2015s-01

Growing out of Crises and Recessions: Regulating Systemic Financial Institutions and Redefining Government Responsibilities

Marcel Boyer

Série Scientifique
Scientific Series

Montréal
Janvier/January 2015

© 2015 *Marcel Boyer*. Tous droits réservés. *All rights reserved*. Reproduction partielle permise avec citation du document source, incluant la notice ©.
Short sections may be quoted without explicit permission, if full credit, including © notice, is given to the source.

Centre interuniversitaire de recherche en analyse des organisations

CIRANO

Le CIRANO est un organisme sans but lucratif constitué en vertu de la Loi des compagnies du Québec. Le financement de son infrastructure et de ses activités de recherche provient des cotisations de ses organisations-membres, d'une subvention d'infrastructure du Ministère de l'Économie, de l'Innovation et des Exportations, de même que des subventions et mandats obtenus par ses équipes de recherche.

CIRANO is a private non-profit organization incorporated under the Québec Companies Act. Its infrastructure and research activities are funded through fees paid by member organizations, an infrastructure grant from the Ministère de l' l'Économie, de l'Innovation et des Exportations, and grants and research mandates obtained by its research teams.

Les partenaires du CIRANO

Partenaire majeur
Ministère de l'Économie, de l'Innovation et des Exportations

Partenaires corporatifs
Autorité des marchés financiers
Banque de développement du Canada
Banque du Canada
Banque Laurentienne du Canada
Banque Nationale du Canada
Bell Canada
BMO Groupe financier
Caisse de dépôt et placement du Québec
Fédération des caisses Desjardins du Québec
Financière Sun Life, Québec
Gaz Métro
Hydro-Québec
Industrie Canada
Intact
Investissements PSP
Ministère des Finances et de l'Économie
Power Corporation du Canada
Rio Tinto Alcan
Ville de Montréal

Partenaires universitaires
École Polytechnique de Montréal
École de technologie supérieure (ÉTS)
HEC Montréal
Institut national de la recherche scientifique (INRS)
McGill University
Université Concordia
Université de Montréal
Université de Sherbrooke
Université du Québec
Université du Québec à Montréal
Université Laval

Le CIRANO collabore avec de nombreux centres et chaires de recherche universitaires dont on peut consulter la liste sur son site web.

Les cahiers de la série scientifique (CS) visent à rendre accessibles des résultats de recherche effectuée au CIRANO afin de susciter échanges et commentaires. Ces cahiers sont écrits dans le style des publications scientifiques. Les idées et les opinions émises sont sous l'unique responsabilité des auteurs et ne représentent pas nécessairement les positions du CIRANO ou de ses partenaires.
This paper presents research carried out at CIRANO and aims at encouraging discussion and comment. The observations and viewpoints expressed are the sole responsibility of the authors. They do not necessarily represent positions of CIRANO or its partners.

ISSN 2292-0838 - en ligne

Partenaire financier

Growing out of Crises and Recessions: Regulating Systemic Financial Institutions and Redefining Government Responsibilities [*]

Marcel Boyer [†]

Résumé/abstract

Je caractérise les défis et écueils auxquels nous devons faire face pour sortir pour de bon des crises financières et récessions économiques. Je propose une brève histoire de la crise de 2008 et insiste sur la perte de confiance *au sein* du secteur bancaire et financier, qui s'est propagée plus tard au secteur réel. Je présente les facteurs-clés de la crise: la défaillance du *Federal Reserve Board* dans la poursuite de sa mission; les interventions politiciennes dans le marché hypothécaire; la complaisance des régulateurs; la faiblesse des mécanismes de gestion de risques au sein du système bancaire; et l'omniprésence dans le secteur bancaire et financier de systèmes de rémunération mal conçus. Je discute des moyens de rétablir la confiance et de se sortir d'un équilibre économique mauvais mais stable. Considérant les données brutes sur la création et la perte d'emplois dans le secteur privé américain, je nous mets en garde contre les apprentis-sorciers en mal de réformer le capitalisme et je rappelle le rôle-clé de la destruction créatrice. Je suggère que les déficits publics et la croissance économique ne sont pas de bons comparses, donnant en référence l'expérience canadienne de la période 1985-2005. Enfin, je discute des réformes fiscales et réglementaires et je propose des rôles renouvelés des secteurs public/gouvernemental et privé/concurrentiel dans le façonnement d'une économie plus prospère.

Mots clés : Crise financière, confiance, destruction créatrice, réforme fiscale, réglementation systémique prudentielle, social-démocratie concurrentielle.

I characterize and discuss the challenges and pitfalls we must face to grow out for good of recent and future financial crises and economic recessions. I propose a brief history of the 2008 crisis and insist on the loss of confidence within the banking and financial sector, which propagated later to the real sector. I discuss the factors underlying this loss of confidence: the failure of the Federal Reserve Board to abide by its mission; the ill-advised political interventions in mortgage markets; the leniency of (captured) financial regulators; the faulty risk management mechanisms in the banking sector; and the omnipresence of poorly designed compensation systems in the banking and financial sector. I also

---

[*] A preliminary version of this paper was prepared for the CIRANO Conference *Too Big to Fail Financial Institutions? International Perspectives and Possible Remedies*, September 2011. A revised version appeared as Toulouse School of Economics working paper TSE-398 in April 2013. The current version updates and improves those preliminary versions. It also borrows from two of my recent publications: "The economic crisis and its impact on employment" (Montreal Economic Institute Research Paper #1209, December 2009) and "The Twelve Principles of Incentive Pay" (*Revue d'économie politique* 121(3), 2011). I am grateful to all those who provided me with comments on early versions, in particular the participants in the Mackenzie Financial Services symposium (Québec, May 2009), the Canadian Academic Accounting Association annual meeting (Montréal, June 2009), the CIRANO 2011 *Too Big To Fail* Conference, and the CIRANO-HEC 2014 *What have learned from the 2008 Crisis* Conference. Needless to say, I remain solely responsible for the content of this paper.
[†] Professor Emeritus of Economics, Université de Montréal, Associate Member, Toulouse School of Economics, Fellow of CIRANO and the C.D. Howe Institute. marcel.boyer@cirano.qc.ca

discuss the ways to rebuild confidence and move out of a bad and stable economic equilibrium. Considering data on gross job creation and loss in the US private sector, I challenge the sorcerer's apprentices' plan for reforming capitalism and I recall the key role played by creative destruction. I suggest that government deficits and economic growth are not good friends, offering a reference to the Canadian experience of the two decades 1985-2005. Finally, I discuss fiscal and regulatory reforms and propose a set of redefined roles for public/governmental and competitive/private sectors in generating a more prosperous economy.

Key words: *Financial crisis, confidence, creative destruction, fiscal reform, prudential systemic regulation, competitive social-democracy.*

PLAN

Executive summary

1. Introduction
2. A brief history of the crisis
3. Inefficiently designed bonus systems
4. Rebuilding confidence in the financial system and moving out of a bad equilibrium
5. Reforming capitalism: beware of the sorcerer's apprentices!
6. A neglected phenomenon: creative destruction at work
7. Deficits and growth: friends or enemies?
8. Fiscal reforms, Renewed roles for the governmental (public) sector, Social risk management as a growth factor
9. Conclusion: challenges and prospects

Executive Summary

An economic recession produces its share of negative consequences: drops in the value of retirement funds, declines in the worth of real estate assets, lower corporate profits, increases in public sector debt and government deficits, and so forth. However, the most perceptible impact is unquestionably the job losses and the drop in the value of human capital that are typical, if not inevitable, results of an economic recession.

This paper covers different aspects of the financial crisis and economic recession which officially began in late 2007. After a brief history of the main events and an analysis of their most likely causes, I tackle its most likely central cause namely the inefficiently designed bonus systems in the financial sectors and its most important aspect, namely the *loss of confidence* within the financial system.

Confidence is an especially important type of social capital. Consequently, the *loss of confidence* in the financial system, and particularly in interbank financial relations, helped precipitate the financial crisis and then the economic recession. After an interim period of quasi-stability in financial markets, we are headed back toward chaos in the financial markets with an impending *loss of confidence* in sovereign debt of important countries and its impact on bank liquidity and solvability.

To re-establish and maintain confidence, four issues had to be tackled then and must again be addressed now: the manipulation or even falsification of information provided by public organizations (governments and government-sponsored enterprises - GSE) and private companies; the faulty risk measurement; political intervention in publicly owned or regulated companies and the indulgent attitude of regulators toward these companies (the U.S. cases of Fannie Mae and Freddie Mac being the most notorious, with banks bowing to political pressures in their lending decisions coming close); flaws in performance incentive programs, which too often neglect and thereby promote reckless risk-taking; and finally, the inflexible application of the mark-to-market accounting rule, which adds to the contagion of uncertainty in a context in which a *loss of confidence* is causing relevant markets to disappear.

I continue with the pressures by different interest groups and politicians demanding an in-depth reform of capitalism. I emphasize the serious risk of improperly reforming capitalism and describe this act as the commonly-used moniker: throwing out the baby with the bathwater.

I then follow with a prominent component of this paper, which is the process of job creation and job loss in the economy during periods of expansion and recession – and the creative destruction process that lies at its core. The American economy has continued to create an impressive number of jobs during the recent crisis from 2008.I till 2010.I even if it lost an even more astounding number of jobs. For the pre-crisis period (including previous crises) from 1992.III to 2007.IV, the U.S. private sector establishments created a net average of 407,000 new jobs per quarter, which arose

from the average creation of 7.9 million jobs per quarter and the average loss of 7,5 million jobs per quarter. Thus, each net new job created during the "normal" pre-crisis period (more than 15 years of observations) was the net result of 19.4 jobs created and 18.4 jobs lost. For the recession period 2008.I to 2010.I, the U.S. private sector lost a net average of 1,040,000 jobs per quarter, which arose from the average creation of 6.6 million jobs per quarter and the on average loss of 7.7 million jobs per quarter. For the immediate post-crisis period from 2010.II to 2011.IV, the U.S. private sector created an average of 514,000 new jobs per quarter, with an average creation of 6.9 million jobs per quarter and an average loss of 6.4 million jobs.

When the data are compared to the number of jobs allegedly "created or saved" by the American government's recovery plan, one can only observe that the latter number is relatively negligible compared to the gross job creation in the private sector. Considering the important fiscal, political and economic costs of the U.S. stimulus program, one wonders if government efforts are properly oriented. Indeed, the White House has quickly abandoned the concept of "jobs created and saved" in favour of a concept of "jobs financed" which is, of course, less contentious and less informative.

In conclusion, I discuss the challenges that we face today and I offer recommendations in order to avoid the negative consequences suffered in the recent, currently looming, and future recessions:

- First, refocus the role of governments. Governments should focus their efforts on rebuilding and maintaining confidence in addition to developing conditions favourable to creative destruction, as job losses are a necessary component of job creation and growth. To do so, governments must accept a new role and redefined means of intervention, tailored toward taking the economy out of a bad but stable equilibrium. This requires a concerted effort by all agents, mainly private and public corporations, but including also governments.
- Second, governments need to favour the development of new institutions and instruments, mainly finance and insurance based, aimed to facilitate adjustments by firms and individuals to endogenous and exogenous shocks in their socio-economic environment. Governments should also favour the inclusion of clauses in mortgage or other contracts to allow for continuous adjustments to economic conditions in case of recession or crisis, thereby avoiding sudden, cascading adjustments that only aggravate poor economic conditions needlessly.
- Third, various micro prudential and macro prudential regulatory rules should be implemented over the coming years. I mention some of the rules that could make the regulation of the financial system more efficient and allow for somewhat automatic adjustments and reorganizations for a better control of systemic risks.
- Finally, governments must resist the temptation of resorting to protectionist "buy local" measures intended to artificially spur demand for local products and services to the detriment of living standards and the general well-being of the population. This raises a problem of coordination among governments. There exists a real danger of seeing a vicious circle crop up during crises and

> recessions with protectionism responding to protectionism, plunging economies into a more serious slump. Thus, contrary to pursuing protectionist policies, governments should seek to protect the movement toward globalization and the liberalization of markets. The substantial growth of international trade in the last half-century has been a major factor in enhancing collective economic well-being as well as cultural and social development. This increase in trade has led to important gains with regards to wealth creation, economic growth, social progress, with above all a significant eradication of poverty.

Growing out of the crisis would benefit in the longer run also from fiscal reforms and new roles for the government sector and the competitive sector.

Regarding fiscal reforms, a general switch from awkward hybrid taxation system toward a system centered on consumption taxes, hence toward abolishing income taxes on individuals and corporations, would contribute significantly to a more efficient economy.

The core roles (and competencies) of the *public/governmental sector* should be first, the identification of citizens' needs in terms of public and social goods and services, both in quantity and quality; second, the design of proper mechanisms through which conflicts between different baskets of such goods and services and between different coalitions of citizens will be arbitrated; and third, the management of contracts and partnerships with private/competitive sector organizations for the production, distribution and delivery of the chosen basket of public and social goods and services. Therefore, the core competencies of the *private/competitive sector* should be to produce, distribute and deliver the public and social goods and services as well as the private ones by making use of the best forms of organization and the most efficient combinations of factors, human resources and technologies.

More fundamentally, the emergence and omnipresence of competitive prices and processes throughout the economy, in the public and social goods and services sectors in particular, would represent significant forces aimed at avoiding waste while generating and implementing innovative solutions to social problems and challenges. In that regard, the emergence and omnipresence of competitive prices and processes must be understood as significant factors in achieving long term economic growth and increases in individual and social well-being.

1. Introduction

An economic recession produces its share of negative consequences: drops in the value of retirement funds, declines in the worth of real estate assets, lower corporate profits, increases in public sector debt and government deficits, and so forth. However, the most perceptible impact is unquestionably the job losses and the drop in the value of human capital that are typical, if not inevitable, results of an economic recession.

This article deals in part with the loss of confidence within the banking or financial sector, although a peculiar for of it, that has generated the recent financial crisis and recession as well as with the process of job creation and job loss not only during periods of expansion or growth but also during periods of recession. The loss of confidence within the financial sector spilled over to the real sectors, thereby reducing not only financial transactions in the REPO (repurchase agreements) market, which is a banking problem, but also the financing of real activities throughout the economy.

Regarding jobs, we should remember that during the recent recession, the U.S. economy has created millions of jobs, but it also destroyed millions of jobs, resulting in a substantial net job loss. Before we examine this gross creation and loss of jobs, it is useful to examine the history of the financial crisis and economic recession and the major factors lying at their source.

The huge net job losses observed during the recent recession are due to the loss of confidence in the financial system combined with inflexibilities in labour markets and the inexistence or inefficiency of instruments and institutions to cope with necessary or desirable adjustments in financial and labour markets.

2. A brief history of the crisis[1]

The financial crisis cum economic recession began in the fourth quarter of 2007. But what exactly has happened? What market dysfunctions does this crisis reveal? To answer these questions, we will begin by presenting the origins of this crisis. As we will see, the causes of the financial crisis and economic recession are social, regulatory, and political in nature.

