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**Growing out of the Crisis through
Prudential Regulation of Large Financial Institutions
and Redefined Government Responsibilities**

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Growing out of the Crisis through Prudential Regulation of Large Financial Institutions and Redefined Government Responsibilities *

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Résumé / Abstract

Je considère ici certains défis et écueils auxquels nous devons faire face pour sortir pour de bon des récentes et rampantes crise financière et récession économique. Je considère un bref historique de la crise et insiste sur la perte de confiance dans le secteur bancaire et financier, qui s'est propagé plus tard au secteur réel. Je discute des moyens de rétablir la confiance et de se sortir d'un équilibre économique mauvais mais stable, dû en partie à des systèmes incitatifs mal conçus. Considérant les données sur la création et la perte brutes d'emplois dans le secteur privé, je nous mets en garde contre les apprentis-sorciers en mal de réformer le capitalisme et je rappelle le rôle important et trop souvent oublié de la destruction créatrice. Je montre que les déficits publics et la croissance économique ne sont pas de bons comparses donnant en référence l'expérience canadienne des deux décennies 1985-2005. Enfin, je discute des réformes fiscales et des rôles renouvelés des secteurs gouvernemental et concurrentiel dans la génération d'une économie plus prospère, ainsi que certains défis spécifiques auxquels nous sommes confrontés aujourd'hui.

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

I consider in this paper the challenges and pitfalls we must face to grow out for good of the recent and latent financial crisis and economic recession. I consider a brief history of the crisis and insist on the loss of confidence within the banking and financial sector, which propagated later to the real sector. I discuss ways to rebuild confidence and move out of a stable bad economic equilibrium, due in part to inefficiently designed bonus systems. Considering data on gross job creation and loss in the private sector, I challenge the sorcerer's apprentices in reforming capitalism and I recall the role of creative destruction. I show that government deficits and economic growth are not good friends and I offer a reference to the Canadian experience of the two decades 1985-2005. Finally, I discuss fiscal reforms and renewed roles for governmental and competitive sectors in generating a more prosperous economy as well as some specific challenges we are facing today, in particular to redesign the regulatory framework of the financial sector.

Keywords: *Financial crisis, confidence, creative destruction, fiscal reforms, prudential regulation, competitive social-democracy.*

* This paper was prepared for the CIRANO Conference *Too Big to Fail Financial Institutions? International Perspectives and Possible Remedies*, Sept. 14-15 2011. It updates and borrows significantly from two of my recent publications: first, my Montreal Economic Institute Research Paper #1209 published in Dec. 2009 "The economic crisis and its impact on employment" and second, my forthcoming article "The Twelve Principles of Incentive Pay" in *Revue d'économie politique*. I am grateful to participants in the CIRANO Conference of Sept. 2011 as well as to all those who provided me with comments on early versions of the above papers, in particular the participants in the Mackenzie Financial Services symposium (Québec, May 2009), the Canadian Academic Accounting Association annual meeting (Montréal, June 2009) and the "Journées de l'économie" of l'Association française de science économique (Université de Lyon, November 2009). Needless to say, I remain solely responsible for the content of this paper.

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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 in structural 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 possible causes, I tackle 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, if not key, 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 organizations - GSE) and private companies, especially in terms of risk measurement; political intervention 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, 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 an examination of the role of performance incentive programs in the financial sector and of 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 (for the nine quarters 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 401,000 new jobs per

quarter, which arose from the on average creation of 7,890,000 jobs per quarter and the on average loss of 7,489,000 jobs per quarter. For the recession period from 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 on average creation of 6,598,000 jobs per quarter and the on average loss of 7,638,000 jobs per quarter. For the post-crisis period from 2010.II to 2010.IV (last quarter of data available), the U.S. private sector created an average of 480,000 new jobs per quarter, with an on average creation of 6,827,000 jobs per quarter and the on average loss of 6,347,000 jobs. Thus, each net new job created during the “normal” pre-crisis and post-crisis periods (more than 16 years of observations) was the result of 20 jobs created and 19 jobs lost.

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 and political costs of the U.S. stimulus program, one wonders if government efforts are properly oriented. Indeed, the White House has since abandoned the concept of “jobs created and saved” in favour of the concept of “jobs financed” which is, of course, less contentious.

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 and currently looming recessions in future:

- 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 stable bad 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 microprudential and macroprudential 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 possible adjustments and reorganizations to control and reduce unavoidable 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 which is a problem of coordination among governments. There exists a real danger of seeing a vicious circle crop up with protectionism responding to protectionism, plunging economies into a serious slump. Thus, as opposed to pursuing protectionist policies, we should seek to protect the movement toward globalization and increase the liberalization of markets. The substantial growth of international trade in the last half-century has been a major factor in the enhancement of collective economic well-being as well as the cultural and social development. This increase in trade has led to important gains with regards to the eradication of poverty, wealth creation, economic growth, and social progress.

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 of consumption taxes only, hence toward abolishing income taxes on individuals and corporations, would contribute significantly to a more efficient economy. The core competencies of the *governmental sector* are 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 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 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, constitute significant forces aimed at avoiding waste and at generating and implementing innovative solutions to problems and challenges and, in that regard, must be understood as a significant factor 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 in structural 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 research paper deals in particular with the loss of confidence 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 other markets, thereby reducing not only financial transactions in the REPO market, which is a pure 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 at the major factors lying at its 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.

In February 2004, CIRANO developed a research proposal under the Major Collaborative Research Initiatives Program of SSHRC on The Analysis and Management of Risk in Canadian Society (RISAC). The proposed project can be summarized as follows: globalization of markets, the development of new information and communication technologies and the internationalization of cultures have initiated a critical period of change as economic uncertainty and risk pose considerable challenges for social and economic institutions. The aim of the proposed project was to develop a framework for measuring the impact of risk and uncertainty, and to study ways to manage and reduce their impact. Additionally, uncertainty is a source of both risks and opportunities and there is a need to develop an integrated paradigm for the analysis and management of uncertainty that will serve as the basis for sound individual, corporate and public decision-making. 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 uncertainty at the individual, corporate, social, and policy levels.

Considerations of risk attenuation or risk management are typically not part of the current discourse surrounding public policy. Social programmes are usually evaluated according to criteria such as equity, accessibility and efficiency. It is important to note that these considerations are certainly relevant but it is also imperative to place issues of risk more in the forefront of public debate.

Furthermore, guaranteeing access to secure sources of energy must certainly be a goal of public/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. Other expressions from the world of finance have equal resonance in the policy context. Employment insurance is a safeguard against reverses in the labour market and sudden drop in the value of some human capital. The progressive tax system may be viewed as a hedge against future dislocations. We also find the term *human capital* employed in discussions of education and training, and we have grown accustomed to considering the problems with *at-risk youths*.

