even augmented – nine years later (and seven years after the financial crisis ended in North America). A growing number of analysts and organizations, including the Bank

for International Settlements (BIS), are critical of maintaining such stimulative fiscal and monetary policies for an extended time. This paper reviews and synthesizes these concerns about macroeconomic policy. These reservations centre on whether the negative impact of stimulative policies on long-term potential growth exceeds their short-term benefits, whether the short-term benefits even exist any more, and whether the risks they cultivate in the global financial system threaten to aggravate the turmoil they were originally designed to redress.

> *"A depression was likely averted only by applying extraordinary amounts and forms of monetary and fiscal stimulus."*

## The long and the short of macroeconomic policy

Two types of macroeconomic policy are deployed at any one time: cyclical and structural. Structural policies are those associated with boosting the economy's long-term potential growth rate. These include matters such as international and domestic trade, the structure of taxes and transfers, labour markets, competition, and the formation of human and physical capital. A notable exclusion from this list is monetary policy, which can do little to boost long-term potential growth other than to keep inflation low so that the price system gives the proper signals for the allocation of capital and labour.

The second set of policies concerns the cyclical state of the economy, and attempts to mitigate the effects of the business cycle; that is, dampening growth to contain inflation when the economy is approaching its potential limits, stimulating growth when the economy slows down, and exercising prudential restraint on financial market conditions. Fiscal policy reflects the balance between government spending and revenues, while monetary policy reflects the implementation of interest rates and monetary growth by the central bank either according to prescribed rules or at the discretion of policy-makers.

These two types of policies are often in opposition to each other. Containing inflation involves slower growth in the short term, which is tolerated because lower inflation boosts the long-term potential growth of the economy.[1] Policies designed to stimulate the economy in the short term, such as deficit spending, may dampen long-term potential growth by lowering business investment or the perceived need to implement structural reforms. Policy makers often accept that trade-off because the harmful social and economic effects of a recession are worth minimizing even at the cost of somewhat lower growth in the longer term.

Conversely, policies that boost long-term growth potential often dampen growth in the short term. These include moves to increase labour market efficiency or liberalize trade that may involve transitory job losses. This is one reason why many European governments have been slow to adopt structural reforms at a time of chronic slow growth. In the words of Robert Shiller, "We must therefore consider the short run and the long run separately, and the policy responses to the two are very different" (Shiller 2008, 85). As William White, former chief economist at the BIS, observes "The long run was not just a series of short runs" (White 2006, 1). The dynamics of growth in the long run are different and often the opposite of the determinants of growth in the short run.

Because of their harm to long-term potential growth, counter-cyclical policies should only be implemented for short periods, primarily during the depths of the recession. Policies designed to stimulate the economy, such as ultra-low interest rates, quantitative easing or deficit spending throughout the business cycle, are harmful for the long-term trend of growth. They are considered extraordinary medicine only to be administered when the economy is faltering and needs stimulus. They were not meant to address persistently slow growth, which is what they are increasingly being asked to do in the world's advanced economies.

Chronically slow growth reflects structural forces, notably low productivity gains, which can only be addressed by structural reforms, not by short-term stimulus from monetary or fiscal policy. Most macroeconomic stimulus policies inhibit productivity growth. At worst, they encourage excessive debt growth that results in unstable financial conditions and a prolonged and severe slump in the economy. This is over and above concerns articulated by economists such as Robert Gordon that productivity growth will continue to be weak because the era of great innovations ended in the 1970s (Gordon 2016).

> *"Most macroeconomic stimulus policies inhibit productivity growth."*

Since the financial crisis erupted in 2007, triggering the economic crisis of 2008, policy makers around the world have applied unprecedented fiscal and monetary stimulus to end the recession and support the recovery. Most famously, Japan has adopted 15 fiscal stimulus packages since 1990, maintained zero interest-rate policies for 15 years, and implemented nine rounds of quantitative easing, all without lasting benefit (Das 2016, 87). The main argument of this paper is that the damage to long-term potential growth from nearly a decade of extraordinary measures to boost growth in the short-term has outweighed the benefits for some time. They have failed to return growth in the advanced market economies to normal rates, and have reduced the long-term potential growth rate enough that policy makers should reverse this experiment, even at the risk of less growth in the short term.

The cost to growth in the short term may be minimal since the stimulative impact of maintaining these policies has waned as interest rates approached the zero bound and government debts accumulated.[2] The constant stimulus applied to most advanced economies may even plunge the global economy back into recession by increasing the financial system's exposure to risk, either through asset price bubbles or by destabilizing international capital flows (such as seen in Asia before the 1997 crisis or within Europe before 2010).

Most stimulus involves shifting the timing of spending from the future to the present or encourages risky investments that may sour in the long run. Advancing the timing of purchases is most obvious for monetary policy, where lower interest rates induce people to spend more on big-ticket items (such as houses and autos) today instead of next year or the year after. Fiscal policy operates in a similar manner, although with a longer time horizon, as governments choose to spend today instead of at some future date, since there is a limit on the size of the government in our economy or an upper bound to the amount government can borrow. Firms understand that the stimulus to growth today from shifting spending forward means that demand will be slower in the future, reducing their incentive to invest. Indeed, chronic weak business investment has been a defining characteristic of the economies of almost all the advanced nations.

There is a growing consensus that deficit-financed government spending today comes at the cost of less spending or higher taxes in the future. As Scarth notes, "Running a deficit budget during a downturn may well decrease the size of that initial recession. But over time the government debt must be worked back down, so the overall speed of adjustment of the economy is reduced. The initial recession is smaller, but the recovery takes longer" (Scarth 2004, 259). In summarizing a conference of academics on debt, Ragan and Watson conclude that "Government debt is costly and harms future generations" (Ragan and Watson 2004, 42) although this was written before the current period of ultra-low interest rates. Phelps notes that deficits over a long period "ultimately threaten increased costs of credit and depressed valuations of business assets, and are thus bad for innovation and investment" (Phelps 2013, 319). The trade-off between more short-term stimulus and less long-term growth exacerbates the

reduction of potential output growth during recessionary periods, on top of the lower business investment and the erosion of human capital that recessions cause.[3]

The trade-off between short-term stimulus and long-term costs can extend over very long periods when malinvestments (literally, bad investments) are involved. Throughout the 1990s in Canada, a low exchange rate encouraged the expansion of manufacturing, notably in the lowest-paying sectors, such as clothing, textiles and furniture. However, after the Canadian dollar began appreciating and China joined the World Trade Organization (which lowered the tariffs for its exports), Canadian manufacturing underwent a painful restructuring, with the lowest-paying sectors virtually disappearing. All the apparent stimulus of more jobs and investment in low-paying factory jobs was ultimately revealed to be a misallocation of resources (Cross 2015). While total manufacturing output continued to grow slowly, the restructuring within manufacturing dampened overall potential growth, with total factor productivity in manufacturing falling after 2000 as the capital stock shrank.

Beyond damaging long-term potential growth, there are reasons to believe monetary and fiscal policies are exhausting their ability to stimulate growth in the short run. These diminishing returns partly reflect that, after years of stimulus, less spending is available to shift from the future to the present. As the BIS observes, "tomorrow eventually becomes today" (BIS 2016, 14).

*"As well, monetary and fiscal policy are reaching the absolute limits of possible stimulus."*

As well, monetary and fiscal policy are reaching the absolute limits of possible stimulus: interest rates in North America, Europe and Japan already are near or below the zero bound, while the capacity to increase government debt is reaching the limits of governments' willingness to borrow or the tolerance of financial markets to fund more debt. Should another recession occur in the near future, governments may not be able to raise debt as rapidly as in 2008/2009.

Most importantly, years of ultra-low interest rates have undermined financial stability which "at some point, will cause serious economic damage" (BIS 2016, 18). Financial markets have demonstrated a proclivity to volatility, going back to the taper tantrum in 2013 when the Fed first raised the prospects of tighter monetary policy through to the Greek banking crisis and Chinese stock market swoon in July 2015 and to repeated sell-offs of European bank stocks in 2016. These recurring episodes of sharp declines suggest investors have little confidence in the underlying value of some of their investments; instead, they appear motivated by the search for yield in a world where returns on fixed income investments are paltry.

There are clear implications of this line of analysis for the "new normal" thesis of why the Western world is mired in an era of slow growth. The secular stagnation hypothesis articulated by economists such as Larry Summers argues that growth is weighed down by weak demand and the aging of the population. The BIS holds an alternative view: that it reflects the dulling impact of monetary and fiscal policies adopted in response to the 2008 crisis and since amplified as the recovery sputtered. As the years have passed, these economic chickens have come home to roost in the form of structurally lower potential growth. Worse, the possible formation of bubbles in several asset markets raises the possibility of another financial crisis, for which policy-makers will have much fewer tools than in 2008.

This paper provides a brief overview of the 2008/2009 recession in North America and the macroeconomic policy response. It then examines more closely why monetary and fiscal policy did not have a more stimulative impact, and why this stimulus is waning. More worrisome is that these policies are slowing long-term potential growth while creating the conditions for another bout of turmoil in the global financial

system to which policy-makers would have few options to respond.

> *"As the years have passed, these economic chickens have come home to roost in the form of structurally lower potential growth."*

## A brief overview of the 2008/2009 recession and financial crises

Most accounts date the onset of the financial crisis to August 2007, when BNP Paribas closed two hedge funds invested in US mortgages.[4] According to the National Bureau of Economic Research, the US entered a recession in January 2008. The downturn was comparatively mild at first, although the March 2008 collapse of the Bear Stearns investment bank revealed the underlying fragility of many large financial institutions. The Federal Reserve Board arranged its sale to JP Morgan Chase by capping the potential losses.

Further interest rate cuts and a $100 billion tax cut helped brake the slide of the US economy over the spring and summer. However, the US government placed Fannie Mae and Freddie Mac in receivership in late summer, signalling a marked worsening of credit and financial market conditions. The financial crisis erupted in full force with the bankruptcy of Lehman Brothers on September 15, leading to a series of runs on banks and the shutdown of key financial markets around the world that fall. The economy quickly went into free-fall, leading to the sharpest contraction of GDP and employment since the 1930s despite massive monetary and fiscal stimulus. The recession was less severe in Canada, partly because its financial system was largely unscathed.[5]

The crises in the US and European banking systems in 2008 due to exposure to bad US mortgage debt and the European sovereign debt crisis in 2010 both meet Goldsmith's definition of a financial crisis as "A sharp, brief, ultracyclical deterioration of all or most of a group of financial indicators – short-term interest rates, asset (stock, real estate, bond) prices, commercial insolvencies and failures of financial institutions."[6] Investors no longer wanted to hold debt instruments at anywhere near their previous prices. Mark Carney, then Governor of the Bank of Canada, called this "an overdue repricing of risk," which substantially lowered the price of these assets.[7] Ironically, he delivered these remarks the day before the Bear Stearns investment bank collapsed, marking the shift in the crisis from a question of liquidity to one of insolvency.

Central bankers encourage the view that markets had mispriced the risk, as this alleviates them of that responsibility by keeping interest rates too low and not properly regulating underwriting standards (Acharya 2009, 13). Risk had certainly been mispriced before the crisis. The interest rate spread between the safest government bonds and riskier assets (such as mortgage securities or bonds issued by southern periphery members of the EU) had become miniscule.[8]

However, the crisis morphed from a mispricing of risk into uncertainty about the solvency of financial institutions and ultimately of sovereign governments. Widespread losses in the financial system triggered a classic panic as investors redeemed their investments (in the case of US money market funds in September 2008) or stopped investing altogether (as occurred for the US commercial paper market in 2008 or sovereign debt for some EU nations in 2010).[9] Interest rates increased sharply for some borrowers as investors became concerned about the solvency of banks in 2008 and sovereign countries in Europe in 2010.

The financial crisis led directly to a steep global recession in 2008, from which North America emerged slowly in 2009. However, Japan and Europe remained mired in recurring recessions into 2014. This continues a trend in recent decades that recessions are increasingly correlated with the financial cycle in the economy and therefore more severe than recessions before 1981. Recessions between 1945/1980 were more frequent but usually less severe since they rarely involved the financial sector (the 1974/1975 recession in the US was a notable exception) (Cross 2012, 13). Many of these short, mild re-

cessions were due to corrections to inventory levels, and the needed adjustment to production was accomplished quickly and did not require extensive cuts to labour inputs beyond a shorter work week (Filardo 1995).

Since 1980, recessions have become less frequent, averaging about one a decade, but more severe and prolonged as they are often intertwined with crises in the financial sector. Part of the eradication of short, mild cycles reflects better production smoothing by manufacturers (McCarthy 2002, 22). As well, lower inflation and explicit inflation targets by central banks helped avoid the excessive build-up of inflationary pressures (at least in conventional measures such as the Consumer Price Index) and the need for punishingly high interest rates to curb high inflation. Eliminating short, mild recessions means the only ones that now occur are unavoidable and almost invariably emanate from a financial crisis (usually outside Canada). Indeed, to the that degree monetary policy swings to stimulus to stave off mild and severe recessions, it risks aggravating the financial cycle by encouraging markets to underestimate risk.

## The policy response to the recession

Policy-makers reacted to the recession starting in 2008 with extraordinary monetary and fiscal measures. In particular, they slashed interest rates to record low levels and ran fiscal deficits of over 10 percent of GDP (in Japan, the UK and the US) and at least 5 percent in most other major industrial countries. In the UK and the US, as a share of GDP, these deficits equalled those posted during major wars (Wolf 2014, 30), and included the cost of bailouts to some of their largest financial firms. In the US, of the 25 largest financial institutions at the start of 2008, 13 failed, were bailed out by government, merged or transformed their business structure to avoid failure.[10]

The International Monetary Fund estimates that these bailouts were the equivalent of 3.2 percent of GDP in the US and 5.7 percent in the UK (Ireland cost the most at 38.5 percent of its GDP. No banks in Canada were bailed out.) (International Monetary Fund 2012). Turner estimates the total cost of bailouts in OECD countries was 3 percent of GDP (Turner 2016, 3). Still, the recession and weak recovery played the most havoc with public finances, not rescuing the banking and financial systems.

Beyond conventional monetary and fiscal policies, countries adopted numerous unconventional policies. These included providing liquidity, guaranteeing a wide range of financial transactions and instruments, lending or injecting capital into large financial institutions, and stress-testing banks to restore public confidence (Mishkin 2011, 59). Altogether, governments and central banks in 20 countries provided $10 trillion of capital injections and debt guarantees to banks.[11]

*“Beyond conventional monetary and fiscal policies, countries adopted numerous unconventional policies.”*

As the recovery languished, monetary policy shifted to other unconventional tools, such as the extraordinary size of quantitative easing and forward guidance. Quantitative easing involves changes to the size or the composition of central bank balance sheets, with a view to altering interest rate spreads.[12] A spread is the difference between the yield on a security and the yield on an equivalent riskless security, with the spread reflecting compensation for the risk the investor accepts.[13] As former Fed Governor Alan Blinder notes, monetary policy operates on the assumption of “constant risk spreads” (Blinder 2012, 239). Just as the spreads between safe and risky assets had become too narrow before the crisis, after the crisis they were judged by central banks to be too wide. Quantitative easing is one tactic to reduce these spreads.