[1] The analysis here deals mainly with the U.S. experience but clearly, the messages apply to most if not all other countries and regions.

While the subprime mortgage loan crisis did not break out until February 2007, it originated in the bursting of the technology bubble in the late 1990s. To counter the decline in stock prices and the recession that followed, the U.S. Federal Reserve pursued a low interest rate policy to mitigate the damage of the economic slowdown.

Low interest rates encouraged "aggressive" credit distribution. U.S. housing demand grew, leading to higher prices. Meanwhile, millions of homeowners took advantage of lower interest rates to refinance their mortgage loans. The banks offered additional credit. The increases in the supply of funds overtook increases in demand with the straightforward predictable result of lower interest rates and lower quality mortgage loans provided.

In addition to sustained low interest rates and increasingly risky mortgage loans, the U.S. mortgage loan market was hindered by numerous distortions and interventions by public authorities.[2] Since 1977, when the *Community Reinvestment Act* was adopted, U.S. banks have been required to offer more credit than justified on purely financial considerations to low-income households. Banks were actually subjected to heavy pressures and even sanctions if they did not abide by the provisions of the Act: This was most likely a major factor, but not the singular factor, behind the development and proliferation of subprime mortgage loans. With mortgage loans provided to a segment of the population characterized by inadequate incomes, poor credit ratings and little or no money for down payments, it is logical that subprime loans were up to 10 times likelier than other mortgage loans to end in foreclosure.

Further, to bolster their cash reserves, financial institutions developed different financial innovations that enabled them to securitize these assets and resell them on the financial markets. Since these loans were backed by assets carrying an implicit federal guarantee through government-sponsored enterprises, Fannie Mae and Freddie Mac among others, these assets were seen up to a certain point as relatively low-risk by the investors who bought them. At the time that the real estate bubble burst, these two government-sponsored firms were providing guarantees on nearly half the home mortgage loans in the United States. The Federal Reserve Board either missed measuring and understanding these developments or leniently tolerated the increase in systemic risk[3] that they represented. In both cases, the Federal Reserve

[2] See Pierre Lemieux, *The origins of the economic* crisis, Economic Note, Montreal Economic Institute, March 2009, p. 3.

[3] Systemic risk factors refer to events that could trigger the collapse of an industry or an economy. For instance, "too big to fail" financial or industrial corporations or entities represent by definition systemic risk entities due to their relative size in the industry or economy and their inter-connexions with other firms or entities. Systemic risk is therefore closely linked to the importance of inter-linkages and interdependencies in an industry, system, market or economy, so that the failure of a "too big to fail" unit, firm, entity or part could trigger a *cascade of failures*, leading to the collapse of a whole system. Systemic risk must be distinguished from systematic risk, although they are sometimes confused even in otherwise dependable sources – see for instance http://www.nasdaq.com/investing/risk/unique-vs-

Board seems to have forgotten that one of its prime mission is the supervision and regulation of the banking sector "to ensure the safety and soundness of the nation's banking and financial system."[4]

Starting in mid-2006, the real estate market took a nosedive: the number of houses sold and the prices of dwellings plummeted. According to data from the National Association of Realtors, the number of houses sold in the United States fell by 13.9% in 2007. House prices fell on average by 3.6% between the second quarter of 2006 and the second quarter of 2007 and by 17.9% in the second quarter of 2008, before the financial crisis had fully erupted.[5] For homeowners living in areas with sharp price drops, the risk of owning a house worth less than the outstanding mortgage became very high.

Moreover, the Federal Reserve gradually raised its rate from 1% to 5.25% between 2004 and 2006.[6] As a result, households that had taken out variable-rate loans had to assume ever-higher payments even as the value of their properties was coming down, even collapsing. This left mortgage holders with a sharp rise in monthly payments and the most vulnerable of them were unable to cope.

Defaults on mortgage payments began to increase early in 2007, leading to some early bankruptcies among specialized banking institutions.[7] It was in this context, in June 2007, that the investment bank Bear Stearns announced the collapse of its two hedge funds. After this announcement, the subprime crisis burst upon the scene in the public eye (15 months before the collapse of Lehman Brothers), somewhat to the surprising dismay of the Federal Reserve System!

But was this crisis real or virtual? The number of mortgage borrowers in default remained, in general terms, within limits that appear quite acceptable and

---

systemic-risk.aspx. Systematic risk refers to that part of the risk that cannot be diversified. It is the unavoidable risk inherent to the covariance of all economic activities. The unavoidability of systematic risk is the basis of its trade value or price as determined on financial markets: higher systematic risk means higher expected returns.

[4] The Federal Reserve mission is stated as: "The Federal Reserve's duties fall into four general areas: conducting the nation's monetary policy by influencing the monetary and credit conditions in the economy in pursuit of maximum employment, stable prices, and moderate long-term interest rates; supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers; maintaining the stability of the financial system and containing systemic risk that may arise in financial markets; providing financial services to depository institutions, the U.S. government, and foreign official institutions, including playing a major role in operating the nation's payments system." (http://www.federalreserve.gov/aboutthefed/mission.htm)

[5] See *Pending Home Sales Index* (http://www.realtor.org/research/research/ehspage) and *Housing Bubble Graphs* (http://mysite.verizon.net/vzeqrguz/housingbubble/).

[6] Federal Reserve, *Open Market Operations*, http://www.federalreserve.gov/fomc/fundsrate.htm.

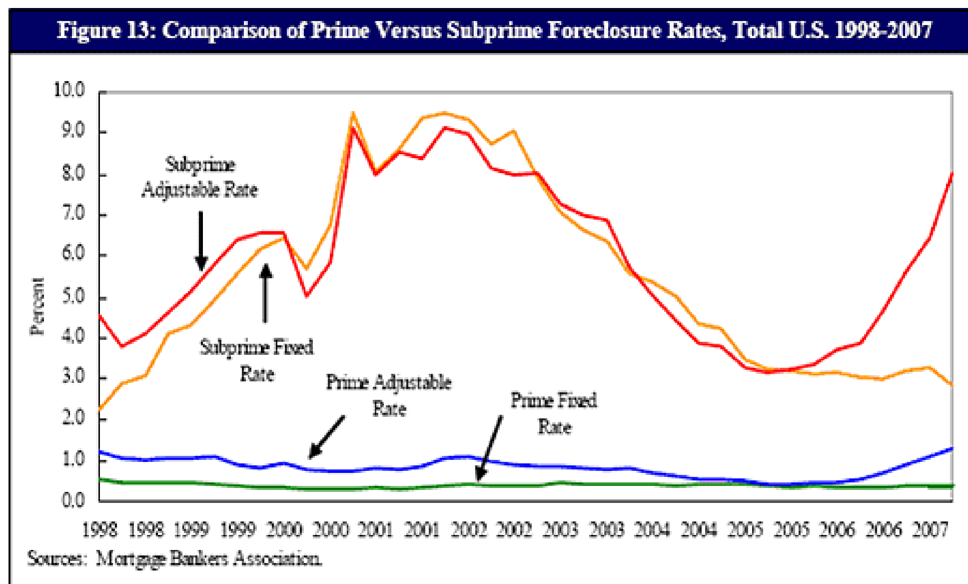
[7] RealtyTrac, U.S. *Foreclosure Activity Increases 75 Percent in 2007*, January 29, 2008 http://www.realtytrac.com/ContentManagement/PressRelease.aspx?channelid=9&ItemID=3988

manageable given the size of asset markets and the advancement in sophisticated risk management. The subprime adjustable-rate mortgage market did undergo serious difficulties, with a 21% delinquency rate (number of mortgages 90 days or more delinquent or in foreclosure) in January 2008[8] and a 25% rate in May 2008,[9] compared to about 14% on average for 1998-2007.[10] Even so, it is hard to understand why the financial markets panicked to such an extent.

Figure 1

Comparison of prime versus subprime foreclosure rates, total U.S. (1998-2007)

(Joint Economic Committee, *The Subprime Lending Crisis*, Report and Recommendations by the Majority Staff, October 2007, p. 27; http://jec.senate.gov/archive/Documents/Reports/10.25.07OctoberSubprimeReport.pdf)



A large majority of households continued throughout the crisis to meet their mortgage commitments. Overall, the delinquency rate went from 2% during the period 2000-2007 to less than 7.5% in 2009 (Figure 1.2). This is hardly a sufficient spike to cause or justify the panic and the ensuing vicious circle, especially considering that the U.S. population was growing at a solid pace (up 21.3% since 1990), which thereby boosts housing needs.

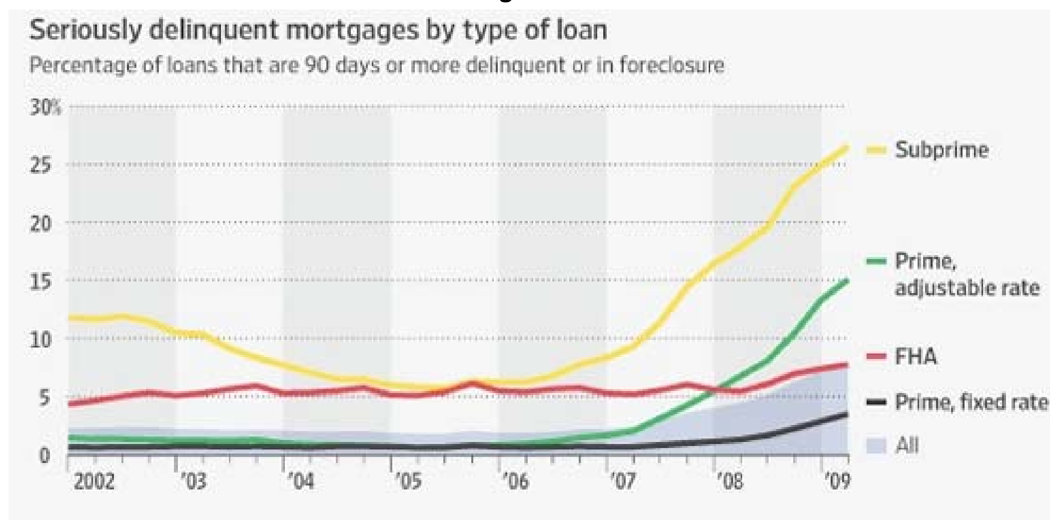
[8] Ben Bernanke, Chairman of the Federal Reserve Board, "Financial Markets, the Economic Outlook, and Monetary Policy", January 10, 2008.
http://www.federalreserve.gov/newsevents/speech/bernanke20080110a.htm

[9] Ben Bernanke, Chairman of the Federal Reserve Board, "Mortgage Delinquencies and Foreclosures", Columbia Business School, May 5, 2008.
http://www.federalreserve.gov/newsevents/speech/Bernanke20080505a.htm

[10] Charles E. Schumer and Carolyn B. Maloney, U.S. Senate Joint Economic Committee, *The Subprime Lending Crisis*, Report and Recommendations by the Majority Staff, October 2007, Figure 11, p. 26; http://jec.senate.gov/archive/Documents/Reports/10.25.07OctoberSubprimeReport.pdf

Once liquidity and confidence return to normal, the day's bargain hunters will likely benefit from sizable gains, partly due to the mark-to-market rule which, in fact, did not accurately reflect reality.[11]

Figure 2



Source: Business Insider

Despite the difficulties facing the subprime mortgage loan market in the United States, it seems unlikely that this problem alone could have generated a worldwide financial crisis of the magnitude that we have seen. While the subprime crisis served to trigger the financial crisis, we need to look elsewhere for its true cause.

From a subprime crisis to a full blown recession

The subprime crisis subsequently spread to other sectors of the economy through various channels. The first of these channels lies in the phenomenon of debt securitization, a practice that has grown substantially since the early 2000s. Securitization is a financial operation that consists of a bank reselling its debt on specialized investment markets, often bundled with other assets. This strategy enables banks both to refinance themselves and to reduce their risk as risk is thereby transferred to the investors (other banks, shadow banks, traditional investment funds, hedge funds, and funds of a more speculative nature).

Banks seeking to increase their cash reserves for the subprime mortgage market turned to the securitization of subprime credit through instruments referred to as asset-backed securities (ABS). However, they did not stop there: they took ABS packages and combined them to form more complex products called collateralized

[11] See Magnan and Thornton (2009), *Fair Value Accounting*, CIRANO 2009s-47; and also Parbonetti, Menini and Magnan (2011), *Fair Value Accounting: Information or Confusion for Financial Markets?*, CIRANO 2011s-56.

debt obligations (CDO). With the fall in the U.S. real estate market, subprime risk made any security with this type of backing (ABSs and CDOs) appear suspect, leading to their collapse as the banking panic took hold. This panic came to embrace all types of securitization.

The second way the crisis spread was through investment funds that had themselves bought securitized debt. Subprime loans provided high returns because borrowers had to pay higher interest rates. For investors and fund managers, these securities looked worthwhile because they helped boost their returns and thus their bonuses. Hedge funds, always seeking high returns, were especially fond of these securities. When the underperformance of subprime securities became more serious, some depositors wanted their funds back and some creditors refused to renew their lending.

The collapse of two Bear Stearns hedge funds in July 2007 was the signal for a crisis of confidence to develop. All asset-backed investment funds then became suspect. In March 2008, U.S. banking giant J.P. Morgan bought Bear Stearns for $236 million, assisted financially by the Federal Reserve, and in July 2008 the two government-sponsored mortgage refinancing corporations Fannie Mae and Freddie Mac were put into conservatorship and received support from U.S. federal authorities to the tune of $151 billion.[12]

The failure of negotiations on the takeover of Lehman Brothers and its bankruptcy filing at 1:45 a.m. on September 15 2008 precipitated the development of the financial crisis by destroying much of the capital of confidence *within* the financial system.[13] Following the takeover of Merrill Lynch by Bank of America the same day, the U.S. government faced a potential financial meltdown and decided to bail out AIG two days later through an $85-billion investment which later amounted to a $180-billion package.[14]

---

[12] Despite a 2002 study released by Fannie Mae which argued that it was very unlikely that the two government-sponsored enterprises *would ever require* a government bailout. See: Joseph E. Stiglitz, Jonathan M. Orszag and Peter R. Orszag, "Implications of the New Fannie Mae and Freddie Mac Risk-based Capital Standard," *Fannie Mae Papers*, Vol. 1, Issue 2 (March 2002). One can read in the U.S. Financial Crisis Inquiry Commission (FCIC) report of January 2011: "Unfortunately, the balancing act ultimately failed and both companies were placed into conservatorship, costing the U.S. taxpayers $151 billion so far." Note: Conservatorship is established either by court order (with regards to individuals) or via a statutory or regulatory authority (with regards to organizations). When referring to government control of private corporations such as Freddie Mac or Fannie Mae, conservatorship implies a more temporary control than outright nationalization.