RISAC intended to place issues relating to risk—risk measurement, evaluation and management—at the center of policy discussion and formulation. Such a goal requires analysis on a variety of levels. First, to formulate coherent and effective policy, it is imperative to understand individual risk preferences in different circumstances; an undertaking that must draw from psychology, political science and economics. RISAC projects in this vein included: *Investment in long-term health* and *Perception of risk and investment in human capital*. As well, the nature of the risks affecting different sectors of the economy must be well understood before proposals to manage such risks can be properly assessed. *Therapy or health standard adoption under uncertainty* and *Value creation using real options in the resource and pharmaceutical sectors* are two examples of projects proposed, and the problems of governance in dealing with the threat of extreme risks were considered in the project *Management and governance of technological and environment risks*. Market mechanisms may also offer novel approaches to risk avoidance as investigated in *The reduction of long-run economic risk through portfolio management and new macro derivatives*. Of course, such mechanisms can only be successful if they are calibrated to the risk preferences of potential users. Does the globalization of markets increase or reduce uncertainty? A historical account was planned to be offered in *Globalization and uncertainty: labour's perspective* and a statistical approach to be taken in *The analysis of contagion and domino effects*. 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 intended to extend and elaborate this scientific paradigm in two directions. The first direction was to apply the valuation aspect associated with options pricing to real assets [as opposed to financial assets]. This approach is the basis of the real options methodology applied systematically in several of the projects described. The

proposed projects 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.

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 specific developments of instruments and institutions to better manage such uncertainty and risks.

However, the RISAC project was not financed and the team was dissolved. This outcome exudes short-term vision and lack of planning for the future.

I pursued those ideas in my *Manifesto for a Competitive Social Democracy* (CSD).¹ 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 fundamental policy is used to foster the creation and implementation of tools and means that allow individuals, firms, and different levels of government, to efficiently manage risks and opportunities that stem from innovation and commercialization-based volatility in the social and economic environment. To facilitate financial risk control, 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 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 solutions to manage risks. But one must realize that any significant technological advancement yields its share of good and bad applications. It's unfortunate that often the bad applications overshadow the good. Some examples of technological advancement that have 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 own direct cost of adaptation to such changes. When a society is as a whole, or in part, confronted with exogenous and endogenous changes in its socio-economic environment, its capacity to adapt in order to maintain or increase its citizens' well-being is crucial.

¹ Marcel Boyer, *Manifesto for a Competitive Social Democracy*, CIRANO 2009MO-02, April 2009.

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 in economics, business and finance) and favour a better exposition to structural factors, such as market size, enhanced competitive processes, and a lower reliance on poorly-designed and inefficiently-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) adaptation to changing conditions in financial and labour markets among others.

2. A brief history of the crisis

In October 2008, a \$700 billion plan (Troubled Assets Relief Program – TARP) was adopted in the United States to purchase high-risk assets and restore bank capital, an amount which was later reduced to \$475 billion by the Dodd-Frank Wall Street Reform and Consumer Protection Act of July 2010. As of October 15 2011, \$411 billion have been spent. 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 \$169 billion spent so far (\$104 billion for Fannie Mae and \$65 billion for Freddie Mac). The total amount spent, invested or loaned so far is therefore \$580 billion, of which \$278 billion has been reimbursed (all within the TARP program) for a total outstanding amount of \$302 billion. For TARP only, the amount spent is \$411 billion, of which \$278 billion has been reimbursed for a total outstanding amount of \$133 billion. The Treasury Department has earned a return (dividends, interest, warrants sold, and fees) on the amounts disbursed: \$39 billion from TARP companies and \$28 billion from Fannie Mae and Freddie Mac. Including those, the total

outstanding amount is \$235 billion, that is, \$94 billion for TARP and \$141 for Fannie Mae and Freddie Mac.²

The \$411 billion spent, invested or loaned under the TARP program include the following: \$245 billion for banks and other financial institutions, of which a total of \$257 billion has been paid back (including interest and dividends);³ \$80 billion for the auto industry, of which a total of \$40 billion has been paid back;⁴ \$68 billion for AIG refinancing, of which a total of \$15 billion has been paid back;⁵ and \$18 billion for the credit market programs, of which a total of \$3 billion has been paid back.

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.

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

² None of the \$169 billion spent, invested or loaned to bailout government-sponsored enterprises Fannie Mae and Freddie Mac has been paid back, although it generated \$28 billion in revenue for the US Treasury.

³ All the major banks and many of the smaller ones have now paid back the full amount disbursed by the Treasury, namely 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 amounts disbursed.

⁴ General Motors received \$51 billion or 79.8% of the amount disbursed under the automotive industry financing program, of which \$23 billion has been paid back; in addition, GM paid \$694 million in interest, dividends and fees to the Treasury. At the time GM emerged from bankruptcy in June 2009, the US Treasury owned 60.8% of GM, Canada and Ontario 11.7%, UAW 17.5% and others 10%.

⁵ In the case of AIG, the Federal Reserve Bank of New York has opened a credit line of \$110 billion (an increase from the initial \$85 billion) for a total government commitment of \$180 billion, of which a total of about \$140 billion was used. When AIG declared its intention to pay \$165 million in bonuses in March 2009, the Treasury withdrew the amount from the committed bailout payment of \$30 billion due in April 2009 while keeping the required fee level on the full amount. AIG has now paid back in full the loan from FRBNY, while the Treasury spent, invested or loaned by now a total of \$68 billion and holds 92.1% of the common stock of AIG. According to Treasury Secretary Tim Geithner (January 14, 2011): "Treasury welcomes the culmination of AIG's recapitalization plan, which is a vital part of that company's turnaround and puts Treasury in an excellent position to begin realizing value for taxpayers. Treasury remains optimistic that taxpayers will get back every dollar of their investment in AIG."

we will see, the causes of the financial crisis and economic recession are both social and political in nature.

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 (bad) mortgage loans, the U.S. mortgage loan market was hindered by numerous distortions and interventions by public authorities.⁶ Since 1977, when the Community Reinvestment Act was adopted, U.S. banks have been required to offer credit to low-income households. Banks were actually subjected to heavy pressures and sanctions if they did not abide by the provisions of the Act, which most likely contributed to 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 10 times likelier than other mortgage loans to end in foreclosure.⁷

Further, to bolster their cash reserves, financial institutions developed different financial innovations that enabled them to securitize these assets and resell them on the 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 as relatively low-risk by the investors who bought them. At the time that the real estate bubble burst, these two firms were providing guarantees on nearly half the home mortgage loans in the United States.

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 2008.⁸ For

⁶ See Pierre Lemieux, *The origins of the economic crisis*, Economic Note, Montreal Economic Institute, March 2009, p. 3.

⁷ *Id.*

⁸ See *Pending Home Sales Index* (<http://www.realtor.org/research/research/ehspage>) and *Housing Bubble Graphs* (<http://mysite.verizon.net/vzeqrguz/housingbubble/>).

homeowners living in areas with sharp price drops, the risk of owning a house worth less than the mortgage outstanding became very high.