The next two major parts of this paper review in more detail the response of monetary and fiscal policy to the recession, and the reasons why maintaining stimulus did not spark a stronger recovery and why such policies risk being counter-productive by reducing long-term potential

growth. Monetary and fiscal policy cannot always be easily separated; the banking crisis in many countries resulted in large government deficits. In turn, holding sovereign debt puts banks in southern Europe at risk, curtails credit creation and encourages governments to issue more debt.

PART I

# Monetary Policy: The Great Experiment

It is appropriate to start with monetary policy because its response to the crisis was more unprecedented and innovative than that of fiscal policy. While large deficits have resulted from severe recessions or major wars, never before have central banks cut interest rates so low and expanded their balance sheets so much.

Almost all central banks in the developed world are maintaining interest rates near or below zero. Interest rates already are under downward pressure from demographic forces (an aging population saves and accumulates wealth more), and technological innovations and globalization that reduce inflation. However, the actions of central banks have reinforced the reduction of interest rates. Arguably, the most striking recent development in financial markets has been the explosion in government bonds with negative yields, from virtually nothing in 2014 to over US$7.5 trillion by 2016 (BIS 2016, 31).

Asset purchases announced and implemented in 2015 by the European Central Bank encouraged bond yields to reach historic lows (Bank of International Settlements 2015, 33), reinforced by a flight to safety during the July 2015 Greek banking crisis. Even some corporate debt has negative yields; Bank of America Merrill Lynch calculates that about US$71 billion of European corporate debt traded at negative yields in 2015 as investors sought the safety of companies such as Nestlé, a Swiss-based food group (The Economist, 2016). The only major exception to lower interest rates was the US Federal Reserve Board, which raised its interest rate for the first time in nine years in December 2015. This fuelled an inflow of capital to the US that began when the Fed first signalled a bias to tightening (triggering the so-called taper tantrum in bond markets in June 2013).

Meanwhile, the Federal Reserve Board, the European Central Bank and the Bank of Japan all vastly expanded their balance sheets as they shifted their focus to quantitative easing.[14] Since the onset of the crisis in 2008, the Fed's assets have risen from US$0.8 trillion to $4.5 trillion; the European Central Bank's from $2.0 trillion to $3.2 trillion, and the Bank of Japan's from $1.0 trillion to $3.5 trillion.

Ultra-low or even negative[15] interest rates, quantitative easing and forward guidance function by distorting markets. The distortions are increasing. The latter two policies aim to flatten the yield curve by lowering long-term interest rates. All these policies are designed to encourage more investment in higher-risk sectors. The result is an increasing amount of risk in the global financial system.

Low interest rates have encouraged large inflows into assets such as equities (and, it seems, housing in some countries) as investors search for yield. As a result, the price-to-earnings ratio for global stocks reached 16 in 2015, surpassing its high of 15 in 2007 (BIS 2015, 27). The BIS reports other symptoms of increased risk-taking, including a move into riskier leveraged loans, junk bonds and corporate bonds in emerging nations (BIS 2015, 27). Much of this debt was issued on the assumption that China would continue to import natural resources at a rapid clip.

The commodity price collapse starting in 2014 (aided by the upturn in the US dollar, which lowers the price of resources traded in US dollars) increases the risk attached to corporate bonds in nations that depend on resources, notably in Latin America and the Middle East.[16] This puts lenders at risk, especially those who extended $3 trillion of US dollar credit to non-banks in emerging markets (double its level in

2009) (BIS 2015, 10) since borrowers must repay with more costly US dollars.

Why do central banks keep interest rates so low despite the risk they pose to financial stability and long-term growth potential? According to the BIS, central banks over-rely on traditional measures of the output gap and inflation as guides to the appropriate level of stimulus (BIS 2015, 18). With economies continuing to operate below their potential and with inflation low, the signal central banks interpret is that the real economy is weak and needs ongoing stimulus. The BIS argues that this approach puts too little emphasis on financial market conditions. In its view, the sharp run-up in prices for bonds, equities and real estate are symptomatic of inflation originating in excessive monetary stimulus, even if conventional measures of inflation, such as the Consumer Price Index, remain muted.

*"Central banks continue to use a discretionary rather than a rules-based approach to policy-making."*

A similar divergence between low inflation in the real economy and soaring financial asset prices occurred in the years leading up to 2007. Central banks misinterpreted this shift in relative prices, believing that prices were stable. Even though central banks ignored it, the relative price signal was strong enough for investors to divert significant resources to less productive investments such as the US housing market or government debt in southern Europe.

Compounding the bias to keeping interest rates artificially low is a possible misdiagnosis of the underlying trend of inflation and drawing the wrong policy implications. Central banks interpret inflation below their target rate (usually 2 percent) as evidence of a weak economy that requires stimulus. But if we are in an era of transformative change due to globalization and technological change that are increasing aggregate supply (Greenspan 2007), then the underlying trend for prices is benign deflation (benign because it reflects increased supply not a deficiency of demand). Trying to lift prices to the inflation target of 2 percent requires massive stimulus to aggregate demand, helping to create bubbles in asset prices. If central banks accepted that benign deflation was the underlying course for prices, they would not be so anxious to lower rates to boost demand.

Central banks continue to use a discretionary rather than a rules-based approach to policy-making. They set interest rates based on judgments about the output gap and inflationary pressures, rather than use mechanical rules, like the Taylor Rule, that would produce higher interest rates (just as they would have before 2007).[17] If the rules-based approach had led to the financial bubbles and subsequent economic crises that engulfed North America in 2008 and Europe in 2010, it would be discredited. However, the discretionary approach suffered no apparent loss of credibility with policy-makers despite holding rates too low for too long, both before the tech bubble peaked in 2000 and the US housing bubble in 2007.

Another constraint on tightening monetary policy is the difficulty of raising government debt in many countries after years of heavy borrowing in the aftermath of the recession and banking crises (this is discussed more in Section 2). The result is that "ultra-loose monetary policy thus seems simultaneously both dangerous and essential" (Turner 2016, 218).

## Low interest rates failed to stimulate rapid short-term growth

Real GDP growth remains sub-par in the recovery compared with its pre-recession rates and especially in light of what was expected after the extraordinary dose of monetary and fiscal stimulus. For all advanced economies, real GDP growth averaged 2.9 percent from 2005/2007. Since then, it has averaged 0.9 percent, including 1.7 percent for the last four years (2010/2015). The eurozone has been particularly weak, with growth before the recession averaging 2.6 percent but just 0.3 percent over the last four years (2010/2015) (In-

ternational Monetary Fund, 2015). Growth in Japan has been as abysmal, averaging 0.6 percent since 2009.

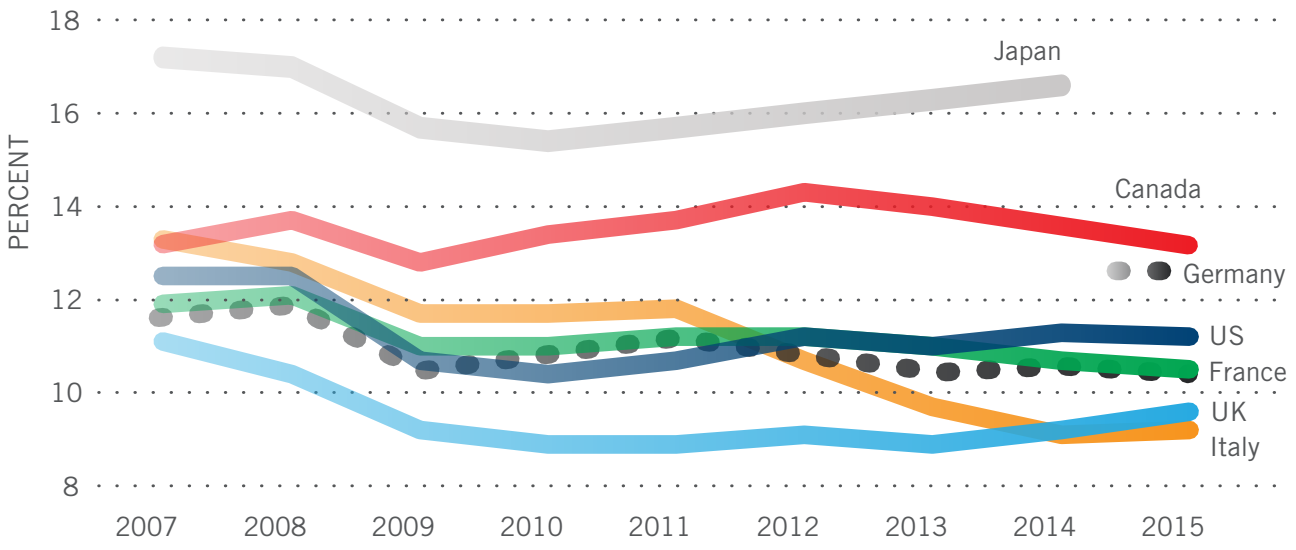
Ultra-low interest rates are designed to stimulate the economy through at least four mechanisms. By lowering the cost of borrowing, the hope is to stimulate more spending. By boosting asset prices, a wealth effect hopefully reinforces the incentive to spend. Lower interest rates encourage the exchange rate to depreciate, usually a boon to net exports. Finally, low rates of return on safe investments like government bonds may induce investors to seek riskier investments as part of their search for yield. Nearly a decade of record low interest rates did not activate these mechanisms for more than short periods, instead extracting a price in terms of lower potential growth and increased financial instability. This section looks at these four mechanisms more closely.

Low interest rates did not spur a burst of domestic spending, which remained depressed in most advanced market economies. Household spending growth was lacklustre in the US and much of Europe. This reflects the overhang of the stock of housing after years of over-building, which inevitably depressed residential construction for years, and the move by households to pay down their debt accumulated during the housing boom.

Low interest rates did not boost business investment, limiting the growth of domestic demand. Outside Canada, business investment (excluding housing and government investment) in all G7 countries in 2015 was below their share of GDP before the recession began in 2008, with declines ranging from 0.6 percentage points in Japan to 4.1 points in Italy, with an average drop of 1.5 points (Chart 1). The uniquely high rate of business investment in Canada was driven by energy, led by the oilsands, and is now being reversed. Japan's high investment rate may reflect its outright drop in population, which forces firms to automate.

Rather than invest in plant and equipment, firms in the US used their profits to buy back shares that goosed stock market prices higher but did little to increase productivity. Low interest rates for riskier/lower-rated companies meant some firms stayed in business that should have disappeared, while new business formation lagged. Rates of firm entrance and exit lagged in North America, implying a slowdown of the underlying Schumpeterian process of creative destruction. In the US, employment in new firms fell steadily from over 5 percent in the late 1990s to 4 percent just before the recession to 3.2 percent in 2012–2015.[18] In Canada, the birth of new firms fell from a high of 15.3 percent of all firms in 2004 to 13.2 percent in 2010 and has since dipped below 13 percent.

**CHART 1: Business investment share of GDP**




Source: OECD.stats

Increased wealth among households provided no visible boost to consumer spending, which did not even match income growth in most countries.[19] The weak effect was partly because households had just witnessed in 2007–2009 how ephemeral higher valuations for homes and stocks can be. More fundamentally, White argues that the "wealth" that low interest rates induce through higher asset prices is illusory since low interest rates cannot generate wealth "if an increase in wealth is appropriately defined as the capacity to have a higher future standard of living" rooted in higher productivity and higher earnings (White 2012, 12). This is close to John Hicks's concept of true growth "as the maximum amount which can be spent during a period if there is to be an expectation of maintaining intact the capital value of prospective receipts" (Hicks 1946, 173). Otherwise, by definition, growth today is at the expense of less income tomorrow. Monetary and fiscal policy need to be evaluated using the same metric of sustainable growth.

The hope for a boost to net exports from a lower exchange rate was blunted by the wide number of countries adopting the same strategy, especially against the US dollar. The result was that few gained a significant advantage in each other's domestic market or in the US market. A range of countries joined Canada with devaluations of about 20 percent between 2010/2015, including Japan, India, Mexico, Norway, Chile, Australia, Malaysia, Indonesia, and Venezuela. Larger declines of 40 percent were recorded for Brazil, Russia, South Africa, and Turkey.[20] Among major trading nations, only the UK and China followed the US with an appreciation of their currency.[21]

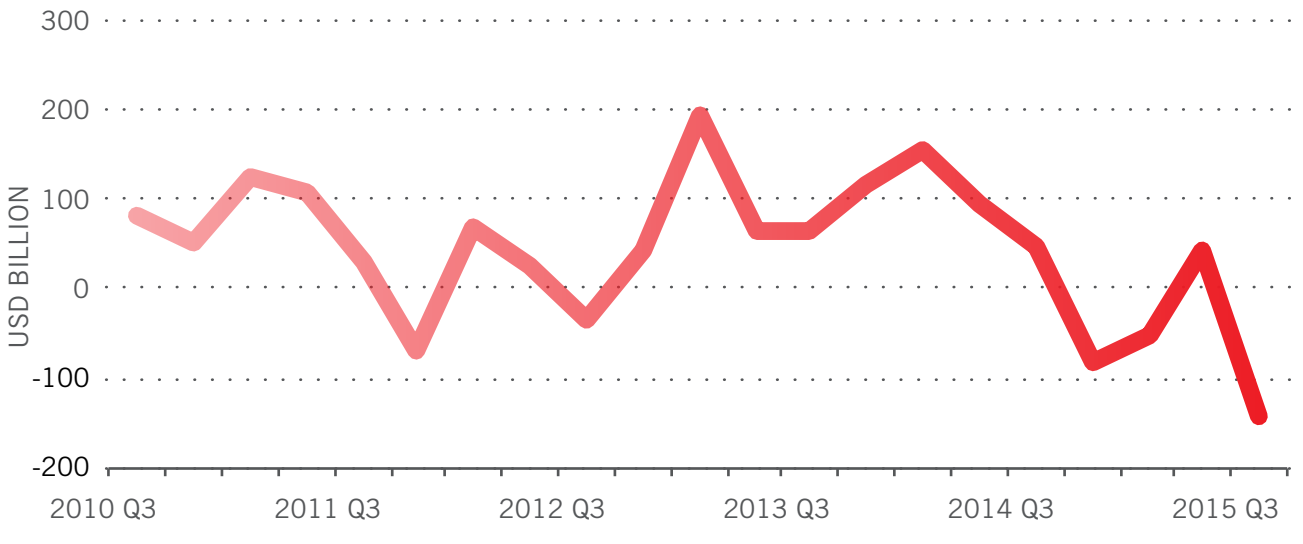
With low interest rates in most developed nations, the search for yield led to large investment outflows to emerging markets and low-rated corporate bonds. As a result, most of the benefit of lower interest rates went to emerging market economies, mostly in Asia and Latin America. Bank loans to emerging market economies in Asia totalled US$1,166.1 billion in the four years ending in the third quarter of 2014, before falling US$240.1 billion over the next four quarters (Chart 2) (BIS 2016). As a result of these capital inflows, the ratio of debt to GDP in China rose from 124 percent in early 2008 to more than 200 percent (Turner, 2016, 52).