[13] Note that "[Lehman Brothers]'s balance sheet was about one-fifth the size of Fannie May's" (FCIC, citing FHFA Director).

[14] Surprisingly, the U.S. Government (through the stewardship of Hank Paulson and Tim Geithner) insisted that AIG fully compensate its counterparties. Eliot Spitzer wrote in "The Real AIG Scandal," *Slate Magazine*, March 17, 2009: "Everybody is rushing to condemn AIG's bonuses, but this simple scandal is obscuring the real disgrace at the insurance giant: Why are AIG's counterparties getting paid back in full, to the tune of tens of billions of taxpayer dollars? For the answer to this question, we need to go

Finally, the third way the crisis reached the rest of the economy is related to the fact that these investment funds belonged to or were financed by banks as hedge funds were financed with little equity and high leverage. The banks thus ended up assuming the risks they thought they had sold or transferred to these funds. In the end, the entire banking system was supporting the high credit-linked risks not only in the funds the banks were managing but also in those they were financing.

The October 2008 and January 2009 plans

In October 2008, a $700 billion plan (Troubled Assets Relief Program – TARP) was adopted in the United States Congress to purchase high-risk assets and restore bank capitalization, an amount which was later reduced to $475 billion by the Dodd-Frank Act of July 2010. This is one of two major bailout programs, the other being that of government-sponsored enterprises Fannie Mae and Freddie Mac for an amount of $187 billion, spent so far ($116 billion for Fannie Mae and $71 billion for Freddie Mac).

As of November 2014, $468 billion have been spent under TARP: $245 billion for banks and other financial institutions, $80 billion for the auto industry, $70 billion for AIG (not counting $112 billion as a line of credit from the FED), $27 billion for restarting credit markets, and $46 billion to aid struggling families threaten by foreclosure. The total amount spent, invested or loaned by the U.S. Treasury has reached $613 billion, of which $388 billion has been returned as principal repayments. If we add the total returns of $271 billion (dividends, interest, warrants sold, and fees) on the amounts disbursed, total collections are now at $ 659 billion, or $46 billion more than total

---

back to the very first decision to bail out AIG, made, we are told, by then-Treasury Secretary Henry Paulson, then-New York Fed official Timothy Geithner, Goldman Sachs CEO Lloyd Blankfein, and Fed Chairman Ben Bernanke last fall. Post-Lehman's collapse, they feared a systemic failure could be triggered by AIG's inability to pay the counterparties to all the sophisticated instruments AIG had sold. And who were AIG's trading partners? No shock here: Goldman, Bank of America, Merrill Lynch, UBS, JPMorgan Chase, Morgan Stanley, Deutsche Bank, Barclays, and on it goes. So now we know for sure what we already surmised: The AIG bailout has been a way to hide an enormous second round of cash to the same group that had received TARP money already. It all appears, once again, to be the same insiders protecting themselves against sharing the pain and risk of their own bad adventure. The payments to AIG's counterparties are justified with an appeal to the sanctity of contract. If AIG's contracts turned out to be shaky, the theory goes, then the whole edifice of the financial system would collapse. But wait a moment, aren't we in the midst of reopening contracts all over the place to share the burden of this crisis? From raising taxes—income taxes to sales taxes—to properly reopening labor contracts, we are all being asked to pitch in and carry our share of the burden. Workers around the country are being asked to take pay cuts and accept shorter work weeks so that colleagues won't be laid off. Why can't Wall Street royalty shoulder some of the burden? Why did Goldman have to get back 100 cents on the dollar? Didn't we already give Goldman a $25 billion capital infusion, and aren't they sitting on more than $100 billion in cash? Haven't we been told recently that they are beginning to come back to fiscal stability? If that is so, couldn't they have accepted a discount, and couldn't they have agreed to certain conditions before the AIG dollars—that is, our dollars—flowed? The appearance that this was all an inside job is overwhelming. AIG was nothing more than a conduit for huge capital flows to the same old suspects, with no reason or explanation."

disbursements. As for Fannie Mae and Freddie Mac, they returned some $219 billion in total so far to the Treasury, that is, $131 billion from Fannie Mae and $88 billion from Freddie Mac. They have also repaid in total to the FED the $112 billion line of credit plus $18 billion in interest and fees.

The Treasury invested $245 billion to recapitalize banks and other financial institutions, of which a total of $275 billion has been paid back (including dividends, interest, warrants sold, and fees);[15] $80 billion in the auto industry;[16] $68 billion in AIG refinancing.[17]

In addition, U.S. Congress passed in February 2009 a Recovery Plan aimed to create new jobs and save existing ones, spur economic activity and invest in long-term growth. The Recovery Act, a $787 billion endeavor, intended to achieve those goals by providing $288 billion in tax cuts and benefits for families and businesses, increasing by $224 billion federal funds for entitlement programs such as extending unemployment benefits, and making $275 billion available for federal contracts, grants and loans. As of June 2011, the amounts spent in each category totaled $298.5 billion (81% for individual tax credits and making-work-pay program and 12% for tax incentives for business), $211.4 billion (69% for Medicaid/Medicare and unemployment insurance programs) and $210.2 billion (41% for education and 25% for transportation and infrastructure) respectively.

3. Inefficiently designed bonus systems

In the wake of the financial crisis, large brokerage firms and investment banks paid out record bonuses to their managers, the very people who had put them in serious trouble. Merrill Lynch paid about $9.5 billion in bonuses in 2007, the same amount as in 2006, even though its net income had fallen by two-thirds, with a fourth-quarter

---

[15] All the major banks and many of the smaller ones have now paid back the full amount disbursed by the Treasury, in particular Bank of America ($45 billion), Citigroup ($45 billion), JP Morgan Chase ($25 billion), Wells Fargo ($25 billion), Goldman Sachs ($10 billion), Morgan Stanley ($10 billion), PNC Financial ($8 billion), U.S. Bancorp ($7 billion), SunTrust ($5 billion), and Capital One Financial Corp. ($4 billion). Those 10 banks paid the Treasury a total of $25 billion in interest, dividends and fees on the $94 billion invested by the Treasury.

[16] General Motors received $51 billion or 79.8% of the amount disbursed under the automotive industry financing program; GM "reimbursed" $39 billion (sale of all stocks and warrants) for a loss to the Treasury of $12 billion; in addition GM paid in interest, dividends and fees $0.7 billion. Recall that at the time GM emerged from bankruptcy in June 2009, the U.S. Treasury owned 60.8% of GM, Canada and Ontario 11.7%, UAW 17.5% and others 10%.

[17] In so doing, the Treasury acquired 92.1% of the company. The sale of the company brought about $54.4 billion to the Treasury, in addition to gaining some $18.5 billion in returns and fees. In the case of AIG, the Federal Reserve Bank of New York has opened a credit line of $112 billion, which has been paid back in full together with $17.7 billion in interest and fees.

loss of $9.8 billion; meanwhile, Lehman Brothers raised its bonuses by 10% in 2007, bringing them to $5.7 billion, and went bankrupt in September 2008. Were the bonus systems among the prominent causes of the financial crisis?

The incentive mechanisms used in the financial services industry rewarded income generated almost regardless of risk, with negligent and faulty risk measurement and unjustified risk-taking as predictable results. A number of economists warned companies against these practices, reminding them that, in designing incentive mechanisms, it is necessary to take account of the risks taken or incurred to avoid what economists and insurers call "moral hazard." Economists specializing in performance incentives have been suggesting for a number of years that bonuses be made conditional on risk audits to penalize, rather than reward, exceptional financial results relying on reckless risk-taking.[1] These suggestions have been mostly ignored with disastrous effects. If a major failure exists in the management compensation consulting industry with its lot of so-called professionals and gurus, it must be the compensation packages in the financial industry. Whether these compensation packages stem from sheer incompetence or ignorance of basic incentive issues or blatant conflict of interest within the board's compensation committee or all of the above, one fact remains: the elementary principles of incentive pay were forgotten.

But there seems to be a light at the end of the tunnel. In the rescue of Fannie Mae and Freddie Mac, the managers, shareholders and bondholders of these government-sponsored enterprises, which were overly dominant in mortgage credit and were protected by indulgent regulators, have received a large share of negative attention and blame. The government will be paid back first and these companies seem no longer able to benefit from their political relationships to hide mismanagement: the door is closing! While the horse may be gone, at least the colt will be kept in the stable. Other examples could be given: the significant bailouts of financial institutions rightly left the previous (irresponsible) stockholders, bondholders, owners and lenders with huge losses.

According to Mizen (2008), banks have replaced their traditional "originate and hold" model with a new "originate and transfer" model under which they lend and then sell the debt to someone else.[1] The more widespread adoption of this new model may be one of the factors responsible for the crisis. However, the phenomenon of securitization is not new: banks have been following this practice for 40 years without causing crises. Was it the growth in securities backed by subprime mortgages, which has changed in the last decade and which are traded so often that a major problem of transparency ends up arising?

Faulty incentive systems

This practice led to the creation of a class of capital around which it becomes enormously difficult to determine which party is assuming fundamental risks. This particularity has distorted incentives in different ways.

First, mortgage brokers' fees were (and maybe still are) based on the number of mortgage loans provided, without the risk of default taken into consideration. Brokers thus had no incentive at all to look into the risks linked to subprime mortgage loans. On the contrary, they had incentives to provide the largest possible number of mortgage loans regardless of the risk level they presented.

Second, lenders had no incentive to check the quality of the mortgage loans granted, given that they intended to bundle and resell these assets in the form of complex derivatives. In the years prior to the crisis, these institutions increased their subprime mortgage loan offerings, reselling them to investors looking for higher returns, in a period of rising real estate prices (low risk).

One can read in Schumer and Maloney (2007):

> "There have been significant changes in the types of subprime loans made in recent years, reflecting lower underwriting standards. As can be seen in Figure 10, between 2001 and 2006 adjustable rate mortgages (ARMs) as a share of total subprime loans originated increased from about 73 percent to more than 91 percent. The share of loans originated for borrowers unable to verify information about employment, income or other credit-related information ("low-documentation" or "no-documentation" loans) jumped from more than 28 percent to more than 50 percent. The share of ARM originations on which borrowers paid interest only, with nothing going to repay principal, increased from zero to more than 22 percent." (p. 10)
>
> "Although underwriting standards declined during 2001-2006, loan performance did not immediately deteriorate. In fact, subprime performance between 2001 and 2005 was good by historical standards. As can be seen in Figures 11 and 13, aggregate delinquency and foreclosure rates declined during 2001-2005. They have since turned sharply upward. The data in Figure 14 in the Appendix, which track the delinquency rates of subprime mortgages from the time at which they were originated, tell a qualitatively similar story. Loans originated during 2001-

> 2005 perform better than those originated in 2000. Noticeably higher delinquency rates appear for loans originated in 2006 and 2007." (p. 11)
>
> "**Broker and Lender Incentives Work Against Borrowers.** Mortgage brokers are salesmen who want to maximize their net income. Their interest in pro- viding the least expensive mortgage is limited. In fact, lenders provide them incentives to do the opposite. Lenders sometimes pay brokers so-called "yield-spread premiums," when they sell loans with interest rates above the minimum acceptable rate for the loan. Some brokers may also receive higher fees for selling mortgages with prepayment penalties.
>
> **Moreover, since mortgage brokers bear little or no risk when a borrower defaults, they have no economic incentive to originate loans that a borrower can afford in the long term.** Brokers also lack strong legal incentives to act in the interest of borrowers. Under state law brokers are not fiduciaries, who must put the interest of their clients first. Nor do they have a duty to sell their clients products which are at least suitable to their circumstances, as registered securities brokers do.
>
> **Because mortgage companies sell many of the loans they underwrite to the secondary market, they have an interest in underwriting loans that are desired by the secondary market investors.** This observation has special weight because of developments in non- mortgage financial markets. In recent years, as hedge funds have proliferated and the market for structured financial products has expanded, there has been significant demand for high- yield assets that can underlie collateralized debt obligations (CDOs) and other financial derivatives. Subprime mortgages have, until recently, been considered terrific assets to include in CDO structures. **Hence subprime lenders have had a strong incentive to underwrite high-yielding subprime mortgages, whether or not these loans were best interests of the borrowers.**" (p. 20, bold in the text)

Third, the profits generated by securitization of these products gave lenders an incentive to offer the greatest possible number of loans regardless of their quality. With demand for mortgage loans declining, lenders lowered their requirements to keep growth in the number of loans constant.

Fourth, "tranching" has allowed for the creation of different classes of bonds, with senior and subordinated classes, each intended for different types of investors. The argument justifying the creation of these classes is very simple: creating subordinated classes theoretically improves the quality of higher classes of bonds, even bringing the *apparent* probability of losses on this class down to a very low level and reducing financing costs correspondingly. Asset-backed bonds thus obtained high ratings from rating agencies even though they were in fact a combination of risky, highly leveraged mortgage loans.[18] This may be good business for the sellers, but it does not explain why the buyers, who were or at least must be expected to be rather sophisticated, were fooled by this scheme!

Fifth, rating agencies gained significant income from rating structured products. There was thus a risk of a conflict of interest because these agencies received lump sum payments from the issuing institutions to establish ratings for these products while advising these institutions on the issuing of the same products.

Finally, fund managers, like mortgage brokers, were motivated by the perspective of bonuses that were not corrected on the basis of the risk level incurred. The problem was recognized by the Chairman of the Federal Reserve Board: "Prospectively, we are committed to promoting an environment that supports the homeownership goals of creditworthy borrowers. To this end, the Federal Reserve Board has proposed new regulations to better protect consumers from a range of unfair or deceptive mortgage lending and advertising practices. To help ensure that the rules are broadly enforced, we are engaging in a program with other federal and state agencies to conduct consumer compliance reviews of non-depository lenders and mortgage brokers. These reviews are targeting underwriting standards, risk-management strategies, and compliance with consumer protection laws and regulations."[19] That statement and the policy it announces are from March 2008, much too late. Why wasn't this policy in place in 2005 or 2006 when the system failure was already in the making? Where was the FED?

Banks, investment banks and other financial institutions were quick to rely on choices made by their competitors or partners while assuming that those competitors and partners must have checked the risk characteristics of such securities, hence

[18] Michael Lewis, *The Big Short*, Norton 2010, page 73: "Having gathered 100 ground floors of 100 different subprime mortgage buildings (100 different triple-B-rated bonds), they [Goldman Sachs] persuaded the rating agencies that these weren't, as they might appear, all exactly the same thing. They were another diversified portfolio of assets! This was absurd. The 100 buildings occupied the same floodplain; in the event of flood, the ground floors of all of them were equally exposed. But never mind: The rating agencies, who were paid fat fees by Goldman Sachs and other Wall Street firms for each deal they rated, pronounced 80 percent of the new tower of debt triple-A."