Moreover, the Federal Reserve gradually raised its rate from 1% to 5.25% between 2004 and 2006.⁹ 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 collapsing. This left mortgage holders with a sharp rise in monthly payments and the most vulnerable of them were unable to cope.

Furthermore, defaults on mortgage payments began to increase early in 2007, leading to some initial bankruptcies among specialized banking institutions.¹⁰ It was in this context, in June 2007, that the investment bank Bear Stearns announced the collapse of two hedge funds. After this announcement, the subprime crisis burst upon the scene in the public eye.

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 manageable given the size of asset markets and the sophisticated advancement in risk management. The variable-rate subprime mortgage rate market did undergo serious difficulties, with a 21% default rate in January 2008¹¹ and a 25% rate in May 2008,¹² compared to a 14% average for 2000-2007. Even so, it is hard to understand why the financial markets panicked to such an extent.

A large majority of households continued throughout the crisis to meet their mortgage commitments. Overall, the mortgage loan default rate went from 5% during the period 2000-2007 to slightly over 9% in 2009.¹³ This is a hardly sufficient spike to cause or justify the panic (bank run) and the ensuing vicious circle realized, especially considering the U.S. population was growing at a solid pace (up 21.3% since 1990), which thereby boosts housing needs. 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.¹⁴

⁹ Federal Reserve, *Open Market Operations*, <http://www.federalreserve.gov/fomc/fundsrate.htm>.

¹⁰ RealtyTrac, *U.S. Foreclosure Activity Increases 75 Percent in 2007*, January 29, 2008, <http://www.realtytrac.com/ContentManagement/PressRelease.aspx?channelid=9&ItemID=3988>.

¹¹ Federal Reserve, *Financial Markets, the Economic Outlook, and Monetary Policy*, January 10, 2008, <http://www.federalreserve.gov/newsevents/speech/bernanke20080110a.htm>.

¹² Federal Reserve, *Mortgage Delinquencies and Foreclosures*, May 5, 2008, <http://www.federalreserve.gov/newsevents/speech/Bernanke20080505a.htm>.

¹³ Mortgage Bankers Association, *Delinquencies and Foreclosures Continue to Climb in Latest MBA National Delinquency Survey*, press release, May 28, 2009, <http://www.mortgagebankers.org/NewsandMedia/PressCenter/69031.htm>.

¹⁴ 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.

Figure 1.1

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>)

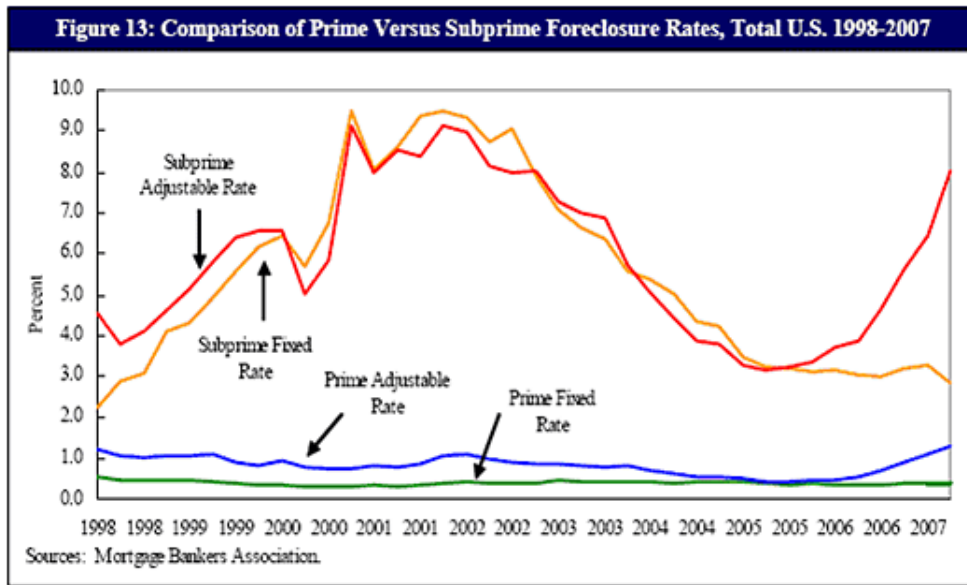
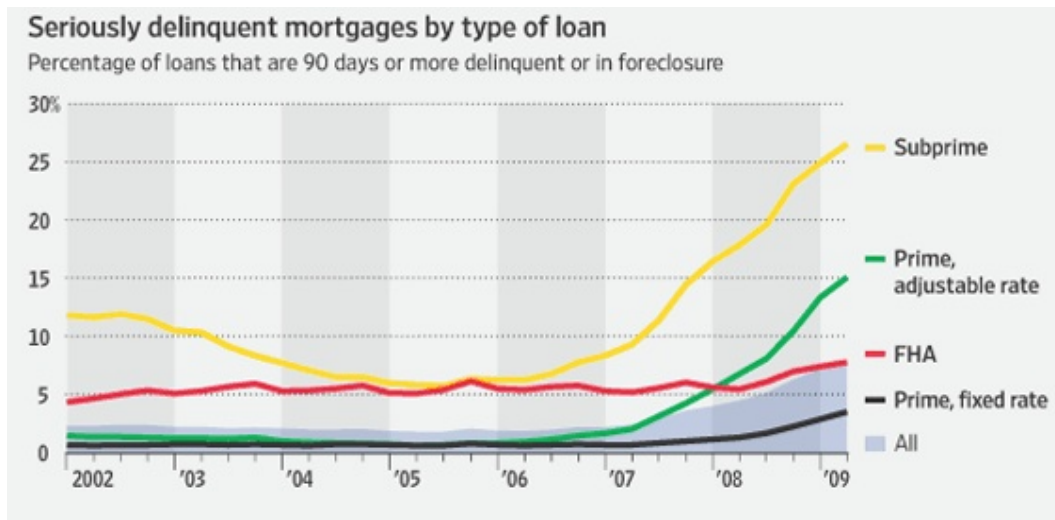


Figure 1.2



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 and are still facing today, interrupted only by a very brief period (2010.II to 2011.III) of relative stability. While

the subprime crisis served to trigger the financial crisis, we need to look elsewhere for its true cause. 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 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 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 initiated the signal for a crisis of confidence to develop. All 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.¹⁵ 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

¹⁵ 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 US 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 nationalization.

of the financial crisis by destroying much of the capital stock of confidence within the financial system.¹⁶ 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.¹⁷

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 credit-linked risks not only in the funds the banks were managing but also in those they were financing.

3. 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 systemic risk that we face. This risk reduction has been achieved by a

¹⁶ Note that “[Lehman Brothers]’s balance sheet was about one-fifth the size of Fannie May’s” (FCIC, citing FHFA Director)

¹⁷ Surprisingly, the U.S. Government (through the stewardship of Hank Paulson and Tim Geithner) insisted that AIG fully compensate its counterparties. Eliot Spitzer, “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 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.”