## The negative impact of low interest rates on potential growth

Not only did low interest rates not jump start a strong recovery, they pose several risks to economic growth, which this section discusses in more detail.

The first is the damage they can inflict on a country's potential growth rate over the long

**CHART 2: Bank loans to emerging markets in Asia**




Source: BLS Quarterly Bulletin

term. This damage reflects a lower rate of saving and hence investment, and the misallocation of resources to sectors that benefit from low interest rates, such as housing and government. Low interest rates allow weaker, inefficient firms to stay in business, keeping market share from gravitating to more productive firms.

A second risk is that they reduce the pressure on governments to undertake structural reforms to boost long-term growth potential.

A third risk to the macroeconomy is that ultra-low rates damage financial institutions such as banks, insurance companies and pension funds.

Finally, they encourage the formation of speculative bubbles that undermine financial stability. The bursting of these bubbles damages the balance sheet of asset-holders and can, as was evident in the US in 2008, lead to the insolvency of major financial institutions.

*"Not only did low interest rates not jump start a strong recovery, they pose several risks to economic growth."*

This US experience shows that the fall-out from plunging asset prices has a feedback loop to the first risk, further slowing the long-term potential growth rate as asset prices are marked down, capital investments are idled and resources are diverted to aiding financial institutions (BIS 2015). More broadly, low interest rates foster unstable capital flows as investors search for short-term gains, not long-term investments.

## Low interest rates depress savings and therefore investment

It is important to underscore the positive link between savings, investment and long-term growth. A major long-term cost to the economy from extraordinary monetary and fiscal stimulus is a lower savings rate. Sharply lower interest rates "imply a transfer from creditors to debtors which could result, over time, in a reduction in saving propensities and in the prospects for longer-term growth" according to White. Low interest rates may or may not boost aggregate demand, "but they clearly have negative longer-term effects with respect to aggregate supply" (White 2006, 13) mostly through lower investment.

In theory, domestic savings should not influence investment since any shortfall could be funded by non-residents through foreign investment. In practice, it has been amply demonstrated that international capital mobility is far from perfect, and domestic savings are strongly correlated with investment rates. Feldstein and Horioka first documented the high correlation of national savings and investment rates, recently confirmed at 0.62 by Obstfeld and Rogoff.[22]

An overview of net national saving rates shows that Canada, Europe and Japan ran high savings rates before the recession, with the US and the UK saving as low as 1 percent (Chart 3). All countries saw saving drop substantially during the recession, notably because of large deficits run by most governments. In particular, the saving rate turned negative in the US, the UK and Japan. During the recovery, saving recovered the most in the US and Canada, but remained below its pre-recession level. So clearly the low interest rate environment has discouraged saving, which dampens investment. Total investment (including housing and government investment) fell sharply during the recession, and remains below its 2008 share of GDP in every major country except Canada.

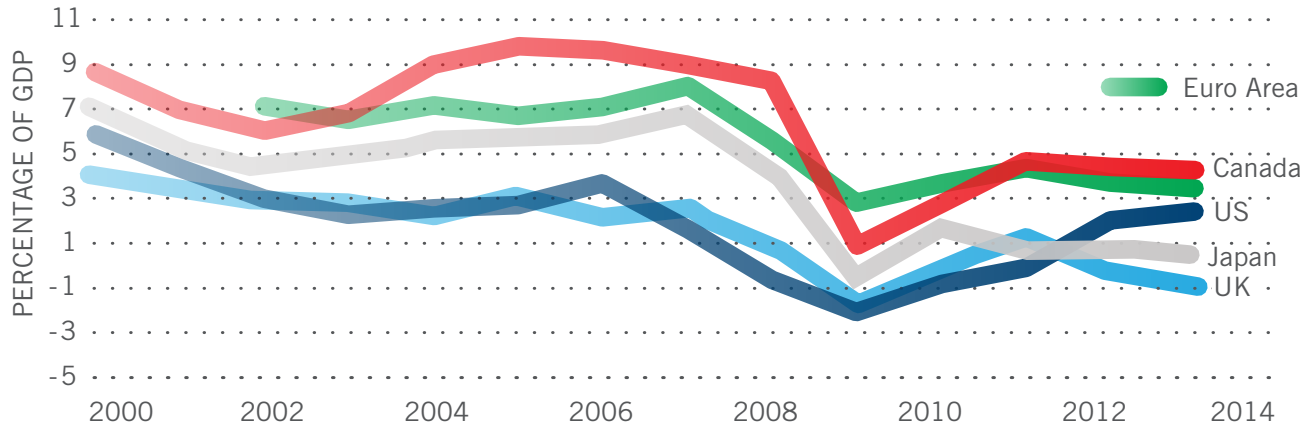
Overall in Europe, the net national saving rate was high before the recession, fell during the recession, and remained low in the recovery. However, this masks substantial differences between northern and southern European countries (Chart 4). Northern countries such as Germany, Sweden, Norway, Switzerland, and the Netherlands have maintained high saving rates before and after the recession of at least 10 percent. Norway's high saving reflects the oil revenues it saved in a sovereign wealth fund. Southern periphery countries such as Portugal, Spain, Italy, Greece, and Ireland had consistently lower sav-

ing rates before the recession (including negative rates in Greece and Portugal), and sharp declines during the recession. Spain and Ireland, which had positive saving, were in fact substantial net borrowers overall once borrowing to finance their housing boom is included. This widening divergence of saving between northern and southern Europe implies a growing gap for investment and ultimately for economic growth.

Before the 2007 financial crisis, Canada's national saving rate was consistently above 10 percent. After plunging to near 3 percent in 2009, it has remained low, including a drop to 4 percent in 2015. Net borrowing showed a complete reversal of its trends after 2008 (where net lending/borrowing by sector is just saving adjusted for capital spending). Canada's domestic sectors overall were substantial net borrowers in recent years, notably households and governments. This is a marked reversal from 2008, when all were net lenders.

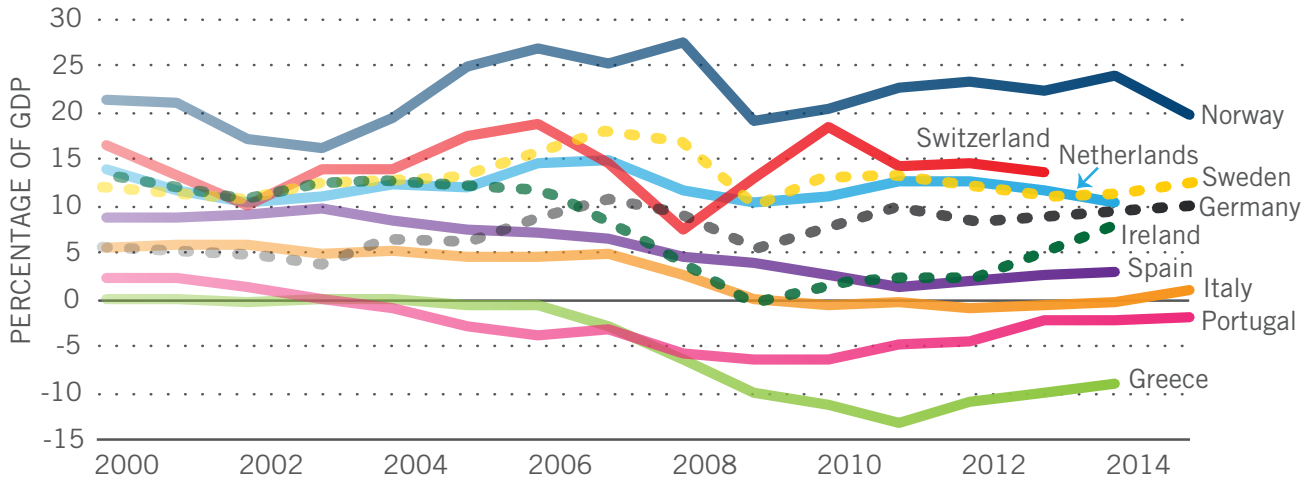
Saving is another example where what helps the economy in the short term subtracts from growth in the long term. One implication is that the paradox of thrift, which holds that more saving by individuals can in aggregate depress GDP growth, only holds in the short run. Over longer periods, lower saving slows investment, which dampens GDP growth. Shiller stated the true saving paradox is that "in the short run we

**CHART 3: Net saving rates**




Source: World economic outlook database, IMF

**CHART 4: Net saving rates in Europe**




Source: OECD Data

fear a sudden increase in the savings rate, which might trigger a recession, but in the long run we want a higher savings rate, because we need the resources for investment in the future" (Shiller 2008, 84-85).

> *"Besides depressing investment, quantitative easing may also reduce the efficiency of the investment that does occur."*

Besides depressing investment, quantitative easing may also reduce the efficiency of the investment that does occur. The wilful manipulation of government bond yields through quantiative easing changes the anchor for evaluating all asset prices. Without an accurate benchmark of what a risk-free investment yields, "capital will increasingly be at risk of being misallocated as a result of mispricing within financial markets" (King 2013. 77).

## Low interest rates encourage governments to delay structural reform

Ultra-low interest rates encourage governments to rely on them for economic growth, delaying reforms that would enhance productivity. The International Monetary Fund identified some of these reforms, including labour market liberalization making it easier to hire and fire workers, and product market reforms such as deregulation, privatization, or trade liberalization (International Monetary Fund 2016, 101). Europe provides two good examples of how delaying structural reform in the pursuit of higher growth in the short-term actually increases the vulnerability of an economy to a financial shock and worsens its capacity to deal with a downturn. One example occurred after the adoption of the euro, and the other after the banking crisis began in 2007.

In the EU, southern countries such as Portugal, Spain, Italy, and Greece had grudgingly undertaken structural reforms as a condition for access to the eurozone. However, once admitted, their borrowing costs fell sharply to match German yields. In the words of Wolf, "Germany and Greece were, astonishingly, considered equally riskless" (Wolf 2014, 60). Capital flowed to periphery nations from abroad, which financed large current account deficits as high unit labour costs undermined competitiveness. Low interest rates and capital inflows from northern Europe fuelled housing bubbles in Ireland and Spain, and excessive government borrowing in Greece, Portugal, and Italy.[23] While governments in emerging market economies normally can sustain a maximum debt to GDP ratio of around 30 percent, the euro allowed emerging markets such as Portugal and Greece to borrow 90 percent and 140 percent, respectively, "the outer envelope of anything ever observed for emerging markets" (Rogoff 2011, 193). Complacent governments began to delay further structural reforms such as the deregulation of labour and product markets, and cuts to their bloated government sectors. Large structural budget deficits were camouflaged by the boom and not identified by the International Monetary Fund until years later (Wolf 2014, 60). However, chronic recessions in these countries after 2008 also served as an excuse to delay reforms, since they would entail some short-term losses for segments of the population.

The second example is how low interest rates after 2007 encouraged European countries to delay structural reforms to their banking systems. The banking crisis in Europe was more severe than in the US. Partly this reflects the larger size of the banks: no one bank in the US had assets greater than 25 percent of GDP, while 10 in Europe had assets of 85 percent or more of GDP (Overtveldt 2009, 205-206). European banks had less capital and more leverage, and therefore required more government support after the crisis began.[24] They supplied much of the funding to the market for asset-backed (mostly mortgages) commercial paper in the US. When the sovereign debt crisis in Europe raised interest rates, funding for banks dried up as investors demanded more periphery government bonds to secure debt. By early 2010, European banks held US$1.3 trillion of the government debt for Spain, Ireland, and Greece (Blyth 2013, 86).

European banks in southern Europe and Ireland have had unique problems. European governments reacted to the initial bank crisis in 2008/2009 by guaranteeing bank assets and debts rather than recapitalization (except for Fannie Mae and Freddie Mac, US banks relied more on recapitalization). European banks, already weakened by their exposure to subprime mortgages in the US, increased their exposure to southern periphery sovereign debt by €900 billion between 2008/2010 (Laparvitsas 2012, 54). The OECD calculated that bank holdings of Italian, Spanish, Greek, and Belgian sovereign debt exceeded 100 percent of core bank capital in each country, and was over 50 percent in France and Germany (Shambaugh 2012, 188). This increase was encouraged by regulations that treated all sovereign debt as risk-free and therefore exempt from bank equity requirements (in the same way that banks only had to count half of mortgage debt against their capital requirements, which encouraged them to buy mortgage debt before 2009) (Litan 2014, 284).

*"European banks in southern Europe and Ireland have had unique problems."*

However, "sovereign debt crises so often follow a wave of global banking crises," according to Rogoff (2011, 192). This was the case in Europe after 2010. During the sovereign debt crisis that began in May 2010 and continued until December 2011, banks in these countries adopted a strategy of investing "in risky assets to rebuild equity capital" according to Acharya (2015). These risky assets now included high-yielding bonds of their own governments. It was not much of a gamble; if the sovereign defaulted, the banks would go insolvent anyway, but they stood to collect high rates of interest in the interim. Despite the demonstrated risk of default by governments, European stress tests continue to assign zero risk to southern periphery sovereign debt, reducing the pressure on banks to raise capital.[25]

So the high levels of government debt in southern Europe initially used to prop up banks were eventually acquired by the same under-capitalized banks, in turn encouraging governments to issue more debt. The stress tests conducted on large European banks showed that Greek commercial banks hold the equivalent of 25 percent of Greek GDP in the form of Greek government bonds; Spanish banks hold local sovereign debt equal to 20 percent of Spain's GDP; the figures for banks in Italy and Portugal are closer to 10 percent (Shambaugh 2014, 12). If the banks had not funded government debt, governments would have been pressured to reduce borrowing.

As a result, some banks in southern Europe no longer serve as an intermediary making loans to the non-financial sector, they just speculate on their holdings of government debt. This hamstrings economic growth in the private sector while propping up a bloated public sector. To extend Rogoff's finding that banking crises lead to sovereign debt crises because governments have to assume the bad debt of banks, banks in periphery European nations assumed the bad debt of their sovereign government after 2010. Of course, the national governments did not pressure their bank regulators to discourage this practice. As Eichengreen concludes, "The lesson of the crisis was that a single currency and single financial market but twenty-seven separate national bank regulators was madness" (Eichengreen 2015, 12). The negative feedback loop – which the BIS called the *doom loop* – between bank lending and government deficits has led to paralysis in reforming the banking and government sectors.

For decades, Europeans have better understood the broader challenge of adopting pro-growth policies than Americans. At a National Bureau of Economic Research conference in 1970, Robin Matthews noted that US research on supporting more growth "amounts to a policy of high saving in one form or another. This may be true the way growth policy has been understood here. But in Europe and also in developing countries it has commonly been supposed that the promotion of

growth includes as a major element in policy the inducement of changes in attitudes and changes in social relationships" (Matthews 1972, 90-91). The difficulty of making even innocuous changes to labour laws in many European countries, despite years of economic stagnation and high unemployment, demonstrates that changing attitudes may be the most difficult part of reform.