[19] Ben Bernanke, "Mortgage Delinquencies and Foreclosures", Columbia Business School, May 5 2008. http://www.federalreserve.gov/newsevents/speech/Bernanke20080505a.htm

dispensing themselves of making “redundant” costly verifications. This is a well-known free riding problem in common agency contexts. In the end, a global web of individually rational actions and policies based on others’ supposedly individually rational actions and policies, ended up creating a huge but unnecessary and avoidable systemic risk which by definition must eventually be confronted: the chips will fall where they may!

This blatantly faulty incentive and control system allowed mortgage brokers to pursue risky (not for them) mortgage loans: the subprime share in the relatively stable total mortgage originations reached 20% in 2004-2006 compared with 8.5% in 2001-2003.

Where was the FED, whose mission includes “supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers; maintaining the stability of the financial system and containing systemic risk that may arise in financial markets”?

The principles of Incentive pay or pay for performance

Incentive pay may be explained and justified by, and in reference to, four factors or phenomena, which may have important effects on the net benefits of an organization, and which are often if not always present in practice.

- Moral hazard: defined as the tendency of individuals to alter their safety, effort or initiative behaviour, as private information becomes available to them. Behaviour is altered if individuals are protected or insured against the losses incurred following unfavourable events or if they are unable to capture part of the benefits generated by such behaviour. In the end, the probability of unfavourable events is increased and/or the probability of favourable ones is decreased.

- Adverse selection: defined as the tendency of individuals to use strategically their private information to pursue objectives that are non-congruent with those of the organization, including accepting jobs and responsibilities for which they may not be sufficiently competent or prepared and productive, a characteristic better known to them than to the organization hiring them.

- The need to induce profitable cooperation in organizations: broadly defined to include team work as well as contractual relations between business partners and between stakeholders.

- The need to counteract costly or unproductive institutional and/or regulatory constraints.

The first two factors, or phenomena, represent the traditional bases for incentive pay. There is moral hazard when the effort exerted by an agent to raise the probability of success, the quality, the productivity, or the profitability of some projects cannot be observed by other parties or stakeholders, and is, therefore, private information of the agent. This information can be used strategically either to reduce costly effort levels or to redirect such effort towards other objectives. A firm or a collection of citizens for whom the production or distribution of private goods and services or public and social goods and services is intended and done, or their representatives, may not be able to observe the effort levels exerted by the providers of those goods and services to make this provision as close as possible to its expected quality, quality/cost ratio, and other characteristics.

There is adverse selection each time an agent can benefit and abuse an informational advantage on some relevant characteristics. This asymmetry of information reduces the efficiency of contracting since both parties are not in full knowledge of the relevant facts. Adverse selection is a pre-contractual problem of opportunism, while moral hazard is a post-contractual problem of opportunism. Other similar problems of asymmetric information leading to some opportunism by one or both parties to a contract exist. These include free-riding behaviour and hold-up behaviour. Efficient contracting in the production or distribution of private goods and services or public and social goods and services must include incentive-compatible clauses that are intended to optimally reduce the impact of such potential sources of inefficiency.

Moral hazard and adverse selection may come in different shapes and forms, in static and dynamic contexts. Boyer and Robert (2006)[1] claim that the level of inertia in an organization is an endogenous rational choice made by the organization (principal). They show that the efficient organizational response to the presence of private information on the value of change will in general be to bias the decision rule towards the status quo, that the compensation of the agent differs significantly according to whether the information is private to the principal or the agent, and that the efficient distribution of 'real' authority in an organization need not always be profitably retained by the principal.

The third factor may or may not have an incentive basis: it does [not] if the worker or service provider can [cannot] make decisions capable of mitigating the risk present in the relation between the worker/provider and the employer/client. More generally, the design of incentive pay, price, and contract systems in value chains and value networks represents major challenges for firms and organizations in complex production and delivery systems. Outsourcing, offshoring and public-private partnerships are examples of complex production and delivery systems, where risks

and asymmetric information are significant characteristics. Although important, these concerns address inter firm relationships and we will not pursue their analysis here.

The fourth factor is of a different nature. Even if there is no moral hazard, no adverse selection, and no need or willingness to share risks, a firm may find it profitable to implement an incentive compensation system if regulatory constraints prevent it from disciplining the worker or manager who fails to meet expectations, the required output, or the labour agreement in general. In such cases, incentive pay makes misbehaviour costly for the protected worker/manager himself, and hence, contributes to reducing misbehaviour.

Incentive pay systems should be distinguished from risk sharing contracts. Even if the worker/provider cannot influence the probability of different states or the results in those different states, a risk sharing agreement may be of interest as it makes the worker/provider and the employer/client partners (although with different levels of responsibility and control) in the relevant business. Hence variable pay may be designed as a risk sharing agreement. But a variable pay system need not be an incentive pay system.

The above suggests that, unless there is a major observation or information problem, or significant institutional or regulatory constraints, there is no case for incentive compensation. The above also suggests that there are dangers for an organization not to have a properly designed incentive pay system. Indeed, the compensation formula(s) in any organization or network is a fundamental management tool to achieve coordination between the efforts and decisions of different individual stakeholders or divisions and partners towards achieving the highest possible level of performance, measured with respect to the overall objectives and mission of the organization. The failure to realize the importance of this tool could jeopardize the organization's capability to fulfill its mission, as incentive pay is the most efficient way to make the key members of the organization liable or responsible for their own relative contributions to the success or lack of success of the organization. In doing so, it could protect the organization against failing employees as well as protect successful employees against being held up by their employer organization. Finally, putting in place an incentive compensation system forces the organization to explicitly and concretely state its mission and objectives.

Incentive pay should be understood as compensation schemes which create congruence within an organization: incentive pay can contribute to ensuring that the pursuit of individual objectives or interests is canalized towards the achievement of the organization's goals and objectives. It is important that the formula be transparent, explicit, and optimally-designed given the characteristics of the job to be done and the mission or objectives of the organization or network. Many incentive

pay systems remain opaque and poorly-designed, a phenomenon which contributes to the ill-famed use of variable compensation in numerous organizations.

In *Revue d'économie politique*,[20] I develop twelve principles of incentive compensation: the principle of insurance (in general incentive pay is not desirable), the principle of rationality (if costly, the level of effort absent proper incentives will be suboptimal), the principle of certainty equivalence (there exists a fix pay contract equivalent for the employee to a variable pay contract), the principle of dual performance measures (different sources of information on performance must be properly calibrated), the principle of risk premium (incentive pay is more costly for the firm), the principle of intensity of incentives (intensity increases with the sensitivity of performance to effort, employees' typical risk aversion, and information imprecision), the principle of optimized performance (optimal performance decreases with employees' typical risk aversion, monitoring difficulty, and cost of effort), the principle of efficient evaluation budget (the monitoring/evaluation budget increases with the employees' risk aversion, the intensity of incentives, and budget impact on the precision of the performance evaluation), the principle of informativeness (incentive pay works better when effort impacts performance more directly, i.e. not blurred by other factors), the principle of equal compensation intensity (tasks that cannot be evaluated separately must be equally compensated), the principle of deferred compensation (incentive pay must apply over the same duration as the impact of effort), and the principle of group compensation (if the performance of individuals in a group cannot be identified, the incentive pay must apply to the group itself).

Clearly, many of them are or were poorly understood in the financial sector. The general and specific interpretation and implementation of the principles in concrete, generic, and particular cases is a difficult task which requires thinking and planning. The thinking and planning relates respectively to the proper interpretation of the principles in specific cases and the determination of a strategy to design the compensation formula and to gather the data necessary for its implementation throughout the organization. It is not the purpose of this paper to develop a cookbook of recipes for specific case. But it is clear that unless the principles are well understood and applied, there is no hope to design appropriate compensating formulas.

There is nothing special or magical about incentive pay packages. If they are poorly designed, they are likely to generate more harm than good: garbage in, garbage out. The National Commission on the causes of the financial and economic crisis in the United States writes in its January 2011 report:[1] "Compensation systems – designed

[20] Marcel Boyer, "The Twelve Principles of Incentive Pay", *Revue d'Économie Politique* 121(3), Dalloz, 2011, 285-306.

in an environment of cheap money, intense competition, and light regulation – too often rewarded the quick deal, the short-term gain – without proper considerations of long-term consequences. Often, those systems encouraged the big bet – where the payoff on the upside could be huge and the downside limited. This was the case up and down the line – from the corporate boardroom to the mortgage broker on the street."

Further, Jensen and Murphy in their important (2004) report[1] make 38 recommendations (R) on broadly defined remuneration schemes. They first embed the remuneration schemes into a broader corporate value and control system: "Companies should embrace enlightened value maximization / enlightened stakeholder theory in which 'creating firm value' is not one of many objectives, but the firm's sole or governing objective ... And this governing objective must be complemented by a statement of corporate vision and strategy that guides and motivates the organization in creating value. Properly understood enlightened value creation ... insists on long-term value creation as the firm's governing objective."(R-1)

They discuss remuneration schemes at a considerably more detailed level but their recommendations are all in agreement with the twelve principles discussed above. One of their most important groups of recommendations deals with the independence of the Board's remuneration committee: "Remuneration committees must take full control of the remuneration process, policies, and practices"(R-10), "Firms should resolutely refuse as a matter of policy to pay the fees for the contracting agents negotiating for the CEO or other top-managers"(R-11), "Remuneration committees should seldom, if ever, use compensation consultants for executive remuneration purposes who are also used by the firm for actuarial or lower level employee remuneration assignments"(R-17).

Jensen and Murphy insist on taking a global remuneration viewpoint: "Managers should receive annual statements that clearly summarize in one place the changes in their wealth in the prior year from all sources of remuneration from the firm (including changes in the present value of future retirement and deferred compensation)"(R-21). They call for "Design bonus plans with 'linear' pay-performance relations"(R-26): "Better-designed pay-performance relations are linear over a broad range, with very high (or non-existent) caps, and "bonus banks" that allow bonuses to be negative as well as positive. Bonus banks can be created in a number of ways including, for example, paying a bonus out over three years, where the unpaid bonus is available to make up some or all of a negative bonus in the current year."

They insist also on keeping track of the risk borne by the worker or manager: “Use performance measures that reduce compensation risk while maintaining incentives”(R-30) since that risk is costly for the firm as we have seen above. Regarding group compensation, they argue in favour of relying on it whenever there are substantial interdependencies in productivity between the actions of two or more people or groups: “Pay particular attention to the choice of group versus individual performance measures”(R-31).

Finally, Jensen and Murphy consider a broader principle than our (ninth) principle of informativeness: “Managers should be held accountable for factors that are beyond their control if they can control or affect the impact of those uncontrollable factors on performance”(R-35).

We began this section by claiming that incentive or variable pay is in general not desirable for two main reasons. First, it is costly as it creates remuneration variability or risk for workers and managers who are typically risk averse. Hence, incentive pay systems will be more expensive for firms and organizations because of the need to compensate people in order to convince them to bear such risk. Second, an incentive compensation system is costly to run both in gathering and processing information and in controlling the potential resentment effect when compensation falls below the mean level, a situation to occur no less than half of the time.

There are different reasons to revisit the topic of incentive pay at this time. There is strong criticism of actual systems in the context of the recent financial crisis and economic recession, which allegedly stemmed in part from the structure of incentive pay systems in place in the financial sector.[1] Moreover, there are clear misunderstandings of the basic issues related to the role and nature of incentive pay in general.

The bird’s eye view taken here is quite abstract and general. Consequently, the principles are relevant and can be applied to most if not all cases of incentive pay systems. The twelve principles are more a (difficult) path to an efficient incentive pay system than a recipe to apply without scrutiny. Too much of the latter clogs the compensation schemes in private sector and public sector firms and organizations. The twelve principles could be used by a Board as a guide to understand how the incentive pay system of its firm has been designed and how the different components have been evaluated and (stress) tested. Indeed, as the popular maxims go: “unless you know what you are looking for, there is little hope to find it” and “if you don’t know where you are going, you will probably end up somewhere else.”

No doubt the application of the twelve principles above and Jensen and Murphy's 38 recommendations as loose guidelines in setting up an incentive pay system will raise many challenges. However, they give an indication as to the way to proceed and the questions to ask. The evaluation of the parameters, variances and covariances pose significant problems. Nevertheless, those challenges can be met and the implementation of the twelve principles and 38 recommendations can be adapted to specific cases through different methodologies depending on the available data. When confronting the challenges and costs of an efficient incentive pay system, the firm or organization must evaluate if those challenges and costs can be borne in order to capture larger gains in productivity, profitability or more general benefits.

4. Rebuilding confidence in the financial system and moving out of a bad equilibrium

Remarkable developments in modern finance have led to a significant decrease in the level of systematic risk that we face. This risk reduction has been achieved by a broadening of the possibilities for diversification due to the globalization of financial markets. It has also been achieved by developing new risk management tools such as insurance products, credit default swaps and other derivatives. These developments have enabled economic players to reduce the probability and severity of potential difficulties through more diversified and better targeted protection and hedging strategies, both before and after problem events. At the same time, these developments in modern finance have raised the severity level of the now less probable systemic risk because market interdependence means an eventual crisis can only be worldwide.

Various financial innovations have enabled institutions and businesses to hold securities (asset-backed commercial paper or other types) as lucrative substitutes for traditional bank deposits. These are usually very liquid and as such are seen as near money or money equivalents. Bank deposits as a percentage of GDP have dropped quickly around the world, falling in the U.S. from nearly 18% of GDP in 1965 to less than 5% in 2005.[21] What appeared as significant efficiency gains in financial intermediation hid an important increase in the severity of systemic risks, if a confidence crisis ever develops.

> "The financial crisis was not caused by homeowners borrowing too much money. It was caused by giant financial institutions borrowing

[21] See Robert E. Lucas Jr., *The Current Financial Crisis*, Universidad Torcuato di Tella, December 2008.

> too much money, much of it from each other on the repurchase market." (Mary Fricker, *RepoWatch*, April 2011)

When these securities lost their liquidity, a contagious level of mistrust developed, leading to a devaluation of assets, which was, in turn, exacerbated by overly rigid mark-to-market rules. It was as if a large part of the money supply had vanished, causing a liquidity crisis. This lack of liquidity led to a race for cash and thus to a credit crisis, generating higher counterparty risk.