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 2005.¹⁸ 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 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.

3.1 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, *Understanding sources and limiting consequences: A theoretical framework*, 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,

¹⁸ See Robert E. Lucas Jr., *The Current Financial Crisis*, Universidad Torcuato di Tella, December 2008.

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.

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 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 2009,¹⁹ 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.²⁰ 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.²¹

¹⁹ Federal Reserve, *Aggregate Reserves of Depository Institutions and the Monetary Base*, October 29, 2009, <http://www.federalreserve.gov/releases/h3/hist/h3hist4.pdf>.

²⁰ 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).

²¹ 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. This followed a wave of major bankruptcies and financial scandals. In my *Le Soleil* op-ed article of March 7, 2003, I wrote: «Dans la mesure où la confiance comme capital social est au premier chef créée par les comportements individuels des entreprises et individus qui visent d'abord et avant tout le développement et le maintien de leur réputation comme capital privé, il est essentiel qu'une réglementation appropriée encadre et favorise le développement de la confiance comme capital social. [...] Que doit-on en conclure et que doit-on faire? Deux conclusions et quelques éléments de solution pour rétablir le climat de confiance et le maintenir par la suite. Une première

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

conclusion veut que la confiance procède à la fois des valeurs et des incitations des dirigeants et gestionnaires. Il faut continuer à marteler le besoin de rétablir les valeurs. Mais les incitations sont tout aussi importantes sinon plus pour une raison bien simple: les valeurs se développent dans le long terme et il serait surprenant que les dirigeants et gestionnaires aient tout à coup perdu en quelques années le sens des valeurs d'honnêteté, de probité et de rigueur intellectuelle. Alors que les incitations sont affaire de structure, de politiques et de réglementation et peuvent changer très rapidement. Une seconde conclusion veut que la solution urgente à cette perte de confiance passe par une réglementation accrue et plus rigoureuse des transmissions d'informations par les entreprises. En effet, une des causes les plus importantes, et à mon avis de loin la plus importante, des scandales récents est la perte de contrôle des organismes gouvernementaux de réglementation, tels les commissions de valeurs mobilières, débordés devant la complexité des marchés financiers, favorisant ainsi les abus. Il faut redonner à ces organismes les ressources nécessaires pour qu'ils puissent assurer ou même garantir la crédibilité des données financières transmises par les entreprises. Ensuite, il faut resserrer l'application rigoureuse des règlements en matière de conflits d'intérêt: interdire le cumul des postes de PDG et de Président du Conseil, exiger qu'un nombre significatif de membres des CA soient formés aux outils complexes de la finance moderne, interdire qu'une entreprise de vérification d'ait une branche ou une filiale en consultation, interdire aux banques d'investissement et aux maisons de courtage responsables de la mise en marché d'actions ou d'obligations d'ait des analystes financiers en contact direct avec le public. Ces quelques changements relativement directs et faciles à implanter devrait permettre de rétablir et de maintenir la confiance au sein et envers les gens d'affaire. On pourrait ainsi faire 80% du chemin à parcourir, le reste venant d'une prise de conscience collective et responsable de l'importance des valeurs au sein des organisations.»

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 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.²²

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.

3.2 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.

“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

²² 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.

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 US 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 us 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 Kotliff, "Five Prescriptions to Heal Economy's Ills", Bloomberg, September 27, 2011)

4. 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 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.²³ 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.²⁴

According to one analyst, 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.²⁵ 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. It has been the growth in securities backed by subprime mortgages that has changed in the last decade and which are traded so often that a major problem of transparency ends up arising.

²³ See Bernard Sinclair-Desgagné, “How to restore higher-powered incentives in multitask agencies,” *Journal of Law, Economics, & Organization*, 15(2), July 1999, pp. 418-433.

²⁴ Employees were badly hit too. According to the US Bureau of Labor Statistics, the number of people employed nationwide in finance and insurance fell by 8.1% between December 2006 and August 2011 compared with 4.9% for total national employment. In the New York metropolitan area (including Wall Street) over the same period, total employment fell by 2.6% while employment in finance and insurance fell by 8.9% (WSJ, October 12, 2011).

²⁵ Paul Mizen, “The Credit Crunch of 2007-2008: A Discussion of the Background, Market Reactions, and Policy Responses,” *Federal Reserve Bank of St. Louis Review*, September/October 2008, pp. 531-568.

This practice led to the creation of a class of capital around which it becomes enormously difficult to determine the 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).

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.

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.

To make matters worse, 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 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!

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 although 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, if they are protected or insured against the losses otherwise incurred following unfavourable events or unable to capture part of the benefits generated by such behaviour, thereby increasing the probability of unfavourable events and/or reducing the probability of favourable ones;
- 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 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, the 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 as well as in static and dynamic contexts. Boyer and Robert (2006)²⁶ 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 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.²⁷

The fourth reason 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 case, 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.²⁸

²⁶ Boyer, M. and J. Robert, "Organizational Inertia and Dynamic Incentives", *Journal of Economic Behavior and Organization* 59(3), March 2006, 324-348. See also in the same vein Holmström, B., "On the Theory of Delegation," chapter 8 in M. Boyer and R.E. Kihlstrom (eds.), *Bayesian Models in Economic Theory*, Studies in Bayesian Econometrics, North-Holland Elsevier Science Pub., 1984.

²⁷ See Boyer, M., "The Design of an Efficient Offshoring Strategy: Some Reflections with Links to SNC-Lavalin." Chapter 7 in *Proceedings of the 2006 conference "Offshoring Outsourcing: Capitalizing on Lessons Learned"*, edited by Daniel Trefler, Industry Canada and Rotman School of Management, 2009. <http://www.rotman.utoronto.ca/offshoring/>

²⁸ Risk sharing agreements are quite common for instance in intellectual property compensation contracts as well as in patent pooling agreements. See Boyer, M., "The Canadian Copyright Board: Economic Concepts and Principles in Decisions and Arguments", *Proceedings of the ALAI Conference*

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 is a fundamental management tool to achieve coordination between the efforts and decisions of different individuals and divisions 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.

The currently designed compensation formulas may not be the best or optimal ones to achieve the goals set for the organization. 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. 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 a forthcoming article in *Revue d'économie politique*,²⁹ I develop twelve principles of incentive compensation. 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 concrete cases and to determining which strategy should be employed to design the compensation formula and to gather the data necessary to 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.

(Ottawa 2009-12-02) «Copyright Board of Canada: Bridging Law and Economics for 20 years», Montréal, Editions Carswell/Yvon Blais, 2011 (forthcoming).