> *"For decades, Europeans have better understood the broader challenge of adopting pro-growth policies than Americans."*

The cost of not implementing these reforms is substantial. The International Monetary Fund estimates that adopting four types of reforms would raise GDP in the euro area by 4 percent and reduce unemployment by 2.5 percent over the long term (International Monetary Fund 2016, 107). These reforms are deregulating key services, reducing unemployment benefits, easing restrictions on hiring and firing, and lowering payroll taxes.

## Low interest rates undermine the stability of financial institutions

Low interest rates threaten the long-term stability of key financial institutions such as banks, pension funds, and insurance companies. Low interest rates and a flatter yield curve (partly due to quantitative easing) squeeze profit margins earned by banks, weakening their ability to accumulate capital reserves, and undermining the profitability of insurance companies and pension funds. This induces some to invest in riskier assets, which poses a potentially large threat to financial stability.

Bank earnings are squeezed by the narrowing spread between short-term and long-term interest rates, especially when quantitative easing is used to lower long-term rates, including what banks charge for mortgages. Pension funds and insurance companies rely on returns from bonds for their income. Pension funds include those defined benefit pension plans operated by large companies. In July 2012, a study by Mercer found that the 1,500 largest companies in the US had a pension deficit of $689 billion for their pension plans, which were only 70 percent funded.[26] Rather than stimulating corporate spending, the pension deficit that low interest rates largely created gave firms an incentive to increase their saving to make up for the shortfall. Low interest rates also mean insurance companies must charge more for annuities, further depressing the income of retirees already squeezed by miniscule returns on saving accounts (Milevsky 2015, 26).

The impact on southern European banks has been particularly negative. When the European sovereign debt crisis erupted in 2010, the sharp rise in bond yields and lower bond prices meant that the value of government bonds these banks held fell sharply. This raised questions about their solvency and increased their cost of funds, just as their economies were re-entering recession. Reduced credit from the banks exacerbated the recessions (Turner 2016, 158).

## Low interest rates encourage asset price bubbles and destabilizing capital flows

Years of ultra-low or even negative interest rates have increased the vulnerability of the financial system. As Smaghi observes, low interest rates "that are kept low for too long generate bouts of financial instability" because "it's not monetary conditions that adapt to real and financial conditions but the reverse" (Smaghi 2014, 42). A prolonged period of low interest rates encourages the mispricing of risk in equity and debt markets, and distorts investment decisions. The rapid growth in the resource sector before 2014 and in several housing markets[27] around the world in recent years are examples of a possible misallocation of resources. Low rates of return encourage investors to increase leverage to boost returns (El-Erian 2008, 21).

Prices for a wide range of assets have risen to high levels in many markets in the current environment of low interest rates, including stocks and bonds, and housing. They also played a role

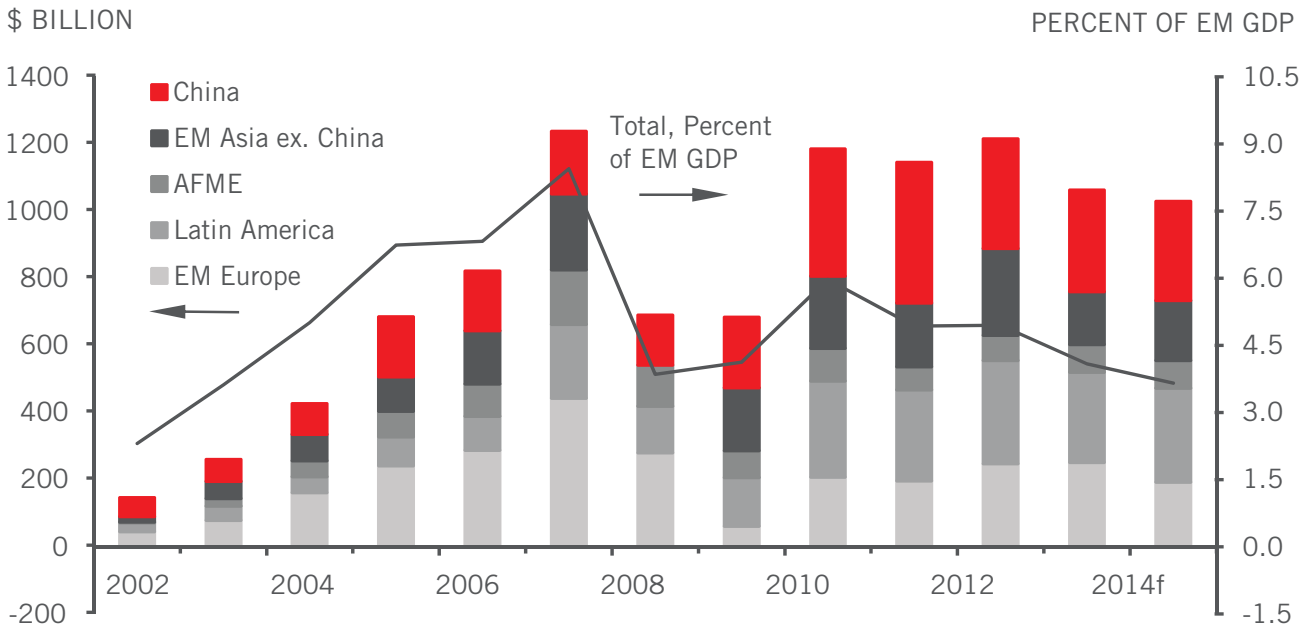
in other market over-valuations, including commodity markets before 2014. Low interest rates preceded the bubbles in the stock market before the crash in 2000, and in the US and various European housing markets before 2007.

Initially in the recovery after 2009, emerging market economies attracted capital from advanced market economies saddled with low returns on investment and slow growth. Private capital inflows to emerging market economies averaged 8 percent of their GDP after 2009, nearly double their average between 2002–2009 (Chart 5). Capital inflows after 2009 were dominated by China and other Asian countries. Emerging market economies' current account balances declined and foreign debt levels increased. Bond issues by financial corporations of emerging market economies rose from less than $400 billion in 2010 to nearly $1 trillion in 2014, while non-financial firm issues doubled to $400 billion (Acharya 2015, 3). Nearly 80 percent of all these bonds were denominated in foreign currencies, mostly US dollars (Acharya 2015, 5). Overall, the BIS concludes that "the debt servicing capacity of emerging market economies corporate bond issuers has deteriorated" (BIS 2015, 27-28).

As US rates began rising, however, investors had already removed US$600 billion from China on the prospect of higher interest rates in the US and slower growth in China. With bond yields and distress rates for the debt of resource companies soaring, leading to rising concerns about the impact on banks, investors are retreating to the safety of sovereign debt, especially in the US. Because central banks in emerging market economies had kept interest rates low in recent years, they had little capacity to cut them more as growth sagged in 2015.

International capital flows have played a destabilizing role in past financial crises. The debt crises of Latin America in the 1980s and Southeast Asia in the late 1990s both had their origins in an inflow of investment from developed countries seeking higher returns as domestic interest rates fell. When these investments began to sour, the outflow of capital precipitated sharp declines in asset prices and the exchange rate.[28] After their

**CHART 5: Emerging market private capital inflows, net**




Source: Institute of International Finance, *Capital Flows to Emerging Market Economies*. Oct 7, 2013

1997 financial crisis, Asian countries were understandably wary of relying excessively on volatile investment flows, and took measures to limit potentially unstable capital inflows, boost domestic savings, shift from debt to equity funding, build trade surpluses and increase foreign exchange reserves (Acharya 2015, 1). These financial surpluses were exported to developed countries over the next decade, notably to the US, which helped lay the groundwork for its financial crisis starting in 2007. Ironically, the motivation for Asian capital flows was the presumed safety of the US financial system, after having experienced the collapse of their own domestic financial systems in 1997 (Desai 2015, 249).

*"The heightened vulnerability of the global financial system also reflects how monetary policies are more interconnected."*

Not all capital flows are unproductive or destabilizing. The North American economies in the 19th century were built on large inflows from Europe. Today, foreign direct investment in China has transferred the technology and capital to sustain rapid economic growth. The problem is when capital flows are directed to unproductive or speculative investments, such as Internet stocks in 2000 or housing in the US, Spain, and Ireland before the crisis (Turner 2016, 151).

The global financial system has become increasingly vulnerable to shocks emanating from a large country or a bloc of smaller countries. Martin Wolf argues that this results from the interplay of globalization and technology (Wolf 2014, 183-184). These forces reinforced the abolition of controls on capital flows, with the dismantling of the Bretton Woods system of fixed exchange rates. The heightened vulnerability of the global financial system also reflects how monetary policies are more interconnected. With most nations looking to exports to revive growth, they have followed a policy of devaluing their exchange rate against the US dollar. This led to the diffusion of the Fed's easy monetary policy around the world, and more recently, a competitive devaluation of currencies averaging over 20 percent against the US dollar as most nations kept interest rates low even as US rates began to rise slowly.

Net capital flows are the mirror image of trade imbalances. It is an accounting identity in the Balance of Payments that the current account balance must equal the capital account balance; every trade imbalance generates a financial flow. However, while trade in goods and services may create a deficit that needs financing, capital flows are much more prone to sudden stops, as occurred in Britain in 1976, Southeast Asia in 1997 and several peripheral European countries in 2010. Once capital financing stops or is disrupted, trade flows must make a sharp and painful adjustment, usually necessitating a recession and a bailout to restore some level of capital flows (usually organized by the International Monetary Fund).

However, destabilizing capital flows are not always related to current account imbalances. Eichengreen reminds us that trade imbalances were not necessary to create bad investment flows even before 2008 (Eichengreen 2015, 98). While trade between the US and the EU was roughly in balance leading up to 2007, large flows of investment from Europe (especially their banks) into the US market for mortgage-backed securities ultimately led to the bailout of several European banks, such as the Royal Bank of Scotland in 2008/2009 (Fraser 2014). While current account imbalances famously played a key role in creating the conditions for the 2007 financial crisis (notably the US trade deficit, China's trade surplus, and large trade deficits in southern Europe), these net trade imbalances are now lower. The trade surplus of China shrank, the mirror image of lower deficits run by the US and southern Europe. However, smaller bilateral trade imbalances did not prevent large capital flows from the developed world overall to emerging market economies after 2008.

As the BIS observed in 2015, "Current account deficits need not coincide with the build-up of financial imbalances" (BIS 2015, 16). This is partly because imbalances in net flows of goods

and services do not capture financial imbalances which "are more closely linked to domestic and international gross positions" that may not even affect the net current account balance (BIS 2015, 24). These large capital flows left a large overhang of debt, often denominated in US dollars, which becomes more onerous as the US dollar appreciates. There is also the potential for destabilizing outflows (which forced China to sell one-quarter of its foreign exchange reserves to keep its exchange rate stable).

> *"Both the BIS and the OECD have warned about the dangers of the growing amount of risk accumulating in the global financial system."*

## Risk is increasing in the global financial system

Both the BIS and the OECD have warned about the dangers of the growing amount of risk accumulating in the global financial system. Both organizations have contrasted the growing gulf between risk-taking in the real economy and in financial markets. In its 2015 business and financial outlook, the OECD raised a fundamental question about the sustainability of returns that pension funds and other investors have reaped. It notes that low interest rates have "encouraged large players in financial markets to pursue a 'search for yield' and to pay prices for assets in bond and equity markets that may not realistically reflect inherent risks"(OECD 2015, 24). This has led to what it calls "a risk puzzle: why do so many people managing listed companies that carry out a large portion of the world's capital formation see so much risk on the horizon while so many players in financial markets apparently see so little risk? Someone will inevitably be proved wrong" (Gurria 2015, 20). In the OECD's view, hoarding cash is a prudent response to the risks in the global economy today.

The phrase *search for yield* implies that investors are seeking out higher returns by consciously making riskier investments. In reality, the events leading up to the 2008 crisis show "It is not the dash for risk that lands the world's financial system in trouble; it is the hunt for safe returns" (Palmer 2015, 43). Before the 2007 financial crisis, financial firms became expert at engineering new financial products that hid from investors the true risk involved in the underlying investments, notably securitizing collateral debt obligations that enabled mortgages to obtain a bond rating. Asian and sovereign wealth-fund investors showed a marked preference for safe investments certified by a AAA-rating. In response, "the creation of collateral debt obligations and the leveraging in financial institutions helped to meet the global demand for safe assets" (Caballero 2009, 16). As Goldman Sachs chairman Lloyd Blankfield observes, there were only 12 AAA-rated companies in the world in January 2008 (including AIG), but there were 64,000 AAA-rated structured finance instruments.[29] Even well into 2008, after the crisis in the US financial system was clearly evident, sovereign wealth funds were the prime source of new capital for struggling banks.

The false sense of security cultivated among investors only aggravated the panic when the true risks surfaced about these false substitutes for safe investments. Ultimately, even supposedly safe investments in money market funds were revealed as risky when the Reserve Primary Fund "broke the buck" after the Lehman Brothers bankruptcy, leading to a run on money market funds – arguably the most acute phase of the panic in September 2008. Investors learned that money market funds did not provide the safety that banks provided with federal deposit insurance, and collateral debt obligations did not have the same backing as US Treasury bonds.

Persistently low interest rates in recent years seem to be leading investors to de-emphasize risk in their search for yield once again. The perceived vulnerability of the world economy to a shock coming from the financial sector due to imbalances from years of easy monetary policies echoes similar views expressed recently by the BIS. As a result of the search for yield by investors driven by low bond yields, "equity prices rose to record highs in many markets, even as the macroeconomic outlook remained relative-

ly weak" (BIS 2015, 27). It concludes that "Debt burdens and financial risks are too high, productivity growth too low and room for manoeuvre in macroeconomic policy too limited. … Interest rates that have been exceptionally low for exceptionally long are the outward sign of this malaise" (BIS 2015, 22).

> *"The exact form of financial instability is always hard to predict."*

The exact form of financial instability is always hard to predict. Caballero recalls that the great fear of a financial crisis before 2008 was that Asian countries would withdraw these funds precipitously from the US, leading to devaluation, higher prices and higher interest rates. In fact, capital flows to the US increased as the crisis intensified in 2008 and 2009 (Caballero 2009, 2). It is noteworthy that in both July 2015 and January 2016, bouts of instability in global financial markets centred on the health of European banks and China's financial system (including, but not limited to, its stock market). These would be good candidates to follow for future sources of instability.

The risk of instability in the global financial system is amplified if policy-makers do not have the same tools to respond as they had facing the crisis beginning in 2007. Interest rates remain near record low levels, which limits the stimulus they can provide.