A crisis of confidence

> "What happened in September 2008 was a kind of bank run. Creditors of Lehman Brothers and other investment banks lost confidence in the ability of these banks to redeem short-term loans. One aspect of this loss of confidence was a precipitous decline in lending in the market for repurchase agreements, the repo market. Massive lending by the Fed resolved the financial crisis by the end of the year, but not before reductions in business and household spending had led to the worst U.S. recession since the 1930s." (Robert E. Lucas Jr. and Nancy L. Stokey, University of Chicago, *Liquidity Crises - Understanding sources and limiting consequences: A theoretical framework*, Economic Policy Paper 11-3, Federal Reserve Bank of Minneapolis, May 2011)

The economic crisis was a crisis of confidence in one of our society's essential common infrastructures, namely the financial system. A company can be shut down, but it is hard to get by without a highway or communications system. Similarly and in a deeper way, we cannot manage without an efficient and accessible financial system.[22]

Despite interventions by central banks, the loss of confidence and the fear of economic failure became widespread: banks, like many other businesses, sought to shore up their reserves and to increase their capital base, making credit conditions

[22] The crisis of confidence which brought down the financial system and the credit and trade systems almost to a halt is not totally a standard bank-run phenomenon. As Michael Lewis suggests: "[T]here's a difference between and old-fashioned financial panic and what has happened on Wall Street in 2008. In an old-fashioned financial panic, perception creates its own reality: Someone shouts "Fire!" in a crowded theater and the audience crushes each other to death in its rush to exits. On Wall Street in 2008 the reality finally overwhelmed perceptions: A crowded theater burned down with a lot of people still in their seats. Every major firm on Wall Street was either bankrupt or fatally intertwined with a bankrupt system. The problem wasn't that Lehman Brothers had been allowed to fail. The problem was that Lehman Brothers had been allowed to succeed." (*The Big Short*, W.W. Norton, 2010, page 262)

tighter (higher borrowing costs and rationing of credit) in a context in which counterparty risk, and thus risk premiums, had risen considerably.

This crisis, which began with subprime mortgage loans, thus spread to all asset-back bonds, endangering the companies insuring or reinsuring municipal and real estate bonds. The *coup de grâce* came when interbank lending, which lies at the heart of the financial system, was thrown into disarray by the fact that the banks were no longer showing confidence in each other and were holding onto their funds to steady themselves and avoid bankruptcy. The central banks then injected unprecedented amounts, accepting an unusually broad range of collateral for loans provided to a record number of banks.

The monetary base went from a normal level of $845 billion on September 10, 2008, to $1.476 trillion on November 12, 2008, and $1.742 trillion on January 14, 2009. Total reserves held at the FED by deposit-taking financial institutions reached an astonishing 20 times their normal level over the four month period occurring between September 2008 and January 2009,[23] a consequence of the collapse of the interbank REPO market. More specifically, banks started distrusting each other when bank managers suspected or found out that risks were as badly managed in other banks as they were in their own!

Confidence is an especially important type of capital in the financial sector, relying essentially on promises and on the rule of law: a bank deposit is worth little unless the depositor is confident that he can withdraw his funds whenever he chooses.[24] More generally, confidence is the most important form of social capital, because it allows for a sizable reduction in a broad range of transaction costs within a society. The recent and current financial market difficulties, fundamentally a crisis of confidence within the banking sector in general, brings this issue to the forefront.[25]

---

[23] Federal Reserve, *Aggregate Reserves of Depository Institutions and the Monetary Base*, October 29, 2009, http://www.federalreserve.gov/releases/h3/hist/h3hist4.pdf.

[24] To understand how the collapse of the REPO market can be so damaging, it is sufficient to realize that the size of this market "based on the daily amount outstanding now surpasses the total annual GDP of China and Germany combined." (Viral V. Acharya and T. Sabri Öncü, *Regulating Wall Street*, Stern School, New York University, July 2010).

[25] At the January 2003 World Economic Forum in Davos, where I was an invited speaker, one of the main themes of discussion involved re-establishing and developing confidence within and toward the business world after a wave of major bankruptcies and financial scandals. In my *Le Soleil* op-ed article of March 7, 2003, I wrote (translation): "Insofar as trust is a *social* capital primarily created by the individual behavior of firms and individuals who are first and foremost concerned with the development and maintenance of their reputation as *private* capital, it is essential that an appropriate regulation framework oversees and promotes the development of trust as social capital. [...] What should we conclude and what should we do? A first implication is that trust follows from both values and incentives of executives and managers. We must continue to hammer home the need to restore values. But incentives are just as important if not more for a simple reason: values develop in the long term

Confidence is a form both of private capital and of social capital. As such, developing and maintaining it pose difficult problems of coordination and incentive. It is a form of private capital, because a company will benefit from its partners' confidence. But the confidence created privately in this way will have positive repercussions on confidence toward all businesses. This social effect is important enough for public authorities to take particular responsibility in watching over the development and maintenance of this capital of confidence. But that is a relatively new role for governments, a role for which they may not be prepared.

> "Achieving the proper economic spirit does not mean cheerleading by government officials to try to boost confidence. It does not mean groundless promises that the economy will recover. It means instead creating the kinds of conditions that will give people a salient reason for confidence. It means making ready to give economic stimulus as needed, and only as needed, to rescue collapsing institutions. Economic stimulus *must* not be overdone so that it encourages bubble thinking. Achieving the proper economic spirit also means establishing regulations that ensure trust and cooperation, and in so doing, that encourage genuine inspiration. It means promoting an atmosphere of fair dealing in business." (Robert J. Schiller, Yale University, *Stimulus and Regulation to Promote a Renewed and Spirited World Economy*, United Nations, October 2010)

It is essential that we address four prominent issues. First, the manipulation or even falsification of information provided by organizations and companies, especially in terms of risk measurement, is an initial pernicious factor that can destroy the social capital that confidence represents. A second issue results from political intervention

---

and it would be surprising that leaders and managers have suddenly lost over the few recent years their values of honesty, integrity and intellectual rigor. While incentives are a matter of structure, policies and regulations and can change very quickly. A second implication is that the urgent solution to this loss of confidence goes through better and more rigorous regulation of information transmission by companies. Indeed, one of the most important causes, if not the most important, of recent scandals is the loss of control of regulatory agencies such as securities commissions, overwhelmed by the complexity of financial markets, thereby favouring abuse. We must give these organizations the resources they need to ensure and even guarantee the credibility of financial information submitted by companies. Then, we must tighten the strict application of regulations on conflicts of interest: (i) prohibit the combination of positions of CEO and Chairman of the Board, (ii) require a significant number of CA members trained in complex instruments of modern finance, (iii) prohibit an audit firm from having a branch or subsidiary in business consulting, (iv) prohibit investment banks and brokerage houses responsible for marketing shares or debentures to have financial analysts in direct contact with the public. These few changes relatively straightforward and easy to implement should help restore and maintain confidence in and toward business people. This would make 80% of the way to go, the rest coming from a collective, responsible and informed awareness of the importance of values in organizations."

in publicly owned or regulated companies and the indulgent attitude of regulators toward these companies (the cases of Fannie Mae and Freddie Mac being the most notorious). A third issue arises from flaws in performance incentive programs, which too often neglect and thereby promote reckless risk-taking. In the context of the current crisis, these three factors are front and centre. The picture is rounded out by a fourth factor which is the inflexible application of the mark-to-market accounting rule, which adds to the contagion of uncertainty in a context in which a loss of confidence is causing relevant markets to disappear.[26]

For there to be substantial hope of completely overcoming the recent recession, there is a need to tighten the disclosure of information on risk, to ensure the independence of regulators and, as a way of achieving this, to make greater use of private regulatory bodies (with a significant reputation capital at stake), to promote a better understanding of an effective structure of performance incentive mechanisms, and to loosen the mark-to-market accounting rule in light of the net present value (NPV) economic rule.

To the extent that the social confidence capital results from the behaviour of companies and individuals in response to their private capital of confidence, it is vital for its development to be overseen and promoted by appropriate regulations. These regulations will be all the less costly if managers embody and share values of honesty and intellectual rigour not only in producing goods and services but also in producing and conveying information to all their partners. And these values of probity will be all the more prevalent and widespread if the regulations promoting them are effective and rigorous.

Moving out of a bad Nash equilibrium

A favoured tool for attempting to re-establish confidence was the massive injection of government capital in banks. This injection poses significant problems of its own. First, much of the new capital was used to prop up bondholders, reducing the availability of loanable funds by a comparable amount. Next, if the securities market were to continue its collapse, the same scenario would resume at a potentially exorbitant cost to taxpayers. Finally, governments would come under increasingly strong pressure to inject capital into non- financial private companies that were struggling financially, a nascent vicious financial circle that could lead to a value-destroying spiral throughout the economy.

---

[26] See Parbonetti, Menini and Magnan (2011, CIRANO 2011s-56) for an analysis of the impact of fair value accounting on the quality of information in financial markets and financial analysts' analyses.

> “There has been a clear crisis of confidence that has seriously aggravated the situation. Measures need to be taken to ensure that this vicious circle is broken. The spectrum of policies available is narrower because a lot of ammunition was used in 2009.” (Christine Lagarde, IMF managing director, Interview with *Der Spiegel*, September 2011)

This is not the way to go: government and more generally public debt is now a major source of trouble. More specifically, they are a source of confidence erosion in the financial and real sectors. One more round of stimulus programs runs the risk of creating an even worse catastrophic loss of confidence in sovereign debt, and therefore, in the financial system.

> “Repo has a flaw: It is vulnerable to panic, that is, 'depositors' may 'withdraw' their money at any time, forcing the system into massive deleveraging. We saw this over and over again with demand deposits in all of U.S. history prior to deposit insurance. This problem has not been addressed by the Dodd-Frank legislation. So, it could happen again. The next shock could be a sovereign default, a crash of some important market -- who knows what it might be?” (Gary B. Gorton, Yale School of Management, August 2010)

If stimulus programs were a good idea in 2008-2009, they are not the appropriate tool at this time. The state of underperformance of the U.S. economy (and that of Europe as well) represents what strategic game economists call a stable bad Nash equilibrium: each agent – corporations, financial institutions, households, and other organizations – hold back their hiring, spending, and/or investments as a rational reaction to other agents’ holding back similar decisions. Why would firms and households spend and invest if their offered goods and services find no buyers as the latter hold back their own spending and investing, fearing their goods and services will find no buyers? The economy is stuck in this endless vicious circle or stable underperforming Nash equilibrium in spite of the fact that (or because) all agents act rationally.

Although agents’ rational decisions are interlocked in this bad equilibrium, there exists a different equilibrium out there in which firms and households spend and invest because they rationally believe that other agents will do the same. This alternative (good) equilibrium cannot be reached by definition with a unilateral move by one agent or a subgroup of agents. Only a concerted effort and a move by all agents at the same time can generate the kind of

expectations, justifying each other's decisions, which will get U.S. out on a solid sustainable employment and growth path.

Laurence Kotlikoff of Boston University suggested recently a three-part program to implement such a coordinated effort:

> Part 1: "Banks don't want to lend the money [they have] because they worry about the state of the economy. But if the Fed encouraged banks to lend en masse to companies that would be able to repay in a normal economy, their collective lending would help produce that normal economy. So here's one no-brainer. Have the Fed stop paying interest on reserves and start encouraging the banks to make loans. Our bankers are supposed to know the best and brightest companies in which to invest. Why else would we tolerate the terrible financial risk to which they expose our country? Let's say, 'Bankers, you're on. Find $1.6 trillion [the level of banks' excess reserves] in the best investment projects you can -- projects based in the U.S. that involve hiring lots of Americans -- and lend your excess reserves'."
>
> Part 2: "About 14 million Americans are out of work. If we cut that figure by 6 million, we'd have 5 percent unemployment -- close to the rate in good times. Our country has some 1.4 million companies that individually employ 100 or more workers and collectively employ about 80 million workers. President Barack Obama could call on the workers and shareholders in these companies to voluntarily hire 7.5 percent more workers and do everything possible to maintain the higher level of employment going forward. How, one might ask, would all the new workers be paid? Existing employees could agree to a 7.5 percent wage cut in exchange for immediately vested shares of their companies' stock of equal value. If their companies aren't incorporated, company owners could segregate a portion of the company's profits to be paid, over time, to those workers taking the immediate pay cut. This plan asks workers to finance the new hiring, but makes company owners ultimately pay the bill. This is very different from asking one company to increase employment alone. Under this policy, all large companies will know that all other large companies are hiring. Hence, they'll know that there will be a bigger demand for the additional goods and services their new employees will produce."
>
> Part 3: "Large companies are purportedly sitting on roughly $2 trillion in cash. They are waiting for the economy to improve before they invest, but it won't improve until they all do so. The president can help resolve this

problem by assembling in one room the CEOs of the largest 1,000 U.S. companies and getting them to collectively pledge to double their U.S. investment over the next three years. If they all invested simultaneously, they would immediately create much of the demand needed to make their investments worthwhile."
(Laurence Kotlifoff, "Five Prescriptions to Heal Economy's Ills", Bloomberg, September 27, 2011)

5. Reforming capitalism: beware of sorcerer's apprentices!

In the wake of the economic crisis, a number of individuals and lobby groups argued for an in-depth reform of capitalism. Even if one admits that there is a need for credit practices to be better regulated (subprime mortgage credit among others), an understanding of how these practices arose is required before solutions can be developed.

We already know two of the primary causes of the troubles that have been encountered in the recent financial crisis and economic recession. First, the U.S. government's economic policy favouring programs of easy credit, especially after the bursting of the technology bubble at the turn of the century and the events of September 11, 2001. This policy led to abnormally low interest rates. Next, the undue pressure from some members of Congress on government-sponsored enterprises Fannie Mae and Freddie Mac to the benefit of subprime mortgage holders. These financial GSE companies were led not so much to underestimate the risks of some financial transactions but rather to close their eyes and ignore these risks.

Governments should stop acting as sorcerers' apprentices. They are too often driven by good intentions that can only have catastrophic results. It is hard to believe that current proposals to reform capitalism will lead these governments to impose restrictions on their own actions! Quite the contrary is true: these reforms will expose U.S. to the risk of seeing governments getting involved inefficiently in the micromanagement of individual behaviour and private firms, whether or not in the financial sector.

From 1981 to 2007 (before the crisis), real gross domestic product (GDP) per capita at PPP prices, a relatively reliable measure that allows for comparisons of gains in the standard of living over time and across countries, rose by 68.4% in the United States, 50.1% in France and 52.7% in Canada. From 1981 to 2010, the increases were 62.4% for the US, 45.6% for France and 48.9% for Canada. Canada's GDP per capita, which stood at 91.6% of the U.S. level in 1981, came to 83.0% of the U.S. level in 2007 and

84.0% in 2010. France's GDP per capita, which stood at 78.8% of the U.S. level in 1981, came to 70.3% in 2007 and 70.7% in 2010. Thus, both during the period before the crisis and the period including the crisis Canada and France lost significant ground in GDP per capita compared to the United States. On the contrary, the U.K. gained significant ground as its GDP per capita went from 70.2% of GDP per capita of the U.S. in 1981 to 78.4% in 2007 and 76.8% in 2010.

Although the crisis has hit hard in many financial and industrial markets, the outstanding economic growth of the last decades should not be forgotten. From 1981 to 2007 (before the crisis), the U.S. economy created 46.1 million net jobs, a 43% increase, and Canada created 5.6 million net jobs, a 48.5% increase. Over the last three decades (including the recession periods), the U.S. economy created 37.3 million net jobs, a 34.7% increase, and Canada created 5.9 million net jobs, a 51.0% increase. Although there are many facets to economic growth, this is phenomenal performance! Compared to the experiences of other developed countries, the performances of the U.S. and Canadian economies over the period 1981-2007 and even 1981-2010 are exceptional. Other economies did not perform as well in terms of net job creation although they may have surpassed the U.S. and/or Canadian economic performance in other dimensions, for instance in terms of growth in living standards (GDP per capital) for which Finland, Sweden and Japan are particularly noteworthy.