²⁹ Marcel Boyer, "The Twelve Principles of Incentive Pay", *Revue d'Économie Politique* (forthcoming). Pre-publication version at <http://www.cirano.qc.ca/pdf/publication/2011s-42.pdf>

The first principle, the principle of insurance, claims that, in general, incentive pay is not desirable. If there is no major problem of observation or information regarding the agent's effort or characteristics, a constant, given and fixed pay is better because it is less costly on average for the firm without reducing the wellbeing of the worker or manager. Hence, in all cases where the principal can accurately observe the effort and other relevant characteristics of the individual, she should determine the tasks to be accomplished and offer an appropriate level of pay sufficient to attract the individual (or the necessary number of individuals) but independent of the performance of the firm or organization. This is the case for the majority of workers and managers. But there are cases where effort and other characteristics are difficult to assess. In those cases, an incentive pay system must be considered and designed and implemented if the costs of running such a system are not too high. If they are, the firm should move away from such a system even if this induces lower performance levels.

The second principle, the principle of rationality, insinuates that any individual, worker, or manager will choose his level of effort in raising the performance of the organization in reference to his own wellbeing, whatever may be the determinants of this wellbeing. If effort is costly, one expects that the level of effort provided will be suboptimal if it cannot be determined directly (this requires perfect observation) by the firm or principal. When effort is costly, unobservable and hence chosen by the individual, it will be set at a relatively low level unless incentives are provided to favour a higher level. Of course, different individuals may choose different levels of effort, without incentive pay provisions, because they have different "utility functions", that is, different values and different intrinsic motivations.

The third principle, the principle of certainty equivalence, suggests that there is always a fixed pay contract that the individual will consider equivalent to an incentive pay: the former means a lower pay on average for the individual, but more security or less risk in his compensation. Combined with the fifth principle, the principle of the risk premium, it sets up the basic incremental costs that an incentive pay system typically represents. The compensation for the higher level of effort and for the risk the individual is facing under an incentive pay system must be properly calibrated to avoid both losing the individual if the participation constraint is not met and ending up with a lower than aimed for or desired effort level. As the fifth principle indicates, the risk premium to be paid to the individual increases with the individual's risk aversion and the intensity of incentives, and decreases with the quality of the information provided by the indicator variable directly related to the effort level (information of the first order) and by the indicator variable related to the blurring factors (information of the second order). It will therefore be important to invest in the quality of those information sources and their processing.

The fourth principle, the principle of dual performance measures, stipulates that different sources of information must be properly calibrated and weighted in order to make an optimal use of each source. In general, there are two broad types of

information available; one providing imperfect indicators of the level of effort exerted by the individual and the other providing indicators on the level of uncertainty of the first type. Information of different types must be blended in a proper fashion as characterized by the fifth principle, not simply juxtaposed.

The sixth principle, the principle of intensity of incentives, together with the seventh principle, the principle of optimized performance, imply that an organization must determine the level of effort to be demanded, if necessary, from its members, workers or managers, and how much risk must be imposed on the individuals to achieve this level of (unobserved) effort. Intensity is positively related to desired effort: the larger the desired effort is, the higher the intensity of incentives should be, and therefore, the costlier the incentive pay system will be.

The eighth principle, the principle of the efficient evaluation budget, indicates that a firm must be ready to invest in defining and measuring indicators if it implements an incentive pay system, the more so the more difficult it is to improve the reliability of the evaluation process (to reduce its variance), the larger the representative level of risk aversion is in the organization, and the higher is the intensity of incentives. As mentioned before, an incentive pay system is costly, both in terms of the average compensation (to take account of the risk premium) and in terms of the required resources to spend on its administration and efficiency. One crucial objective of the evaluation budget is to increase the amount and quality of the information that the different types of indicators yield in order to better ascertain the effort level exerted. That is the object of the ninth principle, the principle of informativeness.

The eleventh principle, the principle of deferred compensation, insinuates that the incentive payments must be done at the time that the information on performance is obtained. It is in compliance with the methodology of the economic value added (EVA) developed by Stern Stewart, a management consulting firm. EVA considers the cost of capital of the firm in the performance evaluation: economic profits (net of taxes and the cost of capital) rather than accounting profits must be used to ascertain performance. Moreover, EVA may be negative in some periods (for instance in the early years of an investment project) and positive in others. The timing of economic profits is as important as their level.

Finally, the twelfth principle, the principle of group compensation, suggests that it might be more favourable for the principal to provide incentive pay for a group rather than for an individual (the same principles will apply to the group) if there is more information within the group than for an outside observer. More specifically, if members of the group have more reliable information on each other's contribution, and this information remains unverifiable for the outsiders, group compensation is superior.

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:³⁰ “Compensation systems – designed 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 very important (2004) report³¹ 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). In the spirit of (15), they call for “Design bonus plans with ‘linear’ pay-performance relations”(R-26).

Additionally, they write: “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

³⁰ US Financial Crisis Inquiry Commission, *The Financial Crisis Inquiry Report*, Washington, January 2011, 662 pages (ISBN 978-0-16-087727-8)

³¹ Michael C. Jensen and Kevin J. Murphy, *Remuneration: Where we’ve been, how we got to here, what are the problems, and how to fix them*, European Corporate Governance Institute and Harvard Business School, 2004.

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).³²

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.³³ Moreover, there are clear misunderstandings of the basic issues related to the role and nature of incentive pay in general.

³² Team work and the incentives problem that such arrangements raise and create have been the object of numerous contributions in economic theory. See among others Rasmussen, E., “Moral hazard in risk-averse teams,” *Rand Journal of Economics* 18 (3), 428-435; and also McAfee, P.R. and J. McMillan, “Optimal Contracts for Teams,” *International Economic Review* 32 (3), 561-577.

³³ The popular press is filled with stories of inadequate incentive pay systems, echoing earlier works such as Jensen and Murphy, *op.cit.* According the US Financial Crisis Inquiry Commission (FCIC), *op.cit.*: “Compensation structures were skewed all along the mortgage securitization chain, from people who originated mortgages to people on Wall Street who packaged them into securities. Regarding mortgage brokers, often the first link in the process, FDIC Chairman Sheila Bair told the FCIC that their ‘standard compensation practice . . . was based on the volume of loans originated rather than the performance and quality of the loans made.’ She concluded, ‘The crisis has shown that most financial institution compensation systems were not properly linked to risk management. Formula-driven compensation allows high short-term profits to be translated into generous bonus payments, without regard to any longer-term risks.’ SEC Chairman Mary Schapiro told the FCIC, ‘Many major financial institutions created asymmetric compensation packages that paid employees enormous sums for short-term success, even if these same decisions result in significant long-term losses or failure for investors and taxpayers.’”

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, at least, 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 adapted to specific cases through different methodologies depending on the data which exist or can be mined. 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.