While several European countries are experimenting with slightly negative interest rates,[30] the scope for negative interest rates is limited by the risks they pose to bank margins and money market funds (all 11 money market funds in Japan closed in 2016) as well as the pessimism they convey to households and businesses about growth prospects. More importantly, the experiment with negative interest rates appears to have backfired. Their squeeze on European bank earnings caused a marked sell-off in their stock market prices early in 2016, inhibiting their ability to raise capital and dampening the outlook for the economy that negative interest rates were supposed to improve. At the same time, long-term bond rates in Europe fell farther, implying negative interest rates had the opposite effect on inflationary expectations than intended.

Negative interest rates may also increase financial instability by removing the safest investments from the financial system as people withdraw cash from bank deposits to hoard in safety deposit boxes or at home. Partly as a result, the European Central Bank announced in March 2016 that it was shifting its emphasis from lowering interest rates to more quantitative easing. Negative interest rates on government bonds also give governments a clear incentive to issue more debt, especially in Japan where the yield on 10-year bonds turned negative in March 2016 for the very first time.

**PART II**

# Fiscal Policy Risks Losing Its Effectiveness

A decade of recession and slow growth has resulted in sharply-increasing government debt throughout the advanced market economies. Deficits were the product of economic circumstances and also of the political environment. As noted by Phelps, we live in an age where crude Keynesians point to stagnant growth to justify more government spending, while crude supply-siders advocate tax cuts to stimulate the economy. Both create large government deficits, and neither recognize any limits to the capacity of governments to borrow (Phelps 2013, 312).

Fiscal policy may face more limitations in re-

sponding to the next financial crisis or economic downturn than to the last one. The recession and subsequent slow recovery left much higher debt levels in Japan, the EU, the US, and Canada (especially its provinces). Investors may balk at financing another sharp increase in government borrowing so soon after the last round, especially with the onset of increasing stress on government finances from a rapidly aging population as the boomer generation starts to retire.

Canada is a good example of the magnitude of the stress the looming demographic change exerts on public finances, since it has a younger population profile than Japan or most western European countries. The OECD estimates that, at its peak, demographic change will add eight percentage points to annual government deficits in Canada.[31] Ragan predicts that aging will add 38 to 57 percentage points to the debt-to-GDP ratio (depending on interest rates and economic growth) in Canada over 25 years without changes in current policies, notably for health care and pensions (Ragan 2012, 23).

A recession layered on top of this deterioration of the underlying trend of government finances would seriously impair fiscal policy. Hyman Minsky outlined a scenario where governments record steadily higher debts in response to a series of increasingly severe recessions until they reach a point that scares off investors. However, in developing this scenario, he erred on the assumption that recessions would become progressively more severe over time, requiring steadily larger deficits to contain them (in turn, this assumption was based on the hypothesis that the financial crises that triggered each recession would worsen over time, requiring an ever larger fiscal response).[32]

## Are recessions becoming more severe?

In North America, the severity of recessions, financial crises and the fiscal deficit response has varied over time rather than increase steadily. In the US, the 1974/1975 recession, which heavily influenced Minsky's writings, was quite severe. So too were the recessions of 1981/1982 and 2008/2009. However, the US recessions in 1990/1991 and 2001 were quite mild. This classification of recession severity was the same in Canada, except the 1974/1975 recession was mild here, while the 1990/1991 downturn was severe. The reasons for these differences are discussed in this section.

The 1974/1975 recession initially was mild in the US despite the widely-publicized oil embargo and energy crisis, not even enough to induce employers to trim their workforce in its first year. However, the contraction became devastating after it morphed into a banking and financial crisis, an event often overlooked by analysts who attribute the whole recession to the energy crisis. This crisis reflected the failure of several banks in the US and Europe and the weakening of balance sheets as housing slumped.

The crisis in the financial system in 1974 was not confined to the US. Germany's Herstatt Bank was crippled by junior staff making unauthorized trades, followed by increasingly risky speculative trades in an attempt to recoup their losses.[33] The bankruptcy of the Herstatt Bank on June 26, 1974 triggered an international financial crisis. It was liquidated with $620 million of unsettled foreign exchange trades, leaving "behind an astonishingly large pile of unsettled transactions and unanticipated losses" where counterparties had paid up but not received the exchange currency due to the time difference between settlements in different countries (Crow 2002, 104). This led to the near-collapse of the US clearing system, with the electronic funds transfer system computer switched off at one point and a temporary suspension of the US inter-bank payments system.[34] The financial stress in US and European banks led the BIS to create the Basel Committee on Banking Supervision to address the so-called *Herstatt Risk* of payment default.[35]

The recession turned markedly worse after the Franklin National Bank went insolvent in October 1974. At the time, Franklin was the 20th largest bank in the US.[36] Altogether, four major banks with assets of over $1 billion failed or merged with other banks during the recession. A related problem originated in the real estate investment trust (REIT) industry, which financed the construction of multifamily housing, condos and commercial property (Minsky 1986, 63). As interest rates rose, the profitabil-

ity of REITs slumped, reducing their issuance of commercial paper from $4 billion in 1973 to $0.7 billion in 1974. Banks increased syndicated loans to REITs to replace this commercial paper, weakening their own balance sheets (Minsky, 1986, 71).

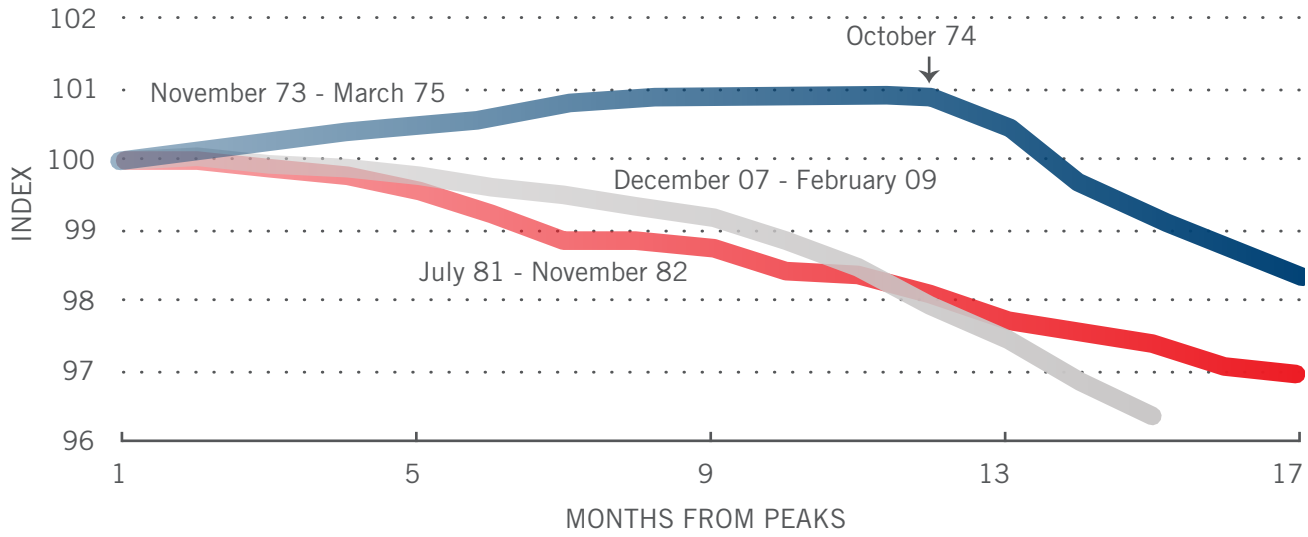
The US economy quickly unravelled in response to the banking crises. During the acute phase of the recession after the Franklin National Bank collapsed, the rate of decline of GDP and employment approached the severity of the retrenchment in the months after the collapse of Lehman Brothers in September 2008. Employment fell 2.8 percent between October 1974 and April 1975, the worst six months in post-war history (slightly exceeding the 2.4 percent drop from August 2008 to February 2009). This was the only time after World War II that a portion of a recession in the US matched the severity of the contraction after September 2008 (Chart 6). For real GDP, the average annual rate of decline of 3.4 percent in the last three quarters of the 1974/1975 downturn was close to the record 5.2 percent drop in the three worst quarters of 2008/2009. Canada, with no financial crisis in 1974/1975, experienced only a mild recession; while exports experienced their largest drop on record before 2009, this was offset by rising domestic demand.

The 1980 recession was very mild in Canada and the US. As a result, it did not reduce the underlying trend of inflation, leading to the sharp tightening of monetary policy that provoked the severe recession of 1981/1982. The severity and the length of the recession were compounded by the Fed raising interest rates early in 1982 just as the economy was beginning to recover, a misguided product of its decision to experiment with letting the monetary aggregates, not economic conditions, guide it in setting rates (Silber 2012, 212).

The recession of 1990/1991 was mild in the US despite the unwinding of the savings and loan debacle. However, it was more severe and prolonged in Canada for a number of reasons (Chart 7). Unlike the US, interest rates rose in Canada during 1990 even as the economy weakened, as the Bank of Canada moved to head off a possible rise in wages after the introduction of the new value-added Goods and Services Tax in January 1991.[37] The imposition of this new tax was compounded by the outbreak of the First Gulf War, sending consumption into a tailspin. Then job growth was delayed when governments reached the limits of their borrowing capacity, starting with Saskatchewan and Newfoundland in 1992.

The 2001 recession in the US originated in the crash in the high tech sector (notably in the

**CHART 6: US employment in recessions**



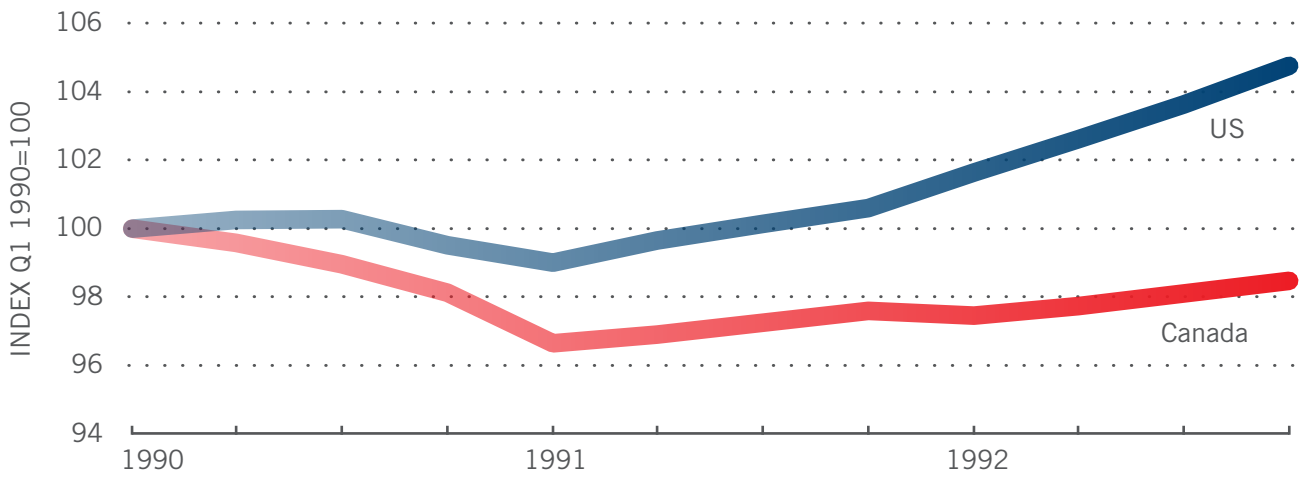

Source: US Bureau of Labor Statistics

stock market, where an 80 percent drop in the Nasdaq exchange wiped out a record $5 trillion of wealth, leading to the high-profile bankruptcies of Worldcom, Global Crossing and Enron). Besides the crash in their stock prices, technology, media and telecommunications companies were caught with too much inventory when sales slumped. A Fed economist remarked on the irony "that the producers of the equipment that was to have eliminated the inventory cycle are themselves its foremost victims."[38] Because the losses were concentrated in equity rather than debt, a banking crisis did not materialize, and the recession was mild (Mishkin 2011b, 97). As well, Farmer argues that the loss of stock market wealth was partly offset by a rise in housing equity throughout the recession, announcing the beginning of the boom in the US housing market (Farmer 2010, 129). There was only a slowdown, not a recession, in Canada despite some high-profile stock market losses (leading to the bankruptcy of Nortel and the near collapse of JDS Uniphase) because the technology, media, and telecommunications sector was proportionately smaller in Canada.

The US recession began in December 2007 according to the National Bureau of Economic Research, but as in 1974, the initial decline was mild until the bankruptcy of a major financial institution.[39] The worsening financial crisis in late summer 2008, clearly exceeding any financial shock including the 1930s, led to a contraction that was severe but did not approach the depression of the 1930s, partly because of extraordinary monetary and fiscal stimulus. The severity of the 1974/1975 and 2008/2009 recessions in the US strongly support what Gorton calls the Livingston Doctrine "that in times of crisis, bank debt should not be enforced, and banks should not be forced into insolvency."[40]

While recessions have not steadily increased in severity over time, the resolution of each recession helped create the conditions that spawned the next cycle and recession. The marked easing of monetary policy after the 1987 stock market crash helped fuel the subsequent burst of inflation and housing speculation that ended with the 1990/1991 recession.[41] Keeping US interest rates low in the 1990s laid the groundwork for the Asian financial crisis by encouraging capital flows to Asian countries in search of higher returns.[42] The sudden reversal of these capital flows in 1997 triggered sharp devaluations, much higher interest rates, and recession throughout Southeast Asia. Along with the Russian crisis of 1998 and the resulting meltdown of the Long-Term Capital Management hedge fund, the Asian crisis encouraged US monetary policy to stay loose in the late 1990s.[43] Two Fed interest rate cuts late in 1998 "mark[ed] the

**CHART 7: Real GDP in the 1990/92 recession**




Source: US Bureau of Economic Analysis; Statistics Canada

transition from the boom stage of the speculative bubble to euphoria"[44] in North American stock markets.

The memory of steep capital losses in investments in Asia in the late 1990s and then in the US stock market in 2001 pushed Asian investors to seek the apparent security of US debt instruments between 2002/2008, including money market funds and collateral debt obligations that helped to set in motion the bubble in the US housing market (of course, other factors contributed to the bubble, notably government policies that encouraged home ownership for disadvantaged groups and lax oversight of regulations).[45] Dealing with the fallout of the 2007/2008 crisis has resulted in nearly a decade of unprecedented monetary stimulus, the long-term consequences of which are unknown.

The pattern in every instance since 1987[46] is one of maintaining stimulative policies well after the end of the initial downturn, sowing the seeds for the next round of excess and the inevitable correction. Given the unusual degree and duration of stimulus since the last recession, this bodes ill for a quick resolution of the distortions created by the current round of prolonged stimulus.

## A "Minsky moment" for government debt?

Minsky's erroneous prediction of increasingly severe recessions does not detract from his more fundamental point, which is that government debt could eventually reach a level where investors balk at financing more debt. The existence of a *Minsky moment*, when financial market conditions turn into panic and a refusal to finance new debt from firms, was widely-acknowledged during the 2008 crisis. The most cited example was the seizure in the money and commercial paper markets in the days after Lehman Brothers filed for bankruptcy on September 15, 2008.