Growth in Real GDP per capita at PPP prices in US$: 1981-2010

Source: OECD

	GDP per Capita Constant 2005 Prices, PPPs, $US			% Variation		
Countries	1981	2007	2010	1981-2007	2007-2010	1981-2010
Finland	18,010	33,501	31,730	86.0%	-5.3%	76.2%
Sweden	20,297	34,783	33,779	71.4%	-2.9%	66.4%
Japan	18,130	31,660	30,579	74.6%	-3.4%	68.7%
United Kingdom	18,128	34,116	32,232	88.2%	-5.5%	77.8%
France	20,369	30,576	29,661	50.1%	-3.0%	45.6%
Germany	20,936	33,404	33,423	59.6%	0.1%	59.6%
United States	25,841	43,521	41,976	68.4%	-3.5%	62.4%
Canada	23,660	36,124	35,241	52.7%	-2.4%	48.9%

Note : Using nominal GDP data for N countries in order to obtain real GDP at PPP, one needs to perform the following tasks: first, obtain CPI or GDP deflator data for the N countries and convert nominal GDP into real GDP; second, pick one base year (say 2005) and convert the national currency unit nominal GDP data for that year to PPP-dollar GDP data, using (for example) the implied PPP exchange rates for the base year; third, using growth rates from the real GDP series, extend the PPP GDP series forward and backward starting from the base year values obtained in step two.

Growth in Total Employment: 1981-2010
Source: OECD

	Total Employment (000s)			% Variation		
Countries	1981	2007	2010	1981-2007	2007-2010	1981-2010
Finland	2,384	2,486	2,448	4.3%	-1.5%	2.7%
Sweden	4,287	4,525	4,523	5.6%	0.0%	5.5%
Japan	59,108	64,437	63,013	9.0%	-2.2%	6.6%
United Kingdom	24,430	29,225	29,043	19.6%	-0.6%	18.9%
France	22,599	26,811	26,679	18.6%	-0.5%	18.1%
Germany	34,285	39,724	40,490	15.9%	1.9%	18.1%
United States	107,322	153,465	144,581	43.0%	-5.8%	34.7%
Canada	11,483	17,047	17,339	48.5%	1.7%	51.0%

While some reforms may be needed to improve the modus operandi of capitalism in the U.S. and elsewhere, it is vital to avoid the very real risk of throwing out the baby with the bathwater. The market economy and its corollaries, freedom and responsibility as well as competitive prices as signals of relative scarcity, remain the proven factors of social and economic development and increasing living standards. As such, they were and remain the most effective way to eradicate poverty and underdevelopment.

In this regard, various commentators have responded to the recent recession's clearly disastrous results by challenging the structure of financial institutions, their governance and the competence of their managers, and they have demanded firmer government intervention. Some have acted like Monday morning coaches: knowing now how history has developed during these nine quarters of net job losses and high volatility, they claim after the fact that matters should have been handled differently, portfolios should have been shifted, or money should have been invested in different places. This is too easy.

First, the quality of an investment strategy, chosen and implemented prior to a crisis, cannot be judged on the basis of results observed afterwards. Next, the desired return on an investment portfolio cannot be increased without accepting greater systematic risk: the systematic risk that is incurred and the returns that are sought rise and fall in tandem. But desired returns and actual returns are two very distinct concepts: the former corresponds to the weighted average of possible return (weighted by their

respective probability), whereas the latter corresponds to only one of the possible returns, namely the one that was realized. Finally, taking greater systematic risk to increase the desired return implies accepting poor or even catastrophic results some of the time in some states of the world. This is the iron law, cruel though as it may be, of financial markets where risk is negotiated, traded and arbitraged: once incompetence and possibilities for arbitrage are excluded, hopes of increasing returns while taking less risk amount simply to unrealistic magical thinking.

To judge the quality of a financial institution's investment policy, it is necessary to look back and examine the decisions taken in view of the information available at that time rather than the information available now. An institution's managers discuss and establish the investment and credit strategy they will be adopting or recommending to their clients. They need to take account both of the risk level that a particular client is prepared to take and the implementation of the strategy which, depending on the chosen level of risk, will maximize the desired return. It is up to individual investors, depositors or clients to establish investment policies that take into account both their long-term financial goals or commitments and the risk that they are prepared to assume, but remember the iron law: no pain, no gain.

In short, a financial institution and a client choose a distribution together in which each of the possible rates of return, from the lowest to the highest, is associated with a probability of fulfilment; the desired return then corresponds to the weighted average of all possible returns. The quality of an investment strategy lies in implementing or reflecting the goals correctly, through an appropriate choice of securities. Afterwards, only one of the possible returns will be realized. A very high-quality strategy can generate poor, average or excellent results when all is said and done.

At the same time, it is important not to ignore the perverse effects of policies aimed at compensating individuals and companies who lost money after their strategies failed. That will have the effect of creating distortions in risk assessment by individuals and companies. In short, expecting a rescue will mean that it will be "less risky to take risks" and will certainly not encourage investors to be more careful in the future.[27]

[27] "[I]t is imperative for policymakers to assess whether shadow banks should have access to official backstops permanently, or be regulated out of existence." (Zoltan Pozsar, Tobias Adrian, Adam Ashcraft and Hayley Boesky, Federal Reserve Bank of New York, July 2010).

6. A neglected phenomenon: creative destruction at work

Creative destruction is one of the most important mechanisms in growth and wealth creation. It constitutes the process underlying continuous job losses that allow for equally continuous job creation in what are often more promising sectors or more productive businesses.[28]

To the extent that recovery plans launched by various governments aim above all to preserve existing jobs, they can cause serious harm to social well-being by preventing the adjustments produced by creative destruction in the commercial and industrial fabric of economies. This process of creative destruction manifests itself through four different channels which are the number of jobs, the number of establishments, the size distribution of establishments, and growth or decline in employment across company sizes. We will concentrate here on the number of jobs.

U.S. employment dynamics data show that in the 87 quarters from 1992.III to 2014.I, the U.S. private sector establishments created a net average of 289,000 jobs per quarter. In gross terms, these private sector establishments actually created an average of 7.6 million jobs per quarter, about 80% of them in existing establishments and 20% in new establishments, and lost an average of 7.3 million jobs per quarter,

---

[28] Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* 1942 (New York: Harper, 1975, page 82): "The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation–if I may use that biological term–that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in […] Every piece of business strategy acquires its true significance only against the background of that process and within the situation created by it. It must be seen in its role in the perennial gale of creative destruction; it cannot be understood irrespective of it or, in fact, on the hypothesis that there is a perennial lull … The first thing to go is the traditional conception of the *modus operandi* of competition. Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position. However, it is still competition within a rigid pattern of invariant conditions, methods of production and forms of industrial organization in particular, that practically monopolizes attention. But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance)–competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives. This kind of competition is as much more effective than the other as a bombardment is in comparison with forcing a door, and so much more important that it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly; the powerful lever that in the long run expands output and brings down prices is in any case made of other stuff."

again about 80% in existing establishments and 20% following the closing of establishments.[29]

For the pre-recession period (including the previous recession of 2001.I to 2003.I) from 1992.III to 2007.IV, U.S. private sector establishments created a net average of 407,000 jobs per quarter, with on average the creation of 7.9 million jobs and the loss of 7.5 million jobs.

For the recession period between 2008.I to 2010.I, the per quarter net number of jobs lost in U.S. private sector establishments reached 1.04 million which resulted from an average creation of 6.6 million jobs and an average loss of 7.7 million jobs, again per quarter. These numbers can be compared with those of the previous recession period of 2001.I to 2003.I, when the per quarter net number of jobs lost in U.S. private sector establishments reached 431,000, resulting from an average creation of 7.8 million jobs and loss of 8.2 million jobs per quarter.

For the immediate post-recession period 2010.II to 2011.IV, U.S. private sector establishments created a net average of 514,000 jobs per quarter, resulting from an average creation of 6.9 million jobs and loss of 6.4 million jobs, again per quarter. For the post-recession period 2010.II to 2014.I (most recent data available at the time of writing), U.S. private sector establishments created a net average of 576,000 jobs per quarter, resulting from an average creation of 7.0 million jobs and loss of 6.4 million jobs, again per quarter.

Private Sector Jobs created and lost, average per quarter
(Seasonally adjusted; establishment basis)

Period	Jobs created / qtr	Jobs lost / qtr	Net jobs / qtr
1992.III – 2007.IV	7.904 M	7.497 M	407 K
2008.I – 2010.I	6.619 M	7.654 M	-1040 K
2010.II – 2011.IV	6.869 M	6.355 M	514 K
2010.II – 2014.I	6.979 M	6.403 M	576 K

[29] Bureau of Labor Statistics, Business Employment Dynamics, SeriesReport-20141231152723 and SeriesReport-20141231152955 – First Quarter 2014, released November 19, 2014: "The Business Employment Dynamics data measure employment changes at the establishment or firm level… *Establishments* are used in the tabulation of the BED statistics by industry and *firms* are used in the tabulation of the BED size class statistics... Because of the difference in the unit of analysis, total gross job gains and gross job losses by size class are lower than total gross job gains and gross job losses by industry, as some establishment gains and losses within a firm are offset during the aggregation process. However, the total net changes in employment are the same for not seasonally adjusted data and are similar for seasonally adjusted data."

Thus, each net job created during the pre-recession period (62 quarters) was the result on average of 19.4 jobs created and 18.4 jobs lost in private sector establishments, while each net job created during the post-recession period (16 quarters) was the result on average of 12.1 jobs created and 11.1 jobs lost. Each net job lost during the recession (nine quarters) was the result on average of 6.4 jobs created and 7.4 jobs lost. In the previous nine-quarter recession period of 2001.I to 2003.I, each net job lost was the result on average of 18.1 jobs created and 19.1 jobs lost: a smaller net job loss, but a more drastic movement of jobs across the economy.

One can observe from the Table above that the difference between the pre-recession period and the recession period appears mainly in the number of jobs created (*a drop in jobs created* of 1.3 million per quarter), while the number of jobs lost per quarter remained in the same range. In contrast, the difference between the recession period and the immediate post-recession period appears mainly in the number of jobs lost (*a drop in jobs lost* of 1.3 million per quarter), while the number of jobs created remained in the same range.

Thus, despite a sizable net number of job loss per quarter in the nine quarters of the recession period, the U.S. economy continued to create a large gross number of jobs (6.6 million jobs per quarter) in most if not all industries. Although the gross number of jobs created per quarter in the post-recession period is significantly smaller than in the pre-recession period (0.9 million fewer jobs created per quarter), the net number of jobs created is higher (169 thousand more net jobs created per quarter).

Hence, the process of job gains and losses is a complex one, involving large movements of jobs throughout the economy. This is creative destruction at work. One can only wonder how disruptive indiscriminate government interventions in this process can be. That is food for thought.

7. Deficits and growth: friends or enemies?

In reaction to the recession, governments bloated their deficits to stimulate the economy. However, not only do the supposedly beneficial effects of these "recovery plan" policies arrive too late in general, but the improvised nature of each set of proposed measures also risks creating waste and harmful incentives by making businesses more concerned with their political representatives than with their markets.

It is undeniable that governments have a key role in developing and maintaining public infrastructures, among other areas. What come to mind in particular are

infrastructures that cannot be financed effectively through fees. But governments' responsibility in this domain is no greater at a time of economic slowdown. We may rejoice at the fact that, after failing to fulfil their role in keeping infrastructure in good conditions, governments are waking up during a time of economic slowdown and are finally looking after it, but this sudden awakening looks more than anything else like a sign of mismanagement.

The relationship between public deficits and economic growth is ambiguous, and the connection between them is debatable. To be convinced of this, one needs only to look at the Canadian experience of the 1990s.

From 1990 to 1995,[30] the Canadian government's budget deficit stood at an average of 5% of GDP, which was a major improvement over the previous five years. From 1997 till recently, these deficits gave increasingly way to surpluses. What do we know about the impact of this significant reversal – rather unusual among OECD countries – on growth?

During the decade of large deficits, from 1985 to 1995, Canada had real GDP per capita growth levels much lower than those of Japan, the United Kingdom, Italy, the United States and France. During the early period of budget surpluses, from 1997 to 2002, Canada's results topped the performance indicators of all of these countries. In terms of job creation, Canada also surpassed these other countries from 1994 to 2004, and the gap between Canadian and U.S. unemployment rates decreased dramatically, from 4.2 percentage points between 1993 and 1996 to 1.5 points between 2003 and 2005. At the same time, the labour force participation rate and the employment rate both increased substantially in Canada compared to the United States.

These admittedly partial observations at least suggest that eliminating its chronic deficits enabled Canada to improve its economic performance compared to countries that continued to produce large budget deficits. Indeed, Canada appears today as a model of performance enhancing budget balance forerunner and as such is admired throughout the world if not openly and publicly, at least in off record discussions. These important facts are too often forgotten in the current debates due to misconstrued political economy imperatives.

Further, it must not be forgotten that citizens and companies, as economic agents, understand that these deficits will have effects on taxation and interest rates, and thus on their borrowing costs and capital costs, sooner rather than later. There is a certain consensus among economists that discretionary fiscal policies have only a marginal

---

[30] See Industry Canada, *Making a Difference*, 2003; and Finance Canada, *The Economic and Fiscal Update*, 2006.

effect even in the best of cases but may cause major, long-lasting distortions that may be very costly in terms of economic efficiency, and even more costly to reverse.

To situate recovery plans in the economy as a whole, let us again examine the case of Canada. In January 2009, the government announced stimulus measures that would lead to deficits totalling just under C$50 billion over six years, of which C$33.5 billion over the two year period 04/2009 to 03/2011.[31] These added deficits would be incurred to cover increased government infrastructure spending and tax breaks, some of them already announced but not yet in force. These amounts, while impressive at first sight, are relatively marginal compared to the size of the Canadian economy. The composition of Canada's GDP in the third quarter of 2008 (equal to C$1.64 trillion on an annual basis) showed that personal spending on goods and services stood at more than C$900 billion a year, while business investment surpassed C$315 billion and public investment totalled more than C$50 billion. Hence, a stimulus package totalling C$50 billion over six years is nothing but marginal and barely noticeable.

The Canadian government obviously should be and should have been concerned first and foremost with its primary missions as: (i) a good manager of public funds, achieving this by avoiding any undue bloating of its cyclical deficit; (ii) a good manager of public infrastructures, both in developing and maintaining them; and (iii) a good manager of the production of public goods and services under its authority. It also should be its priority to work toward rebuilding the confidence of economic agents – individuals, households and businesses – to ensure efficiency and transparency in the operation of the Canadian economic system, and with particular emphasis on the sound operation of the financial system, under the governance of the Bank of Canada.