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

In the wake of the economic crisis, a number of different sources have demanded an in-depth reform of capitalism. Even if one admits that there is a need for certain 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 sources of the troubles that have been encountered. First, there is the U.S. government's economic policy, especially after the bursting of the technology bubble at the turn of the century and the events of September 11, 2001. This policy favoured programs of easy credit, thanks to abnormally low interest rates. Next, there is the undue pressure from some members of Congress on the government-sponsored enterprises Fannie Mae and Freddie Mac to the benefit of subprime mortgage loans. These companies were led not so much to underestimate the risks of certain financial transactions but rather to close their eyes and ignore these risks.

Governments should stop pretending to be 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 added restrictions on their own actions! Quite the contrary is true: these reforms will expose us to the risk of seeing governments getting involved inefficiently in the micromanagement of private companies, 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 68.4% in the United States and 52.7% in Canada. Canada's GDP per capita, which stood at 92.1% of the U.S. level in 1981, came to 82.4% of the U.S. level in 2007. Thus, before the crisis began, Canada had lost ground compared to the United States.

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

Source: OECD <http://stats.oecd.org/index.aspx?queryid=559>

Countries	GDP per Capita Constant 2005 Prices, PPPs, \$US			% Variation		
	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.

Although the crisis has hit hard in many financial and industrial markets, the outstanding economic growth of the last decades before the crisis should not be forgotten. From 1981 to 2007 (before the crisis), the U.S. economy created 46.1 million net jobs, a 43% increase. Although there are many facets to economic growth, this is phenomenal performance! Other economies did not perform as well in terms of net job creation although they may have surpassed the US economic

performance on other dimensions. Canada has also performed extremely well as the Canadian economy realized a net rise of 5.6 million jobs, which amounts to a 48.5% increase. Over the period 1981-2010 including the recent crisis, the number of jobs in Canada and the U.S. increased by 51.0% and 34.7% respectively, as we will see in the next Section.

It is obvious that the period 1981-2007 was outstanding for the U.S. economy in terms of job creation and living standards. While some reforms may be needed to deal with how capitalism operates 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, and competitive prices as signals of relative scarcity, continue to remain the best guarantees of development and higher living standards. As such, they are 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 systemic risk: the systemic 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 systemic risk to increase the desired return implies accepting poor or even catastrophic results some of the time. This is the iron law, cruel though as it may be, of financial markets where risk is negotiated: 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.

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 basic 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.³⁴

6. A neglected phenomenon: creative destruction at work

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

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 (the numbers of establishments that are getting bigger or smaller), and growth or decline in employment across company sizes. We will concentrate here on the number of jobs.

Employment dynamics data show that in the 74 quarters from the third quarter of 1992 to the last quarter of 2010 (data availability), the U.S. private sector establishments created an net average of 227,000 new jobs per quarter. In gross terms, these companies actually created an average of 7,687,000 jobs per quarter, about 80% of them in existing establishments and 20% with the opening of new establishments, and lost an average of 7,461,000 jobs per quarter, which again

³⁴ “... it 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).

amount to approximately 80% in existing establishments and 20% following the closing of establishments.

For the pre-crisis period (including the previous crisis of 2001.I-2003.I) from the third quarter of 1992 to the last quarter of 2007, U.S. private sector establishments created an average of 401,000 new jobs per quarter, with on average the creation of 7,890,000 jobs per quarter and the loss of 7,489,000 jobs per quarter.

For the pre-crisis period (including the previous crisis of 2001.I-2003.I) from the third quarter of 1992 to the last quarter of 2007, the U.S. private sector establishments created a net average of 401,000 new jobs per quarter, with the on average the creation of 7,890,000 jobs per quarter and the loss of 7,489,000 jobs per quarter.

For the recessionary period which transpired between the first quarter of 2008 and the first quarter of 2010, the per quarter net number of jobs lost in U.S. private sector establishments reached 1,040,000 which stemmed from the on average creation of 6,598,000 jobs per quarter and the loss of 7,638,000 jobs per quarter. As an aside, during the previous recession period of 2001.I-2003.I, the per quarter net number of jobs lost in U.S. private sector establishments reached 397,000 with on average the creation of 7,758,000 jobs per quarter and the loss of 8,155,000 jobs per quarter.

For the post-crisis period from the second quarter of 2010 to the last quarter of 2010 (last quarter of data available), U.S. private sector establishments created a net average of 480,000 new jobs per quarter, which amounted from the on average creation of 6,827,000 jobs per quarter and the on average loss of 6,347,000 jobs 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	7.890 M	7.489 M	400.9 K
2008.I – 2010.I	6.598 M	7.638 M	(1039.9 K)
2010.II – 2010.IV	6.827 M	6.347 M	480.7 K

Thus, each net new job created during the pre-crisis periods (62 quarters) was the result of an average of 21 jobs created and 20 jobs lost in private business establishments, while each net new job created during the post-crisis period (3 quarters) was the result of an average of 14 jobs created and 13 jobs lost. Each net job lost during the crisis (nine quarters) was the result of an average of 6 jobs created and 7 jobs lost (In the previous nine-quarter recession period of 2001.I-2003.I, each net job lost resulted on average from 21 jobs lost and 20 job gained: 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-crisis period and the crisis period appears mainly in the number of jobs created (a drop in

jobs created of 1.232 M per quarter), while the number of jobs lost per quarter remained in the same range. More particularly, the gross number of jobs lost per quarter did not change much during the crisis compared to the “normal” level observed during the previous 16 years, but the gross number of jobs created dropped sharply. In contrast, the difference between the crisis period and the post-crisis period appears mainly in the number of jobs lost (a drop in jobs lost of 1.291 M per quarter), while the number of jobs created remained in the same range: the gross number of jobs created per quarter did not change much during the post-crisis period compared to what it was during the crisis period, but the gross number of jobs lost dropped sharply.

In the same 74 quarters from the third quarter of 1992 to the last quarter of 2010, U.S. private firms created an average of 6,365,000 new jobs per quarter, 53% of them in companies with fewer than 50 employees and 18% in companies with 1,000 or more employees. They also lost an average of 6,131,000 jobs per quarter, 54% of them in companies with fewer than 50 employees and 17% of them in companies with 1,000 or more employees. Thus, of the 234,000 net new jobs created on average per quarter, 32% were created in companies with fewer than 50 employees and 29% in companies with 1,000 or more employees. A majority of the jobs created and lost, 53% and 54% respectively, were in companies with fewer than 50 employees.

Private Sector Jobs created and lost, average per quarter
(seasonally adjusted; firm basis)

Period	Jobs created / qtr	Jobs lost / qtr	Net jobs / qtr
1992.III – 2007.IV	6.553 M	6.138 M	414.7 K
2008.I – 2010.I	5.305 M	6.380 M	(1074.4 K)
2010.II – 2010.IV	5.654 M	5.223 M	430.3 K

Thus, despite a sizable net average per quarter job loss in the nine quarters of the crisis period, the U.S. economy continued to create a large gross number of jobs in all industries. Although the average per quarter gross number of jobs created in the post-crisis period is significantly smaller than in the pre-crisis period, the average per quarter net number of jobs created is higher, due to the large reduction in the average per quarter gross number of jobs lost.