Usually, a Minsky moment signals a freeze in the market for private debt. However, as Minsky warns, "There is nothing special about government debt, and a flight from government debt can occur" leading to devaluation or inflation (Minsky 1986, 336). A shunning of government debt occurs when investors lose confidence that the budget deficit is not just a transitory state. Therefore, the annual flow of deficits should not be so large or prolonged that it results in an unsustainable stock of government debt. As Minsky observes, "government debt has to be validated by an excess of tax receipts over current expenditure" (Minsky 1986, 337).

*"The pattern in every instance since 1987 is one of maintaining stimulative policies well after the end of the initial downturn."*

The BIS has emphasized that governments should guard against borrowing too much during expansions, even if economic growth remains sluggish, to ensure "that it preserves sufficient room for manoeuvre during busts" (BIS 2015, 13). The BIS concludes that, "For fiscal policy, the overriding priority is to make sure that sovereign debt is on a sustainable path" (BIS 2015, 16). Seidman argues that fiscal stimulus works but should only be used during a severe recession. He recommended "keeping debt as a percent of GDP low in prosperity so that the public, Congress and the President feel comfortable enacting a large fiscal stimulus" and a concomitant increase in borrowing and debt during a recession (Seidman 2011, 284).

A *Minsky moment* where investors balk at funding some government debt would have severe consequences if it occurred during an ongoing recession and financial crisis. The resulting downturn could be much more severe than the 2008/2009 recession because it would paralyze fiscal policy. For example, the Congressional Budget Office estimates that the drop in GDP during the 2008/2009 recession would have been twice as large without the fiscal stimulus measures taken (although this study made no attempt to quantify the long-term costs of this stimulus).[47]

In the absence of funding from investors, the only alternative would be for central banks to

buy the debt directly. However, given the importance central banks attach to being independent, there is no guarantee they would risk their perceived independence and undermine their long-term credibility by agreeing to monetize government debt. It would be a very difficult quandary for all parties. Former Bank of Canada Governor John Crow notes the contradiction between ratings agencies putting great store in the fact that government controlled the money printing press while having faith that the Bank of Canada would constrain money creation, concluding "it was far wiser not to draw the incongruity to their [bond rating agencies] attention" (Crow 2002, 194).

Data from the International Monetary Fund show how much governments relied on borrowing in the last recession. Deficits hit a peak of 13.5 percent in the US in 2009, and exceeded 10 percent in the UK and Japan (Table 1). Deficits reached 6.2 percent in Europe, althought restraint in Germany masks much larger deficits in southern Europe. Nowhere have deficits in 2014 returned to their pre-recession level of seven years earlier, but accumulated debt-to-GDP ratios are much higher in all these regions (Chart 8).

The ultimate constraint on the stimulus from fiscal deficits is the ratio of accumulated debt to GDP. Reinhart and Rogoff found that adverse consequences occur when public debt levels rise beyond 90 percent of GDP; the specific level, which has been a point of some controversy, is unimportant compared with the main point that there are absolute limits to the amount of debt government can issue, and most advanced economies are approaching that level.[48]

It is not surprising that the financial crisis starting in 2007 would trigger a recalcitrance to finance more government debt during the last recession, notably for some European countries. Reinhart and Rogoff found that a sovereign debt crisis follows a banking crisis about 80 percent of the time.[49] The 2008/2009 financial crisis was no different, spawning the 2010 sovereign debt crisis in Europe when governments in Greece (May 2010), Ireland (November 2010), and Portugal (March 2011) needed loans from the troika of the EU, European Central Bank, and the International Monetary Fund when markets for their debt dried-up (Blyth 2013, 71). As one review of lessons learned from the crisis concludes, "what appeared to be safe levels of public debt before the crisis were in fact not so safe" (Blanchard 2014, 10).

The initial banking crisis in 2007/2008 led to large increases in public deficits due to bailouts of financial institutions and the recession. By opening the deficit floodgates, governments extended themselves "beyond the country's sustainable borrowing capacity" (Rogoff 2011,

**TABLE 1: Government deficits as a percent of GDP, 2008–2014**

| YEAR | CANADA | US | UK | JAPAN | EURO AREA |
|---|---|---|---|---|---|
| **2008** | -0.3 | -7.2 | -5.1 | -1.9 | -2.1 |
| **2009** | -4.5 | -12.8 | -11.2 | -8.8 | -6.3 |
| **2010** | -4.9 | -12.2 | -10.0 | -8.3 | -6.2 |
| **2011** | -3.7 | -10.7 | -7.8 | -8.8 | -4.1 |
| **2012** | -3.4 | -9.3 | -6.3 | -8.7 | -3.7 |
| **2013** | -3.0 | -6.4 | -5.9 | -9.3 | -3.0 |
| **2014** | -2.1 | -5.8 | -5.3 | -8.4 | -1.8 |
| **2015** | -1.2 | -4.6 | -4.1 | -6.7 | -1.8 |

Source: OECD www.oecd-library.org/economics/government-deficit_gov-dfct-table-en

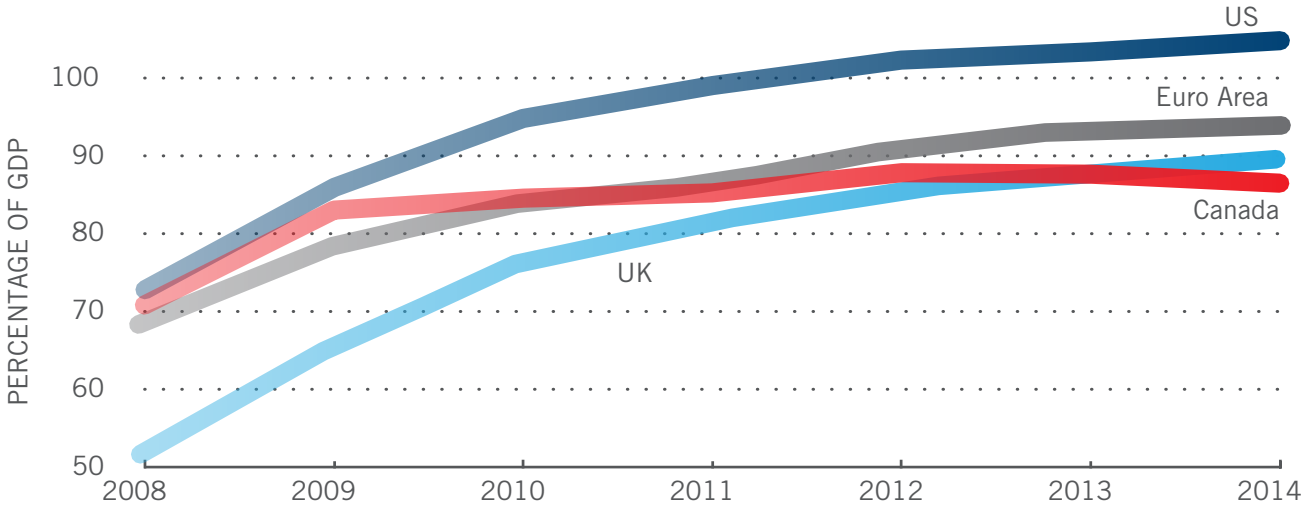
192). Mervyn King, at the time Governor of the Bank of England, "questioned whether Britain could afford any further fiscal stimulus" after the failure of a government bond issue in March 2009 ("Britain cannot afford any further fiscal stimulus, King warns", *The Guardian*, March 24, 2009). The deficits that southern European members ran during the boom limited their capacity to further increase borrowing during the downturn because, at some point, the stock of government debt became too high for governments to consider more increases or for bond markets to finance (even if the flow of new annual deficits was moderating). This left monetary policy alone to support the recovery in recent years, resulting in sub-par growth.

The possibility of governments having problems raising new debt implies that previously-issued debt is not fully secure. This is particularly problematic for the *fragile five* (Portugal, Italy, Ireland, Greece, and Spain), where domestic banks hold much of their government's debt – about 13 percent of their assets, according to the BIS (BIS 2016, 89). This raises the possibility of what the BIS calls a *doom loop*, where sovereign risk and financial system risk are mutually reinforcing (BIS 2016, 87). This was evident in the recent cycle, where the initial crisis in the banking sector led to a crisis in government debt after they bailed out the banks. Now, banks need protection from the risk of sovereign debt default in the most fragile European countries, but bailing out the banks would worsen public finances.

It is remarkable that many governments are reaching the limits of their borrowing capacity in light of how ultra-loose monetary policy has fostered an environment that encourages debt. In 2013, the McKinsey Global Institute calculated that low interest rates between 2007/2013 transferred US$1.6 trillion to government through reduced debt service costs and higher central bank profits (Das 2016, 232). Without this large assist from monetary policy, governments would have been constrained in their ability to borrow more a long time ago. This also highlights the vulnerability of government finances to higher interest rates.

Another example of governments hitting the debt wall occurred in Canada in the early 1990s.[50] Some provinces, notably Saskatchewan and Newfoundland, were forced to adopt austerity measures in 1992 when the economy was still in recession because of the deterioration of their finances. The federal government said it would intervene if the two provinces did not take action. Saskatchewan Premier Roy Romanow recalls that Prime Minister Mulroney "phoned me about the gravity of the Saskatchewan and Newfoundland situations. The essence of the conversation was that we had to take drastic action and if we did

**CHART 8: Total government debt**




Source: IMF, World Economic Outlook Database

not, the federal government would have to act and the Bank of Canada governor would have to intervene" (Hebert and Lapierre 2014, 192). The federal government itself faced a funding crisis in 1994, which led to the sharp budget cutbacks undertaken early in 1995.

> *"Even if financial markets remain willing to finance government debt, fiscal stimulus today may be a wasted use of government debt capacity."*

Canada is often perceived as having the healthiest public debt position in the G7 nations. However, this ignores how, in its decentralized Confederation, more of its debt is issued by sub-national bodies than in other countries. So while the ratio of federal debt-to-GDP is low for a G7 nation, the ratio of all government debt-to-GDP in Canada is only 10–13 percentage points below the levels in the US, the UK and the euro area. Already, several provinces are carrying high debt loads that would become much more onerous in the event of another recession. Quebec and New Brunswick have debt-to-GDP ratios of over 80 percent and Manitoba, Nova Scotia and Ontario over 50 percent despite six years of steady if slow growth.[51] If their debt load jumped another 10 points (as occurred in the last recession in Quebec, Ontario and New Brunswick), they would risk insolvency or sharply higher interest rates.[52] This could force them to turn to the federal government to guarantee or buy their debt. In such a scenario, the federal government's seemingly low debt-to-GDP ratio of 30 percent would deteriorate rapidly due to a combination of its own worsening finances due to recession and the need to absorb some responsibility for the debt of one or more provinces.

There is a clear limit on the absolute amount of government debt financial markets will finance. As Phelps observes, the fundamental problem is that models of fiscal stimulus "were conceived to show how short-term fiscal intervention could shave off peaks and troughs of a short cycle around a rising trend path" (Phelps 2013, 312). Fiscal stimulus was not designed to make up for a prolonged period of low or stagnant growth, which is what it is currently being asked to do in many countries.

## Government deficits in the context of undersaving

Even if financial markets remain willing to finance government debt, fiscal stimulus today may be a wasted use of government debt capacity. Desai argues that fiscal policy will not be effective in the current economic environment. Keynesian pump-priming works only if the recession is due to "a collapse of effective demand due to oversaving" (Desai 2015, 229-230). The years before 2008 were characterized by the US and many EU nations, both governments and households, borrowing excessively (undersaving). In an environment where saving is too low, not too high, Desai questions what is gained by governments borrowing more. This was clearly the case in the US pre-2008, when all sectors of the economy were running deficits. The counterpart to low saving in the US was record high saving and investment in China (White 2011, 124). Deficit-financed spending left the US vulnerable to the seizure in global financial markets that occurred in 2008.

Canada was in quite a different circumstance just before the last recession than it is today. In 2007, the domestic sector in Canada on balance was running surpluses, the result of the resource boom producing a large trade surplus with which to enrich the domestic economy. This high level of national saving proved a useful buffer when the global recession hit in 2008, allowing some sectors to run deficits to boost spending even as incomes fell. Canada was the mirror image of the US, where all sectors were borrowing. Fuelled by capital inflows and low interest rates, domestic borrowing by non-financial sectors in Canada rose from an average of 5.0 percent a year between 2000/2007 to 8.5 percent between 2008/2015.

The reliance on borrowing is accelerating, as the bust in oil prices widens the gap between income and spending while house prices continue to soar in Toronto and Vancouver. This would be

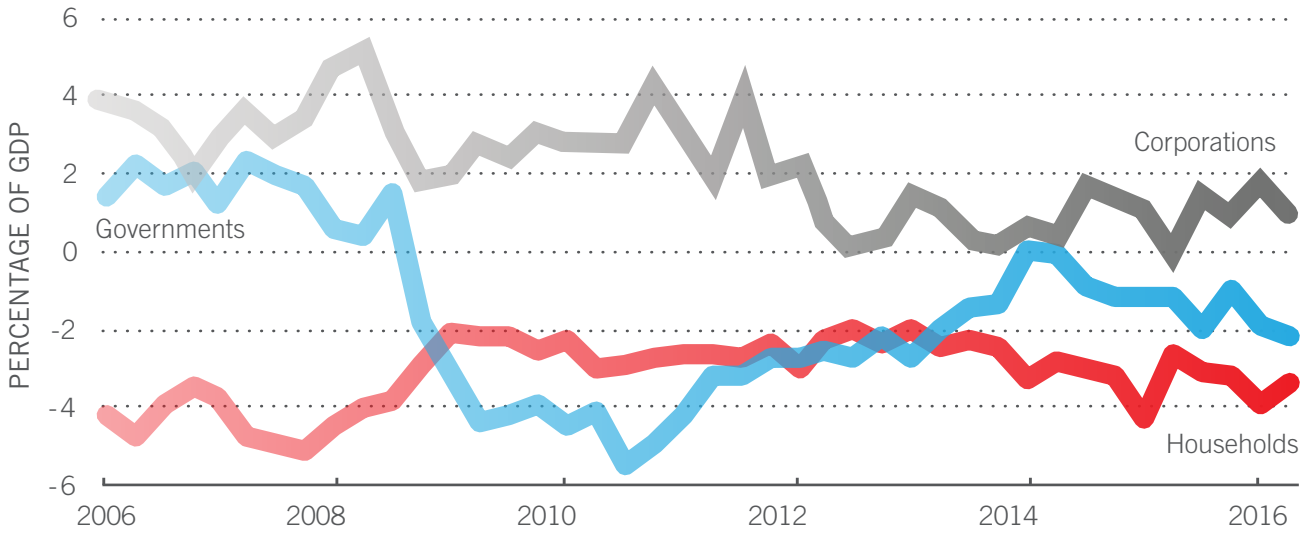
particularly true if a financial crisis forced foreign financiers to rein in their lending, leaving Canada in a very precarious position that would require deep cuts to domestic spending. Given the risks posed by the growing accumulation of debt in Canada, it is curious that the Bank of Canada is not leaning against the wind more actively by tightening credit conditions. The rapid increase in asset prices, notably for homes in Toronto and Vancouver, reinforces the need for prudence.[53]

In his Purvis lecture, Bank of Canada Governor Stephen Poloz offered a reassuring scenario where increased government debt was offset by lower household debt. However, this result is artificially induced by the constraint in the model that GDP outcomes are unaffected. In reality, the move to substantial federal deficits aligns it with the deficits that provincial governments and especially households are already running (Poloz 2016).