In times of recession as in times of growth, a strategy of budget deficits, protectionism and indiscriminate subsidies can only cause more harm than good. It is better to have a strategy favouring the necessary and efficient adjustment of prices, markets and the industrial fabric, letting companies prepare for recovery: this is harsh medicine, but it will get the patient back on its feet sustainably. Announcements of huge government expenditures may contribute to a loss of confidence by heralding an increasingly serious crisis, pushing up risk premiums and making conditions for bank credit tougher.

First, these expenditures systematically block necessary adjustments to the commercial and industrial fabric of their respective societies and economies. Well before the crisis, there was overcapacity in the automotive industry, the forest industry, the agro-food industry (in developed countries) and elsewhere. This

[31] In addition to the status quo expected deficits totaling C$46 billion over six years, of which C$30 billion over the period 04/2009 to 03/2011.

overcapacity had to be freed up and eliminated to enable profitable companies in every sector, whether new or not, to grow. In addition, government spending is a mechanism that evicts investment from the private sector. Deficits will have to be financed and eventually repaid in some way or other. Moreover, it consumes substantial real resources, channelling them into programs that often make financial sense only on paper.

Government assistance and subsidies of all sorts are supposedly aimed at supporting private companies that must cope with intense competition or high-risk investments (while government-owned companies get permanent support on a priority basis). Such policies are often justified on the basis of a lower cost of financing for governments. This justification rests on an analytical flaw or illusion which neglect a significant cost of public funds, namely the value of the option or insurance granted implicitly by citizens to their government allowing the latter to request additional funds if its activities, projects and subsidies end up less profitable than expected.[32]

The costs and benefits of government assistance always have the same characteristics. The costs are diffuse and are spread among all citizens and the entire economy, whereas the benefits are captured by clearly-identified and politically-influential interest groups, including employers and unions.

Overall decisions on investment, R&D, and production are distorted by these assistance programs: firms begin to worry more about their political representatives than about their competitiveness, employees, customers, suppliers and rivals. This strategy is the fast track to inefficiency and bankruptcy once public funds have been fully squandered.

The correct way to assess the anticipated cost of government assistance would be to hold an auction aimed at transferring the assistance contract – its guarantees, loans and other outlays along with the repayments – to a third party in the private sector at the best possible price. The premium or compensation so demanded should be recorded as a government expense. This transparent market sanction would reassure all citizens that their government is watching over their interests rather than protecting today's precarious jobs in certain companies to the detriment of better present and future jobs in the economy as a whole.

In the face of the recent and looming crisis, an unbridled strategy of deficits and subsidies – which may end up preventing desirable adjustments in prices, markets and

---

[32] See Marcel Boyer, Éric Gravel and Sandy Mokbel, "The Valuation of Public Projects: Risks, Cost of Financing, and Cost of Capital", *Commentary* #388, C.D. Howe Institute, september 2013, 20 pages.

industrial fabric through creative destruction – risks above all to delay and weaken a return to real growth. That is possibly what is being observed today.

8. Fiscal reforms, Renewed roles for the governmental (public) sector, Social risk management as a growth factor

Fiscal reforms

Fiscal systems have reached a troubling level of complexity favouring numerous types and forms of exemptions and loopholes. This is a major impediment to an efficient allocation of resources, investments as well as R&D and innovation efforts. Economic theory could be better used in a concerted way to reorganize the fiscal systems in order to provide citizens and organizations with the best incentives to use and develop scarce resources to maximize the overall well-being of all.

To achieve such a goal, we need proper prices as indicators of relative scarcity to guide individuals and organizations in their decisions and a proper system of taxation allowing the balanced financing of public and social goods and services and proper incentives for individuals and organizations to contribute through the best use of their abilities to the well-being of their fellow citizens.

I discussed above and will again stress below the role of competitive prices as proper indicators of relative scarcity to guide individuals and organizations in their decisions to use and develop scarce resources. I will in this subsection concentrate on government financing.

The fundamental change needed in government financing revolves around the design of a taxation system capable of achieving two objectives: generate a balanced financing of public and social goods and services and provide, as mentioned above, proper incentives for individuals and organizations to contribute to the well-being of their fellow citizens, mainly through their decisions regarding respectively their participation (how, where and at what level of effort) to the workforce and their decisions about the development and marketing of products and services of increasing quality.

Economists have shown and advocated for a long time that in order to meet a broad objective of efficiency in resource allocation, taxation systems should rest on consumption taxes rather than labour taxes: hence the need to abolish income taxes for individuals, organizations and corporations and to implement consumption taxes (sales taxes or value added taxes) as neutral as possible, that is, with at a unique

percentage applied to all goods and services. Consumption should be taxed when it occurs or at death, under the assumption that an individual is reputed to have consumed all his or her accumulated wealth at time of death.

In this framework, minimum-wage laws should be abolished in favour of a direct supplement to earned income through incentive-compatible fiscal programmes. Such programmes would blend some equivalent money value to (negative) consumption tax credits for low-wage earners, progressively reduced towards a break-even point, and positive consumption tax at a fixed rate afterwards. Moreover, to induce proper behaviour, lump-sum fiscal bonuses could be implemented for significant changes in taxable consumption (hence income) at the low end of the income scale. This policy will go a long way to eliminate unemployment and increase the value of work and make it more socially rewarding, even at the lower end of the wage distribution. The social importance of unemployment insurance and social aid programs will dwindle, making low-skilled individuals and families better integrated in the social fabric and full-fledged contributors to the creation of wealth.

Renewed roles for the governmental and competitive sectors

More fundamentally, a new social contract redesigning the fiscal system and the respective roles of the governmental (public) and competitive (private, for profit or not) sectors should be implemented. The new social contract falls under what I defined elsewhere as a Competitive Social Democracy (CSD) program.[33] It is useful to present again here the main elements of this social project.

The core competencies of the *governmental sector* are first, the identification of citizens' basic needs in terms of public and social goods and services, both in quantity and quality; second, the design of proper mechanisms through which conflicts between different baskets of public and social goods and services – and between different coalitions of citizens – will be arbitrated; and third, the management of contracts and partnerships with competitive sector organizations for the production, distribution and delivery of the chosen basket of public and social goods and services. The core competencies of the *competitive sector* are to produce, distribute and deliver private goods and services as well as, under contract and in partnership with the governmental sector, the public and social goods and services by making use of the best forms of organization and the most efficient combinations of factors, human resources and technologies.

[33] Marcel Boyer, *Manifesto for a Competitive Social Democracy*, CIRANO Monograph 2009MO-02, April 2009.

For competitive mechanisms to be broadly accepted, a significant effort must be undertaken to promote the liberalization, dissemination and better understanding of economics with its natural laws and rules. The emergence and omnipresence of competitive prices, processes, mechanisms, and their proxies throughout the economy, in the public and social goods and services sectors in particular, constitute significant forces aimed at avoiding waste and at generating and implementing innovative solutions to problems and challenges. In that regard, they must be understood as a significant endeavour of the CSD social project. To achieve such results, it is important that the attribution of contracts be realized through open and transparent processes, exempt of favouritism and predatory behaviour. Competitive sector organizations must face a level playing field; if some advantage, financial or otherwise, should be given to some participating organizations, it should be announced and quantified in a clear way at the outset.

The emergence of competitive markets for the governmental-competitive contracts and partnerships in the production, distribution and delivery of public and social goods and services requires that a sufficient number of organizations be present in the tendering process. It is a fundamental responsibility of the governmental sector to make sure that processes to award contracts be exempt of significant expression of market power by competitive sector organizations. Those competitive sector organizations must be capable of submitting credible offers in a level playing field contest for governmental contracts. Efficiency in this process requires all competitive sector organizations face the same requirements. In order to achieve the highest level of efficiency, it is preferable, if not necessary, for the government to explicitly favour, through an adequate programme of training, counselling, and/or (competitive) financing, the creation and development of efficient competitive sector organizations without interfering directly in the contract allocation processes. Such a policy would, in the long run, be much more efficient than trying to tilt the balance towards preferred-son organizations.

The competitive mechanisms are the most efficient mechanisms allowing citizens and organizations to make choices based on appropriate information. The manipulation of prices by sending biased signals or indicators of relative costs and scarcity of goods and services has become a major source of social and economic waste in our societies. Such manipulations imply that individuals are induced to make inefficient consumption and investment decisions, while firms and organizations in all sectors, including public and social goods and services sectors, such as health and education for instance, are induced to make production, investment and R&D choices that are oriented more towards the interests, wishes and private objectives of price manipulating political authorities and well-organized interest groups rather than

towards the needs and demands of their customers, clients, and citizens. This is not to say that it is never appropriate for political or social leaders to convince people of the desirability of changes in behaviour, but rather that it is always better to proceed through competitive institutions and mechanisms, respecting the autonomy and fostering the responsibility of citizens.

Innovation, not only technological but also organizational, must rely on an explicit process by which experimentation and change become normal if not frequent or continuous events. In order to reduce the costs of innovation generation, selection and implementation, and, therefore, of favouring the emergence of an innovative society, the governmental sector must explicitly develop a multiple-sourcing policy in the attribution of contracts. Multiple sourcing means that no single competitive sector organization should be allowed to monopolize or dominate a significant part of the production, distribution and/or delivery of a public or social good or service. In order to favour competition among providers and to identify those capable of higher performance in the production, distribution and delivery of public and social goods and services, it is essential that some level of modularity and experimentation be continuously undertaken under proper safeguards allowing the evaluation of new ways and means so implemented, the objective being to implement real world best practices as consistently as possible.

It is normal therefore expected that, in any efficient society, a certain number of individuals will end up making or having taken wrong decisions with dire and socially undesirable and even unacceptable consequences. Hence, a public programme of income and wealth support is not only necessary but also conducive to growth enhancement and social well-being improvement for all. But such public programmes must be efficiently designed and implemented. In lieu of the paternalistic control and manipulation of prices that have often been the preferred policy in the past, transparent policies of income and wealth support with strong incentives for the beneficiaries to get out of them should be preferred.

The current socio-economic evaluation of governmental programmes proceeds from improper, disputable and self-serving methodologies. Programmes aimed at (regional) job creation, fostering investments in specific sectors, as well as programmes intended to favour the reinsertion of the long-term or seasonally-unemployed persons, are all examples of public programmes costing vast sums of money with practically no significant tangible results. It is not the goals and objectives of those programmes that are flawed, but rather their implementation. Requiring that programmes be subject to open competitive processes leading to incentive contracts

for those organizations chosen to produce and/or deliver them will favour programs that are better designed and better implemented.

Social risk management as a growth factor

In February 2004, I directed a team of CIRANO researchers from different universities who developed a major research proposal[34] on The Analysis and Management of Risk in Canadian Society (RISAC[35]). The proposed project claimed that the globalization of markets, the development of new information and communication technologies, and the internationalization of cultures have initiated a critical period of change in societies as economic uncertainty and risk are becoming ever more important and difficult challenges facing social and economic institutions. The aim of the proposed project was to develop a framework for measuring the impacts of risk and uncertainty, and to study ways to manage and reduce those impacts.

Uncertainty is a source of opportunities. Thus, the proposal was to extend and apply the scientific framework that has developed over the last decades for the analysis of financial risk and insurance to encompass a wider set of issues and to develop a quantitative approach to the management of risk and uncertainty at the individual, corporate, social, and policy levels.

Considerations of risk attenuation or risk management were not and are still typically not part of the current discourse surrounding public policy as social programs are usually evaluated according to criteria such as equity, accessibility, universality, and efficiency. These criteria are important and certainly relevant, but it is also imperative to place issues of risk front and center in public policy debate.

For example, guaranteeing access to secure sources of energy must certainly be a goal of public and private utilities. But at what cost comes the guarantee? There is a classic risk-return trade-off in the management of energy resources, as there must be in the provision of health services. Similarly, employment insurance is a safeguard against reverses in the labour market and sudden drop in the value of one's human capital and the progressive tax system may be viewed as a hedge against income volatilities. We also find returns on *human capital* in discussions of education and training, and we have grown accustomed to considering the problems with *at-risk youths*.

---

[34] Under the Major Collaborative Research Initiatives Program of the Social Science and Humanities Research Council of Canada (SSHRC).

[35] The name RISAC comes from the greek word ριζα (rhiza), which literally meant "root" or "reef", which led to the latin "riscus" and italian "risco" and eventually to the French "risque" and the English "risk"; see http://research.dnv.com/skj/Papers/ETYMOLOGY-OF-RISK.pdf and Boyer and Dionne (1983).

RISAC intended to place issues relating to risk —risk measurement, evaluation and management— at the center of public policy discussion and formulation. Such a goal requires analysis on a variety of levels. To formulate coherent and effective policy, it is imperative to understand individual risk preferences or aversion in different circumstances, an undertaking that must draw from psychology, political science and economics. As well, the nature of the risks (and extreme risks in particular) affecting different sectors of the economy must be well understood before proposals to manage such risks can be properly assessed. Market mechanisms may also offer novel approaches to risk avoidance (long term, globalization-related, environmental) but of course such mechanisms can only be successful if they are calibrated to the risk preferences of potential users. All In all, RISAC comprised many strands around one theme.

Financial Economics as a discipline has contributed in an essential way to the development of financial markets and has enhanced the individual's ability to deal with the uncertainties of economic life. The models developed by economists use concepts and methods from probability theory in an equilibrium setting. RISAC aimed to apply and extend the concepts and techniques of risk measurement and management to a wider social context than its current applications in corporate finance and intended to extend and elaborate this scientific paradigm in different directions. More particularly, the ultimate objective of RISAC was to contribute to better social policy through a deeper understanding of how individuals react to uncertainty in different contexts and under different circumstances and to propose and develop specific instruments and institutions to better manage such uncertainty and risks.

The RISAC project was not financed by SSHRC and the team was dissolved. In retrospect, this outcome exudes lack of vision, lack of understanding, and lack of preparing for the future. The rest is history.

In a similar vein, Luigi Zingales, professor of economics, entrepreneurship and finance at the University of Chicago, recently suggested a two-part plan to facilitate the adjustment of mortgage conditions to major variations in housing prices.[36]

First, the government should favour the inclusion in mortgage contracts of clauses giving the owners of dwellings the option of renegotiating their mortgages downwards when the value of houses in their neighbourhood or region (based on postal codes for instance) has fallen more than 20%. In return, the mortgage lender would receive a

[36] Luigi Zingales, "Plan B," *The Economists' Voice*, 5 (2008),

portion of the eventual selling price, for example 50% of the difference between the selling price and the renegotiated mortgage. This is a win-win solution compared to traditional foreclosures.