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

Compared to the experiences of other developed countries, the performances of the US and Canada over the period 1981-2007 and even 1981-2010 are exceptional.

Growth in Total Employment: 1981-2010

Source: OECD <http://stats.oecd.org/index.aspx?queryid=559>

Countries	Total Employment (000s of People Engaged)			% Variation		
	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%

7. Deficits and growth: friends or enemies?

In reaction to the recession, governments have bloated their deficits as they attempt 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 copious 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 in education, professional training and continuous learning, among other areas. What come to mind in particular are infrastructures that cannot be financed effectively through fees.³⁵ 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 to only look at the Canadian experience of the 1990s.

³⁵ For an overall development strategy along these lines, see my *Manifesto for a Competitive Social Democracy*, CIRANO 2009MO-02, April 2009.

From 1990 to 1995,³⁶ 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 reversal – rather unusual among OECD countries – on growth?

During the decade of big deficits, from 1985 to 1995, Canada had real per capita GDP growth that was much lower than that of Japan, the United Kingdom, Italy, the United States and France. During the 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. From these admittedly partial observations, it can at least be concluded 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 effect even in the best of cases but may cause major, long-lasting distortions that will 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 examine the case of Canada. In the finance minister's January 2009 budget speech, the government announced measures that will lead to deficits (in addition to what would have occurred without a recovery plan) totalling just under \$50 billion over the next six years. These added deficits will be incurred to cover increased government infrastructure spending in addition to paying for tax reductions, some of them already announced although they did not take effect until 2009. These amounts, while impressive at first sight, are relatively marginal compared to the economy as a whole. The composition of Canada's GDP in the third quarter of 2008 (equal to \$1.64 trillion on an annual basis) shows that personal spending on goods and services

³⁶ See Industry Canada, *Making a Difference*, 2003; and Finance Canada, *The Economic and Fiscal Update*, 2006.

totalled more than \$900 billion a year, while private investment totalled more than \$315 billion and public investment totalled more than \$50 billion.

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 have been and continuously 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 agri-food industry (in developed countries) and elsewhere. This 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 only make financial sense on paper as opposed to in practice.

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. Boyer, Gravel and Mokbel (2011)³⁷ show that 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.

³⁷ See Marcel Boyer, Éric Gravel and Sandy Mokbel, « La bonne gouvernance des investissements publics : Actualisation et prise en compte des risques dans l'évaluation des projets », CIRANO 2011RP-XX (forthcoming)

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: it starts making more sense to worry about political representatives than about competitiveness and thus about employees, customers, suppliers and rivals. This strategy is the fast track to inefficiency and eventual bankruptcy once public funds have been fully squandered.³⁸

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. The best offer received could demand a premium or a certain level of compensation that the government should record as a government expense distributed throughout the program period. 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 current crisis, an unbridled strategy of deficits and subsidies, which may end up preventing desirable adjustments in prices, markets and industrial fabric, risks above all to delay and weaken a return to real growth. That is possibly what is being observed today.

8. Fiscal reforms and Renewed roles for the governmental or public and private or competitive sectors

8.1 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

³⁸ See the discussion of the project RISAC in the Section *Introduction* above.

their abilities to the well-being of their fellow citizens, mainly through their decisions regarding the participation (how, where and at what level of effort) to the workforce.

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 here in this subsection concentrate on government financing.

The fundamental change 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 death time.

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 to make the value of work higher and socially more 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.

8.2 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 or public and private or competitive sectors should be implemented. The new social contract falls under what I defined as a

Competitive Social Democracy (CSD) program.³⁹ It is useful to present again here the main elements of this program.

The core competencies of the *governmental sector* are 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 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 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.

For competitive mechanisms to be broadly accepted, a significant effort must be undertaken to promote the liberalization, dissemination and better understanding of economic laws and rules. The emergence and omnipresence of competitive prices and processes 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 and, in that regard, must be understood as a significant endeavour of the CSD model and 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 should be given to particular 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 contract-award processes 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 (except for some advantages that are intended to be given to some participants that should be announced and quantified at the outset). 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 and counselling, the development of competencies through the creation and development of efficient competitive-sector organizations without interfering directly in the contract-allocation processes. Such a

³⁹ Marcel Boyer, *Manifesto for a Competitive Social Democracy*, CIRANO 2009MO-02, April 2009.

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 and clients.

Confronted to adequate indicators (competitive prices and processes), individuals as well as firms and organizations, can adapt their consumption and production activities, including their investments in human capital (portfolio of competencies), in R&D, and innovation efforts, to the relative social value of those activities, as reflected in competitive prices. In some cases, efficient well-informed decision-making will require the creation and development of competitive markets in lieu of traditional bureaucratic, autocratic, and centralized decision-making by, more often than not, poorly informed social engineering planners whose special interests eventually always dominate those of the people. This is inexorably and most perniciously the case even with well-intentioned political or social leaders playing as gods imposing their own tutelary preferences. This is not to say that it is never appropriate for political or social leaders to convince people of the desirability of better 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. By explicitly favouring multiple sourcing, the

governmental sector must aim to encourage a proper level of modularity and experimentation in the provision of public and social goods and services, and in so doing, favour the research and discovery of better ways and means.

A significant source of opposition to socio-economic change, even when such change appears desirable is the absence of efficient mechanisms or institutions allowing individuals and firms to reduce their own direct cost of adaptation to such changes. The following three factors are equally important for the social well-being: first, the flexibility to adapt to changes and the willingness to take on new challenges posed by exogenous and endogenous changes in a volatile socio-economic environment; second, the capacity of the education sector to respond to industrial and social needs in terms of required skills and competencies of different types; third, the importance and efficiency of R&D investments in generating new ideas and useful products and services. Hence, the 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; fear from change. Unless people are given the reasons for change and the tools to manage such change, they will resist to it in the economic and political arenas. Therefore, the level of social flexibility towards change 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 and opportunities that volatility in the socio-economic environment represents. A proper set of institutions to manage the risk faced in change is a prerequisite for a flexible society, that is, for a society where innovation, both technological and organizational, thrives. Hence the need for those institutions in the CSD model and project.