Late in 2015, net borrowing in Canada resembles that in the US just before 2008, with all three sectors of the domestic economy borrowing to sustain spending with funds ultimately supplied by non-residents. Before 2014, Canada used its borrowing abroad to finance government and household debt as well as investments in the energy sector (energy accounted for over half of all business investment in recent years) (Statistics Canada 2016). All this debt-fuelled spending on housing and energy may prove to be malinvestments, while encouraging governments to raise their debt to unsustainable levels. If asset prices fall, Canada will be left with the usual post-boom hangover of less access to credit and servicing debt from lower income streams.

These arguments about the ineffectiveness of fiscal policy in the current circumstances ignore the possibility of crowding out business investment. Conventional crowding out in terms of increased debt issuance forcing up interest rates, which depresses the valuation of business assets and lowers business investment, is near impossible in the current circumstance of low interest rates (Phelps 2013, 319). A more likely channel is that "individual or corporate taxpayers rationally anticipate that fiscal deficits today mean higher taxes in the future" so they may save more today (the so-called Ricardian equivalence effect) (Turner 2016, 215). Phelps argues that one reason corporations in advanced market economies have boosted cash reserves in recent years rather than invest is "They fear undertaxation in the past will bring supertaxation in the future" (Phelps 2013, 311). As posed by Smaghi, the question "are investments more sensitive to the promise of low interest rates for a prolonged period of time or to the medium-term fiscal uncertainty that such low interest rates involun-

**CHART 9: Sectoral net lending in Canada**




Source: Statistics Canada

tarily produce?" (Smaghi 2014, 43) remains unanswered but is another reason that stimulative monetary and fiscal policy may produce disappointing results.

## How stimulative are deficits?

The stimulus offered by government spending and deficits depends on the utype of spending undertaken and the size of the fiscal multiplier, which is affected by many factors, notably the cyclical state of the economy and the amount of government debt. As well, the fiscal stimulus varies depending whether the money is used for purchases rather than other types of spending (such as transfers to other governments or debt repayment).

> *"The fiscal multiplier is the amount of total spending generated by the initial round of government spending or tax cuts."*

The fiscal multiplier is the amount of total spending generated by the initial round of government spending or tax cuts. The mechanistic view that many economists propose treats the multiplier as fixed over time. However, "the effectiveness of government policies in stimulating aggregate demand in market economies is likely to be context-specific. Similar measures that are introduced in different countries at the same time, or in the same country at different times, may have quite different consequences" (Simpson 2013, 152). More broadly, the multiplier varies depending on "the type of government spending, its persistence, and how it is financed" (Ramey 2011, 673).

This is borne out by extensive research for the National Bureau of Economic Research. In particular, Auerbach and Gordonichenko (2011) found that the multiplier varied widely depending on whether or not the economy was in recession and the severity of the recession. Multipliers greater than 1.0 occurred only during recessions, reaching as high as 1.5 during severe recessions such as 2008/2009 or 1981/1982. However, outside recessions, the multiplier quickly falls to zero or less, even in periods of slow growth such as the late 1970s. The expansion after 2001 was a notable exception, with the multiplier never falling below 0.5. Conversely, the multiplier will be zero if the stimulus is enacted for an economy already at full employment, such as the surge of government spending related to the Korean War in the early 1950s. Low levels of the multiplier may explain why the fiscal austerity adopted by the US, the UK and Canada after 2010 did not slow growth as much as many (such as the Congressional Budget Office) predicted.[54]

Many factors besides the business cycle affect the multiplier. Countries with fixed exchange rates have much higher multipliers than countries with floating exchange rates because if growth were raised by fiscal stimulus, it would lead to a rise in either the exchange rate or interest rates, which offset much or all of this initial stimulus (Ilzetzki 2010, 16). The multiplier is different depending on whether the stimulus comes from more spending or from tax cuts. Taylor found that during the three stimulus packages introduced in the 2000s, "Individuals and families largely saved the transfers and tax rebates" (Taylor 2011, 701).

The level of existing government debt also influences the multiplier. Vegh et al found that beyond a threshold of government debt equal to 60 percent of GDP "fiscal stimulus appears ineffective" with a long-term multiplier below zero (Ilzetzki 2010, 20). Presumably, this reflected the belief in global capital markets that any further fiscal expansion is simply unsustainable, and that increased spending actually signals future tightening. The 60 percent mark is significant as this also was the debt-to-GDP ratio specified in the *Maastricht Treaty* for a country to join the eurozone. This threshold was not arbitrary.[55]

Cogan and Taylor put forward an additional complication, arguing that the size of the multiplier was important as was the size of the "multiplicand – the change in government purchases of goods and services that the multiplier actually multiplies" (Cogan and Taylor 2010, 1). They found that only 2 percent of the $862 billion US fiscal stimulus package of 2009 went to government purchases,

with most going to other types of expenditures, such as subsidies and transfers to state and local governments. These other governments mostly used the money to reduce borrowing, creating a situation where "the federal government borrowed funds from the public, transferred these funds to state and local governments, who then used the funds mainly to reduce borrowing from the public" (Cogan and Taylor 2010b).

> *"This channel is blocked today with interest rates already at their zero lower bound."*

Fiscal restraint would likely slow the economy in the short term. The International Monetary Fund found that fiscal consolidation is contractionary in most economies for the first three years of retrenchment, after which the benefits cumulate to an overall net gain in the fifth year. Again, it is a matter of trading off short-term losses in growth against higher long-term growth. IMF research also found that the negative short-term impact of deficit-cutting is lower when deficit reduction is accomplished by spending cuts rather than tax hikes. This is because the central bank usually provides more offsetting monetary stimulus to spending cuts because the credibility of deficit reduction is enhanced by these cuts and because of the upward pressure on prices from tax hikes (especially indirect taxes) (Leigh 2010, 113). However, with monetary policy already effectively at the zero bound in most countries, the central bank has almost no ability to offset fiscal restraint.

However, there are rare instances when the effect of fiscal policy confounds predictions because of its impact on confidence. Alan Waters, Margaret Thatcher's key economic advisor, argued that fiscal deficits in the 1970s had become synonymous with a weak economy. Therefore "the actual effect of a deficit intended to be 'expansionary' was to contract the economy" (Moore, 2013, 632). Thatcher's tightening of fiscal policy in 1981 restored confidence, which ultimately boosted growth by lowering interest rates and the exchange rate. However, this channel is blocked today with interest rates already at their zero lower bound.

## Deficits and malinvestments

The Austrian school has always been pessimistic about the ability of macroeconomic policy to address a slumping economy. Once the fundamental error of overstimulating the economy during the boom has been made, only time will correct the malinvestments that require a shift of capital and production to more profitable sectors.[56] Hayek points out the paradox that "if the underlying problem was a misallocation of real resources, due to the 'excessive' creation of money and credit, it hardly seems obvious that the preferred solution was still more credit and, potentially, still more imbalances."[57] Yet this seems a very apt description of the current state of large parts of the global economy. According to the Austrians, the slow recovery in the US after 2008 was unavoidable since only the passage of time would permit the absorption or depreciation of the large stock of malinvestment, notably in housing. Mervyn King, the Governor of the Bank of England during the crisis, noted that there are limits to what monetary policy can do when the problem is not only deficient aggregate demand but also reflects "the underlying need to rebalance the economy, requiring a reallocation of resources" and a shift in relative prices (King 2014, 51).

Not all malinvestments are destined to become worthless or stranded investments. The railroad boom in North America in the 1850s may have been a bust for investors, but the transportation infrastructure proved valuable when the economy grew after the Civil War. In 2001, the malinvestment left behind by the technology, media and telecommunications bubble bequeathed a large stock of infrastructure, companies and ideas that were indispensable when demand from the Internet exploded (albeit too late for investors in ICT stocks) (Turner 2016, 48). In Canada, the legacy of years of investment in oil and gas assets may yet prove to be quite valuable if prices rebound, although they are unprofitable at the moment. More problematic in Canada is the larger legacy of high government spending and house prices financed by low interest rates.

# Conclusion

The current instability and slow growth in advanced economies is the inevitable outcome of years of unprecedented monetary and fiscal stimulus, even if they initially helped to avert a more severe global recession in 2008/2009. This contrasts with the crisis starting in 2007, which reflected a series of bad policies, such as keeping interest rates too low for too long in the expansion beginning in 2001, regulations that encouraged sub-prime loans, and poor regulatory oversight of reprehensible lending practices by financial firms coupled with distorted international capital flows arising from structural trade imbalances (Wolf 2014, 151).

The historical record is that the stimulative policies used to end one recession sow the seeds for the next cyclical downturn. This is disquieting for the analysis of the current cycle, given the extraordinary monetary and fiscal stimulus starting in 2008. This stimulus clearly led to distortions in investor behaviour and the growth and allocation of credit, favouring the growth of housing and the public sector at the expense of productivity-enhancing business investment. Furthermore, monetary and fiscal policy have far fewer tools to use to combat the next cycle.

Is another financial crisis inevitable soon? Robert Lucas stated clearly why modern macroeconomics cannot forecast financial crises. He argues that "One thing we are not going to have, now or ever, is a set of models that forecasts sudden falls in the value of financial assets" because if economists could accurately forecast financial crises, that forecast "would become part of generally available information and prices would fall" and thereby just advance the date of the financial crisis.[58] Gorton does not think that financial crises can be captured in central bank models of the economy, which can only produce a crisis through a large shock and "Since the large shock is exogenous, this is not a theory of crises" (Gorton 2012, 21). The Bank of Canada and the Federal Reserve Board's attempts to incorporate the financial sector into their models after the last crisis will not change that.

Since financial crises cannot be forecast, this implies a need to keep a reserve of potential monetary and fiscal responses. Currently, advanced economies are not doing so, leaving them vulnerable to another shock. Easy monetary policy encourages government to run deficits, raising government debt "to levels that look increasingly unsustainable" in the words of William White, who concludes that "these policies not only helped create the current crisis, but removed our capacity to deal with it using macroeconomic instruments. We have shot ourselves in the foot" (White 2013, 9). The policy cupboard is even more bare today, leaving it potentially impotent for another, possibly larger crisis. The last crisis produced a banking crisis, the resolution of which caused the sovereign debt crisis. Another crisis may trigger the BIS's *doom loop*, where the two spiral out of control.

> *"The historical record is that the stimulative policies used to end one recession sow the seeds for the next cyclical downturn."*

More broadly, as slow growth persists year after year despite extraordinary monetary and fiscal stimulus, it seems increasingly clear that we now inhabit the territory where the negative impact of policies to stimulate growth in the short term subtracts from long-term potential growth. The long run is not just the result of a series of short runs but a place of its own into which Western economies seem to have taken up residence, living with the negative long-term consequences of policies designed to be stimulative in the short-term. In the words of the American novelist William Faulkner, "The past is never dead. It's not even past."

Moreover, these same policies encourage the very behaviour by investors, governments and households that may precipitate a crisis that policy is too exhausted to address. Repeated monetary stimulus appears to have mostly encouraged spending on financial assets, not productivity-enhancing investments in the real economy. Even more worrisome than chronically weak growth

is that extraordinary monetary and fiscal stimulus leaves few options to deal with another negative shock to the global economy.

If the global economy suffers another contraction soon, and monetary and fiscal policy are constrained from buffering the downturn as much as in 2008/2009, questions will inevitably be raised about our reliance on an economic and financial system that seems so unstable. To some, "financial crises and scandals occur frequently enough to make finance appear to be a cause of poverty rather than prosperity, volatility rather than stability" (Ferguson 2008. 2). Many would interpret two crises in the space of a decade as a condemnation of free market capitalism.

*"The Great Depression was not the result of the stock market crash of 1929 but the inept response of the Federal Reserve Board to what began as a recession in the US."*

It would be misguided to blame capitalism for all periods of economic crisis. The Great Depression was not the result of the stock market crash of 1929 but the inept response of the Federal Reserve Board to what began as a recession in the US, and then was compounded by a crisis in the European banking system (Eichengreen 2015, 148). Others have argued that the Great Depression "was not caused by capitalism, but by the 'negation' of capitalism" (Skousen 1990, 53).

Policy-makers could design a banking or financial system that minimizes or eliminates risk. The problem is that this would reduce growth in the long term, denying the economy the observable benefits of financial innovation. Risk and innovation produce more growth over time. For example, Gorton finds that countries "that have experienced occasional financial crises have tended to grow faster than countries that have not experienced crises," a conclusion that applies to developed and emerging countries (the obvious example is Thailand compared with India) alike (Gorton 2012, 177). In his study of financial innovation, Palmer concludes that more, not less, will be required because our aging population increases the need for adequate returns on savings to finance the large number of retirees while ensuring adequate funds are available for investment by following generations (Palmer 2015, 124-125.

Policy-makers and most mainstream economists have not communicated the considerable level of uncertainty about the short-term efficacy and negative effects on long-term growth from applying exceptional levels of monetary and fiscal stimulus. As a result, the public believes that our understanding of how the macroeconomy works is encyclopedic and sophisticated, when the truth is that it is embryonic and primitive. Using never-before touched (and barely imagined) policy tools, such as ultra-low or even negative interest rates, unprecedented quantitative easing, and forward guidance are all part of an experiment about the limits of monetary policy. For fiscal policy, the high levels of deficits and debts unfortunately have ample precedents that they erode the ability of governments to sustain high deficits and harm long-term potential growth.

# About the Author

**PHILIP CROSS**

Philip Cross is a Munk Senior Fellow at the Macdonald-Laurier Institute. He is also a member of the Business Cycle Dating Committee at the CD Howe Institute. Before that, he spent 36 years at Statistics Canada, the last few as its Chief Economic Analyst. He wrote Statistics Canada's monthly assessment of the economy for years, as well as many feature articles for the *Canadian Economic Observer*.

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# Endnotes

1 In particular, low inflation enables firms and people to allocate resources to sectors where prices and profits are high; in a high inflation environment, it is harder to separate which opportunities are naturally more profitable from those that are just recording paper profits on inventories.

2 The BIS refers to "the seemingly diminished effectiveness of monetary policy through domestic channels." See Bank for International Settlements. 2016. *86th Annual Report*, (June 26): 4.

3 The International Monetary Fund estimates that potential real GDP growth fell 1.6 percentage points between 1981–1983; 0.5 points between 1990–1992; and 0.9 points between 2008/2010 due to recessions. See Estevao, Marcello and Evridiki Tsounta. 2010. Canada's Potential Growth: Another Victim of the Crisis? *IMF Working Paper WP/10/13*, (January).