Next, to help banking institutions in difficulty, the government would make available to them a quick partial bankruptcy process under which debt (commercial paper and bonds) would be converted to equity capital and the current shareholders would see their equity liquidated while getting the option, to be exercised within seven days, of buying back the debt at nominal value. To ensure that all insolvent banks, and only those banks, choose to make use of this bankruptcy process, short-term debt would be subjected to it too. Insofar as holders of this debt view the bank as insolvent, they will liquidate their debt as soon as possible, causing a liquidity crisis and forcing the bank to use this process. Incentives are then properly aligned, and the bank will recover its financial solidity, have the ability to resume lending, and maintain all of its other contractual obligations.

The strength of this process is triple-pronged. First, in case of crisis, the banking sector will be recapitalized with no injection of government capital. Second, the government does not have to determine the asset value of a bank in difficulty. Third, we avoid seeing the government decide on the future of individual banks because the market will take care of that. Zingales claims that it is time now for governments to implement a solution based on the operation of private competitive markets, thereby avoiding the waste of public funds, while using public force or authority in last resort to reorganize the banking sector quickly and efficiently.

Economist Luc Vallée, a former chief economist of the Caisse de dépôt et placement du Québec, has suggested an alternative solution.[37] He says the government should offer each owner who occupies his or her dwelling the chance to sell a certain percentage of it to the government. However, he adds that this offer should contain incentives ensuring that only owners in real difficulty would agree to subscribe to it, as defined in his proposal.

Vallée's option is interesting on several grounds. First, individual decisions on whether to accept the option offered by the mortgage contract would provide essential information on the quality of mortgage loans. The offer is of interest only if owners are unable to repay their loans. The financial sector would thereby be able to more adequately determine the value of mortgage blocks. Since the offer is made to all owners, this removes the problem of determining who should benefit from assistance which is a thorny problem with the assistance programs proposed by various

[37] Luc Vallée, "A Simple Bailout Plan for Housing and the U.S. Economy," *The Sceptical Market Observer*, August 12th 2009.

governments. Second, the chance offered to owners to sell portions of their home to the government (converting debt to equity) would bring mortgage loan payments down enough to enable many owners in difficulty to get through the crisis, and this operation would clean up the balance sheets of banking institutions. Third, this strategy would help stabilize the real estate market in case of an abrupt decline in prices since it would reduce the number of dwellings put up for sale.

Similar types of options could be included in other contracts to allow for continuous adjustments to economic conditions in case of recession or financial crisis, avoiding sudden cascading adjustments that only aggravate poor economic conditions needlessly. These options obviously will be incorporated in contracts at a certain cost to the parties. But, to the extent that enough of these adjustment clauses are effectively included in contracts, they will help reduce the undesirable collateral effects of recessions.

Innovations and the commercialization of new technologies, products and services are important causes of significant displacement of economic activity and of abrupt depreciation, sometimes quick obsolescence, of capital, skills, and competencies. A much needed fundamental policy is to foster the creation and implementation of tools, ways, and means to allow individuals, firms, and different levels of government to efficiently manage risks and opportunities that stem from the innovation and commercialization of new technologies. Market instrument solutions have been found via the introduction of a variety of insurance and derivative products that enable users to manage and trade risks. There is today a need for new insurance-like and derivative-like products to help individuals, firms and different levels of government manage the risk of change, both in the displacement of jobs and in the abrupt depreciation and obsolescence of financial and human capital.

The recent financial crisis has thrown in disarray and brought into disrepute many of those market instrument to manage risks. But one must realize that any significant technological advancement yields its share of good and bad applications. It is unfortunate that the bad applications often overshadow the good. Some examples of technological advancement that have had both good and bad applications include hammers, explosives, financial derivatives, and cyberspace.

A significant source of opposition to socio-economic changes, even when such changes appear desirable from a social welfare viewpoint, is the absence of efficient mechanisms or institutions that could assist individuals as well as firms and organizations in reducing their direct cost of adaptation to such changes. When a society is confronted as a whole or in part with changes in its socio-economic

environment, its capacity to adapt in order to maintain or increase its citizens' well-being is crucial.

This flexibility to adapt to a volatile environment must be a characteristic of all sectors producing and distributing private as well as public and social goods and services. Flexibility runs against inertia, inertia grows from fear, and fear grows from change. Unless people are given the tools to manage such change, they will resist it in the economic and political arenas, at significant social costs. Resistance to change is in most, if not all, circumstances a very poor substitute to adaptation to change. But the level of social attitude and flexibility towards socio-economic changes will depend on the existence of institutions (tools and means; organizations and markets) allowing individuals, firms and different levels of government to efficiently manage risks, control their exposure to downside risks, and foster their exposure to upside opportunities. A proper set of risk-management mechanisms and institutions is necessary for a flexible society where innovation, both technological and organizational, thrives. To be successful at innovation and commercialization, a society must develop a higher ability to analyze risky prospects (e.g. via a more educated workforce with a significant literacy in economics, business and finance) and favour a better exposition to structural factors, such as market size, enhanced competitive processes, and a higher reliance on well-designed and efficiently-produced and distributed social protection programs.

Rather than concentrating on the determination of regulations regarding capital ratios and requirements for financial institutions, banks and shadow banks in particular, the new instrumental, institutional and regulatory integrated framework should concentrate on an agenda for growth. In conformity with this aim, financial reforms and the development of efficient mechanisms for better adaptation to change must rest on a long-term view of regulatory instruments and institutions that foster self-reliance, responsibility (incentives), and gradual (open, integrated, and automatic) adaptation to changing conditions in financial and labour markets among others.[38]

9. Conclusion: challenges and prospects

Besides all the policy changes discussed above, some serious challenges must be met in order to grow out of the crisis. I gather here some additional policy changes under three general headings:

---

[38] For more on these ideas, see Marcel Boyer, *Manifesto for a Competitive Social Democracy*, CIRANO Monograph 2009MO-02, April 2009: http://www.cirano.qc.ca/pdf/publication/2009MO-02.pdf (currently being revised).

Refocus government on the conditions for job and wealth creation.

When assessing the dynamics of the jobs and establishments created and lost in gross terms, one sees the economic crisis in a different light. Despite substantial net job losses in the nine quarters of recession 2008.I to 2010.I, the fact remains that the private sector in the U.S. economy continued to create a very high gross number of jobs as 6.6 million jobs were created on average in each of those quarters.[39]

When these data are compared to the scope of government recovery plans, it seems obvious that authorities in the US, Canada and elsewhere should emphasize policies to spur the creation of new jobs rather than trying to save jobs that are probably doomed to disappear. The number of gross jobs effectively covered by the recovery plans – whether in the United States, Canada or Europe – fails to measure up to the scope of gross job creation in the private sector, even during the worst quarters of the recession. The process of creative destruction, which occurs in periods of growth and recession alike, far overshadows the effects sought by direct government action. Governments would be justified to focus their efforts on rebuilding confidence and developing conditions favourable to creative destruction rather than intervening directly in the economy.

Implement Microprudential and macroprudential rules.

Among the most important changes allowing for improvement in the regulation of financial institutions, mention must be made of the various microprudential and macroprudential rules that could be implemented over the coming years.[40] As stated

---

[39] On October 30, 2009, the White House estimated that the number of jobs created or saved due to its $787-billion “recovery” plan was 640,239. Some people involved find this estimate generous because the rules for calculating jobs are rather nebulous and favour an overestimate of the jobs created or saved. (See, for example, Michael Cooper and Ron Nixon, “Reports Show Conflicting Number of Jobs Attributed to Stimulus Money,” *New York Times*, November 5, 2009, p. A16). On *ABC News Political Punch blog* of January 11 2010, one reads: “The Obama administration has taken some heat and mockery for using the nebulous and non-economic term of jobs being “saved or created” by the $787 billion stimulus program. So it’s gotten rid of it. In a little-noticed December 18, 2009 memo from Office of Management and Budget director Peter Orszag the Obama administration is changing the way stimulus jobs are counted. The memo says that those receiving stimulus funds no longer have to say whether a job has been saved or created. ‘Instead, recipients will more easily and objectively report on jobs funded with Recovery Act dollars,’ Orszag wrote. In other words, if the project is being funded with stimulus dollars – even if the person worked at that company or organization before and will work the same place afterwards – that’s a stimulus job.”

[40] For more on macroprudential and microprudential rules, see the early contribution of Mathias Dewatripont and Jean Tirole (1994), *The Prudential Regulation of Banks*, MIT Press. See also Céline Gauthier, Alfred Lehar and Moez Souissi (2010), “Macroprudential Regulation and Systemic Capital Requirements”, Bank of Canada Working Paper 2010-4; and Samuel Hansen, Anil Kashyap and Jeremy

by Hansen, Kashyap and Stein (2011): "A microprudential approach is one in which regulation is partial-equilibrium in its conception and is aimed at preventing the costly failure of *individual* financial institutions. By contrast, a macroprudential approach recognizes the importance of general-equilibrium effects, and seeks to safeguard *the financial system as a whole*. There seems to be agreement among both academics and policymakers that the overarching orientation of financial regulation needs to move in a macroprudential direction" (italics in the original).

The effects of implementing such macroprudential rules are estimated by Gauthier, Lehar and Souissi (2010): "We find that systemic capital allocations can differ by as much as 50% from 2008Q2 capital levels and are not related in a simple way to bank size or individual bank default probability. Systemic capital allocation mechanisms reduce default probabilities of individual banks as well as the probability of a systemic crisis by about 25%. Our results suggest that financial stability can be enhanced substantially by implementing a systemic perspective on bank regulation."

These desired macroprudential rules include, among others:[41]

- The use of interest rates, and thus of risk levels, as a weighting factor in determining the capital reserves that institutions must hold.
- The imposition on major financial institutions of higher capital reserve coefficients in normal times or in periods of sustained growth and lower ones in times of recession. Defining these reserve coefficients would enable excess capital reserves to be accumulated in favourable periods for use in supporting banking operations during troubled times.
- The requirement that the largest, most interconnected, most complex banks and similar financial institutions that are deemed too big to fail hold higher capital reserves given the systemic risk they represent for the economy.
- The imposition of stress tests and outside "value at risk" calculations by the organizations responsible for the stability of national banking and financial systems and of the international financial system. These tests enable the

Stein (2011), "A Macroprudential Approach to Financial Regulation", *Journal of Economic Perspective*, 25(1), pp. 3-28. An interesting presentation by Jean-Charles Rochet (2012), "Changing he Regulatory Environment", can be found at http://www.swissfinanceinstitute.ch/sfi_capco_rochet.pdf (SFI-Capco Institute Conference in Zürich).

[41] Some of those rules appear under one form or another in the voluminous Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010 (named after the Senate Banking Committee Chairman Chris Dodd and the House of Representatives Financial Services Committee Chairman Barney Frank). This legislation was both praised as bringing the most significant changes to financial regulation of the last 70 years and criticized as being insufficient to prevent another financial crisis and as going too far in unduly restricting financial institutions.

effects of major financial shocks on the banking system to be quantified: major recessions, broad exchange rate variations, oil shocks, and sharp drops in stock prices, especially on derivatives exchanges. Stress tests must provide for the determination of the critical solvency ratios that enable banking and financial systems to cope with heavy macroeconomic shocks such as an economic recession that stretches over two or three years.

- An obligation for the nationally-recognized statistical rating organizations (NRSRO)[42] to account for their assessments of probabilities of default and of losses in case of default. In addition to the reputation capital that constitutes the rating agencies' primary source of value, it can be expected that, sooner or later, these agencies will have to help clarify and describe the incentives they face and demonstrate sufficient financial capacity to deal with challenges to the quality of their forecasts and analyses, in view of the results observed.
- The requirement that "too big to fail" banks and institutions keep record of an orderly bankruptcy plan, in the spirit of the contract adjustment clauses dealt with above, with contingency provisions for transferring control and sharing costs and losses.
- The abolishment of enterprises that provide government financial guarantees and thereby promote mismanagement to avoid the muddles that result from direct and misguided intervention by political authorities in the conduct of institutions and markets. In the U.S. context, these include Fannie Mae, Freddie Mac, the Federal Housing Administration and the Federal Home Loan Banks. Instead, assistance for home ownership access should go directly to the neediest.
- Finally, a measure likely to improve the governance of the large banks, with reasonable and effective control of managers by shareholders: rules on bank ownership - currently quite restrictive - must be made more flexible.

Some of those macroprudential rules would in fact reinstate a form of Glass-Steagall separation between investment banking and commercial banking, thereby favouring a reduction in the size of the largest banks, certainly two of the most vigorously fought reforms by banks.

---

[42] There are nine such NRSRO organizations: Kroll Bond Rating Agency, Moody's Investor Service, Standard & Poor's, Fitch Ratings, A. M. Best Company, Dominion Bond Rating Service Ltd., Japan Credit Rating Agency Ltd., R&I Inc. (Rating and Investment Information, Inc.), Egan-Jones Rating Company, and Morningstar Inc.

Meet Political and social challenges.

Among the broadest and most encompassing challenges we face, one must mention in particular the ultimate danger of resorting to protectionist and “buy local” measures in efforts to spur demand for local products and services, to the detriment of the cost of living and the general well-being. There exists a real danger of seeing a vicious circle crop up with protectionism responding to protectionism, plunging economies into a serious slump.

Instead, we should seek to protect the movement toward globalization and increasing liberalization of markets. Some people fear competitive processes not only at the national level but also in the international context. Globalization of markets is often viewed as responsible for destroying jobs (outsourcing and offshoring) in the developed economies and as favouring the exploitation of workers in the underdeveloped countries.

However, the substantial growth of international trade in the last half-century has been a major factor in the enhancement of collective economic well-being and in cultural and social development. Indian economist and 1998 Nobel laureate Amartya Sen noted: “Barely centuries ago, poverty and ‘nasty, brutish and short’ lives, as Thomas Hobbes wrote, dominated the world, apart from a few rare pockets of abundance. By overcoming this penury, modern technology and economic interaction have had their importance. Precarious situations cannot be reversed if the poorest are deprived of the considerable benefits of contemporary technology, of the solid efficiency of international trade and interaction, and of the socio-economic advantages of living in an open rather than a closed society. What is needed is a more equitable sharing of the fruits of globalization.” [43]

Without going into detail, it is clear that denying the phenomenal potential of international trade to enhance well-being for all comes from misunderstanding or ignorance of a key element of modern economic history, namely the theory of comparative advantage formulated almost 200 years ago by economist David Ricardo.[44] The implications of this theory are implacable and inevitable, if relatively counter-intuitive. The theory states that as long as a difference exists in the comparative production costs of various goods and services observed in autarky in several countries, each country will benefit from international trade by specializing in the production and export of the goods for which they have the greatest comparative or elative advantage, importing other goods in exchange. It is vital to emphasize that

[43] Amartya Sen, “Dix vérités sur la mondialisation,” *Le Monde*, July 18, 2001.
[44] David Ricardo, *On the Principles of Political Economy and Taxation*, 1817.

all countries will benefit from this trade, regardless of their *absolute* competitiveness. This assertion is undeniably one of the most important results of modern economic theory. It is the foundation of the eradication of poverty, wealth creation, economic growth, and social progress for all.