It is normal hence 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, the CSD model and project propose to implement direct and transparent policies of income and wealth support with strong incentives for the beneficiaries to get out of them. Moreover, it is desirable that those income and wealth support mechanisms not only be integrated, direct, efficient and incentive compatible, but also developed under the responsibility of one single government authority in order to increase governmental accountability in that matter. A CSD policy towards the needy, the unlucky, and the poor must be as empathetic as possible. This objective requires that the policy be aiming strongly at avoiding the development of dependence, for the well-being of the beneficiaries themselves. If properly designed, an income and wealth support programme can be both empathetic and dependence-free. It is imperative that beneficiaries be properly induced to leave public income and wealth-support programmes fruitfully,

successfully, and as soon and efficiently as possible, allowing better and more generous programmes to be designed and implemented. It is imperative, for instance, that the implicit tax rates imposed on the unemployed and the social welfare recipients as they find a part-time or full-time employment be adjusted and calibrated to persuade them to find and accept those jobs. Similarly, governmental support and subsidies of all types and forms, including those intended to help and support competitive-sector firms and organizations that are facing particularly sudden difficult times or competitive environments, must be continuously reassessed and made equally as transparent, publicly accountable and incentive compatible as possible. It is desirable that an explicit evaluation of the cost of such supporting contracts (guarantee provisions, conditional subsidy, real options of different kinds) be performed and, on that basis, be in most cases brought to market, that is, be sold to third parties at competitive market prices.

All government programmes should contain sunset clauses so that their role and efficiency can be reassessed on a regular basis. Independent and credible organizations and bodies, using state-of-the-art and transparent methodologies, while also being open to the scrutiny and criticisms of the public, should be called to perform such evaluation. In many, even in most cases, 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. The current evaluation procedures of such programmes are not only dubious, but are most often reduced to nothing more than a means to justify (ex-post) a bad politically motivated decision. The CSD model and project reject those shabby evaluation procedures and methodologies in favour of systematic, transparent, independent and credible evaluations. By stressing the need for more rigorous and regular evaluation procedures, in addition to requiring that the programmes be subject to competitive processes leading to incentive contracts for those organizations chosen to produce and/or deliver them, the CSD model and project will favour programmes that are better designed and better implemented.

Those major and ambitious generic policies and programmes of the CSD model and project will be opposed, criticized, confronted and fought by numerous well-organized self-centered interest groups. Hence, it is important that our institutions and we as a society demonstrate clearly and credibly the intelligence and courage of our ambitions, the *intelligence* to design ways and means of implementing the necessary reforms to reach a systematic realization of social democratic goals and values and the *courage* to implement and pursue those reforms in the production, distribution and delivery of public and social goods and services.

It is likely that there exists no single best way to achieve the goals and objectives of a modern competitive social democratic society. Only one thing can be known for

sure: if the current providers of the public and social goods and services cannot be challenged in a reasonable and repeated way, rather if the production, distribution and delivery of public and social goods and services are allowed to be captured and monopolized one way or another by particular groups of individuals and organizations, then the quality, reliability, dependability, and timeliness of public and social goods and services will eventually and inexorably decrease towards an unacceptable wasting of social resources. This is unfortunately the current state of many, if not all, social democratic societies that seem to be facing a stalemate resistance to change, sitting on social and economic time bombs, and, therefore, courting with disaster.

The CSD model is, first and foremost, a vision of Humans as social beings. According to this vision, the first and central objective, improvement in social and individual well-being, goes through the recognition of three fundamental principles: (i) Individuals are capable of making rational choices; (ii) Social integration defines Humans; (iii) Explicit efficient mechanisms of coordination and motivation are necessary to an optimal use of the available resources. This allows for an immediate comparison of the traditional versus the competitive social democracy models. While both may proceed from the same original point, the former has not only lost its true finality, but also has sunk more and more into what can only be described as magic or wishful thinking, according to which the simple assertion of an objective is seen as sufficient to its reach without being too concerned with the design of appropriate and realistic mechanisms of evaluation, coordination and motivation.

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 four general headings:

1. Refocus the role of governments 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 2008.I-2010.I, the fact remains that the private sector in the U.S. economy has continued to create a very high gross number of jobs in every industry: 6.6 M jobs have been created on average in each of those quarters.⁴⁰

⁴⁰ 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

When these data are compared to the scope of government recovery plans, it seems obvious that authorities in the U.S., Canada and elsewhere should emphasize policies that will 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 bad 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.

This is why governments should focus their efforts on rebuilding confidence and developing conditions favourable to creative destruction rather than intervening directly in the economy, along the lines discussed above. Unfortunately, the many recovery plans witnessed in the past years seem instead to have done more to damage confidence and derail the process of creative destruction.

2. Modifying contracts for a gradual automatic adjustment to economic conditions.

Luigi Zingales, professor of economics, entrepreneurship and finance at the University of Chicago, has suggested a two-part plan to facilitate the adjustment of mortgage conditions to major variations in housing prices.⁴¹

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 the postal code) has fallen more than 20%. In return, the mortgage lender would receive a 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 those banks alone, choose to make use of this bankruptcy process, short-term debt would have to be subjected to it. 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 \$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."

⁴¹ Luigi Zingales, "Plan B," *The Economists' Voice*, 5 (2008),

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. Professor Zingales says it is time now for governments to implement a solution based on the operation of private markets, thereby avoiding the waste of public funds, while using public force only 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.⁴² 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 contracts 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 governments. Second, the chance offered to owners to sell portions of their dwellings 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 mortgages or other contracts to allow for continuous adjustments to economic conditions in case of recession or 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.

3. Microprudential and macroprudential rules.

⁴² Luc Vallée, "A Simple Bailout Plan for Housing and the US Economy," *The Sceptical Market Observer*, August 12th 2009.

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.⁴³ As stated 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 rules include, among others:

- 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 the economy and their operations during troubled times.
- It would also be logical to require 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 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.

⁴³ For more on macroprudential and microprudential rules, see Céline Gauthier, Alfred Lehar and Moez Souissi (2010), “Macroprudential Regulation and Systemic Capital Requirements”, Bank of Canada Working Paper 2010-4; and also Samuel Hansen, Anil Kashyap and Jeremy Stein (2011), “A Macroprudential Approach to Financial Regulation”, *Journal of Economic Perspective*, 25(1), pp. 3-28.

- An obligation for the nationally-recognized statistical rating organizations (NRSRO)⁴⁴ 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.
- In the spirit of the contract adjustment clauses dealt with above, the orderly bankruptcy of the "too big to fail" banks and institutions must be favoured, with contingency plans for transferring control and sharing costs and losses.
- To avoid the muddles that result from direct and misguided intervention by political authorities in the conduct of institutions and markets, there is an absolute need to abolish enterprises that provide government guarantees and thereby promote mismanagement. 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.

4. 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.

⁴⁴ In April 2011, there were 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.

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. As 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.”⁴⁵

Without going into detail, it is clear that denying the phenomenal potential of world trade to enhance well-being for all comes from misunderstanding or ignorance, pure and simple, of a key element of modern economic history, namely the theory of comparative advantage formulated by economist David Ricardo.⁴⁶ 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 advantage or least comparative disadvantage, importing other goods in exchange. It is vital to emphasize that *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, of wealth creation for all, of economic growth, and of social progress, that is, of free trade.

⁴⁵ Amartya Sen, “Dix vérités sur la mondialisation,” *Le Monde*, July 18, 2001.

⁴⁶ David Ricardo, *On the Principles of Political Economy and Taxation*, 1817.