4 The origins of the crisis extend well back into the 1990s even though its literal onset was much later.

5 The most visible disruption of financial markets in Canada was the seizure in the market for asset-backed commercial paper. Markets viewed funding by commercial paper backed by securitized mortgages as fully secure until doubts about the underlying value of mortgages triggered a freeze in ABCP funding in 2008. See Smick, David. 2008. *The World is Curved*. Portfolio: 247-9. For a broader discussion, see Kacperczyk, Marcin and Philipp Schnabl. 2010. When Safe Proved Risky: Commercial Paper during the Financial Crisis of 2007/2009. *Journal of Economic Perspectives*, Vol 24 No 1, (Winter): 38.

6 Quoted in Desai, Meghnad. 2015. *Hubris: Why Economists Failed to Predict the Crisis and How to Avoid the Next One.* Yale University Press: 2.

7 Carney, Mark. 2008. Addressing financial market turbulence. Remarks to the Toronto Board of Trade, March 13.

8 German and Greek bonds both yielded 3.6% in 2003. See Wolf, Martin. 2014. *The Shifts and the Shocks*. Allen Lane: 47. Acharya (2015) notes that stress tests by European regulators continue to treat sovereign debt as risk-free. Banks were also allowed to include some mortgage-backed securities in their measured capital, which is one reason they were holding so many when the crisis erupted when the point of securitization is to sell loans.

9 It is a measure of the depth of investor panic that government guarantees of money market funds and commercial paper in 2008 did not stabilize these markets immediately. See Gorton, Gary. 2012. *Misunderstanding Financial Crises: Why We Don't See Them Coming*. Oxford University Press: 183.

10 Timothy Geithner notes that, in April 2009, the International Monetary Fund predicted that bailing out the US financial system would cost up to $2 trillion; He notes that, by year-end, taxpayers already had made a profit. See Geithner, Timothy. 2014. *Stress Test*. Crown: 255-6 and 385.

11 Allessandri and Haldane; quoted in Mishkin 2011, 59.

12 A spread is the difference between the yield on a security and the yield on an equivalent riskless security, with the spread reflecting compensation for the risk the investor accepts (Gorton, Gary. 2012. *Misunderstanding Financial Crises: Why We Don't See Them Coming*. Oxford University Press: 189). See also Blinder, Alan. 2013. *After The Music Stopped*. The Penguin Press: 249.

13 It is a measure of the depth of investor panic that government guarantees of money market funds and commercial paper in 2008 did not stabilize these markets immediately. See Gorton, Gary. 2012. *Misunderstanding Financial Crises: Why We Don't See Them Coming*. Oxford University Press: 183.

14 It is mostly forgotten that the Bank of Canada briefly adopted quantitative easing at the height of the crisis, expanding its assets by 27% in the eight months starting September 2008 but quickly shrank its balance sheet by September 2010 when it became clear there was no widespread damage to Canada's financial system.

15 Negative interest rates are common in Europe and Japan, while both the Fed's Janet Yellen and the Bank of Canada's Steve Poloz have publicly discussed the possibility of negative interest rates in North America.

16 A growing share of corporate debt in North America was also classified either as junk bonds (yielding more than 10 percentage points above government rates) or as *distressed* junk bonds (already in default).

17 John Taylor criticizes Greenspan for keeping interest rates lower in 2003–2005 than a rules-based policy would dictate. See Taylor, John. 2012. *First Principles: Five Keys to Restoring America's Prosperity*. W.W. Norton & Co.: 88.

18 Experimental data on business employment dynamics from Statistics Canada show a similar pattern; see Cansim Table 527-0001 and compare with data from the Bureau of Labor Statistics, Business Employment Dynamics; 222.bls.gov/web/cewbd/anntab2_1.txt.

19 According to OECD.stats, the personal savings rate between 2009–2014 rose from -2.1% to 3.0% in the US; 2.7% to 4.2% in the EU; -0.5% to 1.2% in Japan; and 0.9% to 4.5% in Canada.

20 Another reason that devaluation has been popular in recent years is that it is "default by stealth," since non-residents holding devalued currency will absorb the loss. Stephen King (175).

21 All exchange rate data are from *BIS Statistical Bulletin*, March 2016, Table 11, nominal effective exchange rates against a broad basket of currencies.

22 Another manifestation that borders matter is the "home bias" in international trade and in equity purchases. See Obstfeld, Maurice and Kenneth Rogoff. 2001. The Six Major Puzzles of International Macroeconomics: Is There a Common Cause? In *NBER Macroeconomic Annual 2000*. Edited by Ben Bernanke and Kenneth Rogoff. MIT Press, (January): 350.

23 Whether the deficits were used to finance private or public debts "did not make much difference" because once the crisis began, private financing of all deficits evaporated quickly even as fiscal deficits soared. Wolf, Martin. 2014. *The Shifts and the Shocks*. Allen Lane: 78-9.

24 European governments used a variety of tools to address the banking crisis. Northern Rock and the Royal Bank of Scotland were nationalized. The British government injected £50 billion to recapitalize banks in October 2008. All nations had to match Ireland's guarantee of bank debt. Fortis was saved from bankruptcy by the nationalization of its Dutch parts and the takeover of its Belgian assets by BNP Paribas. The Netherlands refinanced ING, while bailouts were made to Hypo Real Estate by Germany and Dexia by France and Belgium. Most notoriously, Ireland guaranteed payments on $574 billion of bank debt. See Paulson, Henry. 2010. *On The Brink*. Business Plus: 318-322.

25 However, the $63 billion of fines levied on European banks for misconduct drains potential capital to the public sector.

26 Quoted In White, William. 2012. Ultra Easy Monetary Policy and the Law of Unintended Consequences. *Federal Reserve Bank of Dallas Working Paper No 126*, (August): 14.

27 House prices have risen rapidly in recent years in Canada, Sweden, Turkey, Hong Kong and an average of 50.1% in Latin America. BIS. 2015. *Developments in residential property prices*, (Third quarter): 2.

28 King attributes the outflow from Asia to rising interest rates and stock market returns in the US. See King, Stephen. 2013. *When the Money Runs Out: The End of Western Affluence*. Yale University Press: 193.

29 Quoted in Wolf, Martin. 2014. *The Shifts and the Shocks*. Allen Lane: 172.

30 Switzerland experimented with negative interest rates during the breakdown of the Bretton Woods system of fixed exchange rates in the 1970s because capital inflows were raising the exchange rate too rapidly. See Zucman, Gabriel. 2015. *The Hidden Wealth of Nations*. The University of Chicago Press, 2015: 23.

31 Quoted in Ragan, Christopher and William Watson. 2004. Introduction and Summary. In *Is the Debt War Over?* Edited by Christopher Ragan and William Watson. McGill University Press: 44.

32 Minsky claimed in 1986 that "the evidence indicates that since the mid-1960s a progression in the seriousness of financial crises has taken place." Minsky, Hyman. 1986. *Stabilizing An Unstable Economy*. McGraw Hill: 245. He also wrote that "the financial traumas since 1966 are associated with pauses and recessions of increasing severity" with only government preventing "debt deflations and deep depressions" (315).

33 Rogue traders regularly surface during financial crises, such as Nick Leeson whose (US)$1.5 billion of losses forced Baring Bank into insolvency and Jerome Kerviel who made $75 billion of bets at Societé Générale in 2008. See Patterson, Scott. 2010. *The Quants*. Crown Business: 252 and Connolly, Bernard. 1995. *The Rotten Heart of Europe*. Faber and Faber: 355.

34 The system was called CHIPS for the Clearing House Interbank Payments System. See Pozdera, Randall. 1980. *In The CHIPS*. Federal Reserve Bank of San Francisco, May 23.

35 From comment by Lepetit, J.F. 1982. On the lender of last resort in *Financial Crises: Theory, History, and Policy.* Edited by Charles Kindleberger and Jean-Pierre Laffargue: 252.

36 The run on Franklin reduced its liabilities (apart from funding from the Fed) from $4.6 billion in April 1974 to $1.8 billion in October 1974. McKinley, Vern. 2014. Run, Run, Run: Was the Financial Crisis Panic over Institution Runs Justified? *Cato Institute Policy Analysis No 747,* (April 20): 6.

37 The governor of the Bank of Canada also cited the political uncertainty surrounding the ratification of the Meech Lake Accord. See Crow, John. 2002. *Making Money: An Insider's Perspective on Finance, Politics, and Canada's Central Bank*. Wiley: 167.

38 Stephen Cecchetti, Director of Research of the New York Fed, quoted in Banerji, Anirvan. 2002. The Resurrection of Risk. *Challenge*, (March-April): 19.

39 This pattern of a recession becoming much more severe after a financial crisis also was evident in the Great Depression, when a mild recession in 1929 was first amplified by the stock market crash in October and then by the insolvency of the Creditanstalt bank in Austria in 1931, which triggered a banking crisis that swept across Europe and then into the US banking system. See Eichengreen, 2015 (149).

40 The name is based on a legal case, *Livingston v. The Bank of New York*. Gorton, Gary. 2012. *Misunderstanding Financial Crises: Why We Don't See Them Coming*. Oxford University Press: 9.

41 The Iraq invasion of Kuwait and subsequent Gulf War also played a major role.

42 Capital inflows exceeded $60 billion at their peak, which subsequently became net outflows of $80 billion. Caballero, Ricardo. 2009. The "Other" Imbalance and the Financial Crisis. *MIT Dept of Economics Working Paper 09-32*: 11.

43 According to Blinder and Yellen, Fed staff reports regularly called for a slowdown "just around the corner. But the slowdown never materialized." In particular, the Fed was ready to raise interest rates in 1997 and 1998, but did not due to "surprising, and somewhat ominous, events originating abroad. The period of forbearance was thus extended unnaturally." Blinder, Alan and Janet Yellen. 2001. *The Fabulous Decade: Macroeconomic Lessons from the 1990s.* The Century Foundation Press: 53-55.

44 The Fed then raised interest rates three times in 2000 even as the bubble burst and the economy slid into recession. The burst of money supplied by central banks for the Y2K computer glitch also helped fuel the ICT bubble, which began with a very real increase in demand for computer upgrades to ICT products to avoid the anticipated Y2K problems. Cassidy, John. 2002. *Dot.con: the greatest story ever sold*. HarperCollins: 191. See Brenner, Robert. 2002. *The Boom and The Bubble*. Verso.

45 Caballero, Ricardo. 2009. The "Other" Imbalance and the Financial Crisis. *MIT Dept of Economics Working Paper 09-32*: 9. Turner draws a straight line from Asia to 2008, writing "The 1997 crash created an acute awareness of the potential instability of financial markets and caused a policy reaction in some emerging-market countries that contributed to the 2008 crash." Turner, Adair. 2012. *Economics After the Crisis: Objectives and Means*. The MIT Press: 51.

46 One could extend this model back farther. Minsky argues that by extending its lender-of-last-resort function to the international deposits of the Franklin National Bank in 1975, the Federal Reserve Board gave the green light for large banks to loan to emerging markets, which resulted in the international debt crisis of the early 1980s after Mexico defaulted. Minsky, Hyman. 1986. *Stabilizing An Unstable Economy*. McGraw Hill: 72.

47 Cited in Eichengreen, Barry. 2015. Hall of Mirrors: *The Great Depression, the Great Recession, and the Uses—and Misuses—of History.* Oxford University Press: 300.

48 Reinhart and Rogoff, cited in Blyth, Mark. 2012. *Austerity*. Oxford University Press: 72.

49 Reinhart and Rogoff, cited in Blyth, Mark. 2012. *Austerity*. Oxford University Press: 72.

50 Joffe notes that four provinces and Newfoundland defaulted or were bailed out during the 1930s. Joffe, Marc. 2012. *Provincial Solvency and Federal Obligations*. Macdonald-Laurier Institute, (October): 40.

51 Specifically, the debt-to-GDP ratio in 2014 was 88.2% in Quebec; 80.8% in New Brunswick; 67.7% in Manitoba; 58.4% in Nova Scotia; and 56.9% in Ontario.

52 Between 2007–2010, the debt-to-GDP ratio rose 10.0 percentage points in Quebec; 9.0 points in New Brunswick; and 12.6 points in Ontario.

53 The Office of the Superintendent of Financial Stability did issue a caution to all banks to tighten lending standards on July 8, 2016.

54 In discussing weak growth in the UK after 2010, King notes that it adopted fiscal austerity on the assumption that monetary policy would deliver more growth. The resulting slow growth reflected "the impotence of monetary policy" not reckless fiscal austerity. Stephen King (67-68).

55 Rogoff notes that in evaluating sustainable levels of government debt to GDP, "benchmark debt levels are often a better guide to vulnerability than either interest rate premiums or ratings agency assessments." Rogoff, Kenneth. 2011. Nightmare on Kaiserstrasse. *Business Economics*, Vol 46 No 4: 192. Turner notes that for many periphery countries like Italy and Greece, the 60% target is no longer attainable under any conceivable combination of austerity plus growth. See Turner, Adair. 2016. *Between Debt and the Devil: Money, Credit, and Fixing Global Finance*. Princeton University Press: 223.

56 For an extensive discussion of the Austrian school, see Laidler, David. 1999. *Fabricating the Keynesian Revolution*. Cambridge University Press: 27-50.

57 Quoted in White, William. 2006. Is Price Stability Enough? *BIS Working Papers No. 205* (April): 13.

58 Quoted in Desai, Meghnad. 2015. *Hubris: Why Economists Failed to Predict the Crisis and How to Avoid the Next One*. Yale University Press: 9-10.

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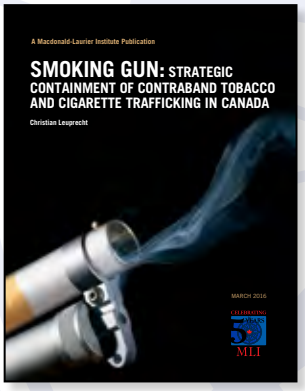


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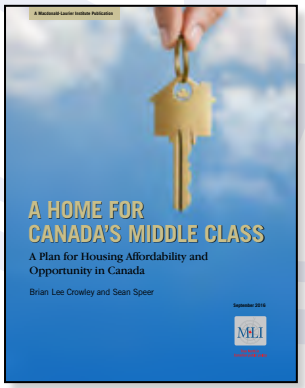


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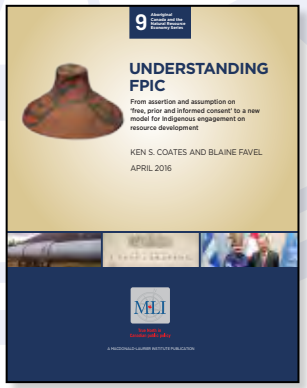


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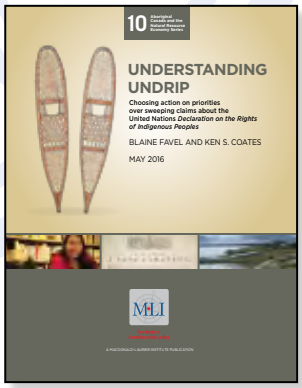


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