Who Could Have Seen *THAT* Coming?

The History and Consequences of the Global Crisis

Don McIver

May 2010

Atlantic Institute for Market Studies

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CONTENTS

About the Author……………………………………………..…………………………..…. iv

Executive Summary……………………………………………….…… ……………….... 1

Introduction……………………………….……………….…………….…...…………….. 3

What Happened? A Selective Chronology ………………………………………..…. 5

Was the Financial Crisis Predictable? You had to be blind . . .! ……..………………..…... 12

Were the Economic Outcomes Avoidable? Of Chicken and Eggs ..………………………....15

The Role of the Regulators ………………………………………………………….… 18

Were the Responses Appropriate? ……………………………………………..………… 24

Conclusion ………………………………………………………………………..……. 28

References ……………………………………….……………………………………..29

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Executive Summary

Much of the public commentary concerning the massive upheavals in global financial markets and worldwide economic contractions tends towards the sensational. The premise is usually that whatever events they are reporting were manifestly predictable and the primary motivation that prevented the participants from recognizing that reality was either foolishness or greed.

There is certainly more than enough blame to go around. Seasoned politicians, experienced regulators, financial gurus, academic theoreticians—all failed to recognize the interwoven complexities of the contemporary financial marketplace. If they claim, after the fact, to have done so, then they failed to convincingly convey their warning.

Rather than ascribing culpability, this paper seeks to demonstrate the complexity of modern financial markets and the near impossibility of eliciting from the shifting currents of financial innovation which ones are likely to result in chaos. That is true even for those intimately connected with their creation. It is entirely reasonable to conclude that each market participant was operating within their own knowledge-space to optimize their discrete returns.

That said, there was clearly an element of calumny at play—at least in the US mortgage industry where fraud charges rose sharply and evidence points to a comprehensive abandonment of traditional lender precautions. The role of the rating agencies has also been sharply criticized—as well as the discomforting symbiosis between issuer and rater. The alchemy whereby sows ear mortgages were transformed into silk purse securities was a feat for which a number of institutions can be properly chastised.

The causes are still shrouded in ambiguity. The phrase "sub-prime mortgage market" had been bandied about for several years before the crash and many had developed an intuitive sense that it was some sort of sinister influence undermining global creditworthiness. But few recognize the history of the social underpinnings of the market and fewer still appreciate that it was not simply unscrupulous lending practices that triggered the crisis, but the inappropriate ratings accorded mortgage-backed securities and ultimately the creation of improperly secured debt swap instruments by some of the most reputable Wall Street firms.
.
The key conclusions to be drawn from this analysis are:

- The financial crisis of 2007-2009 was nowhere near as predictable as some would like to believe.
- The causation is ambiguous.
- The linkage between financial chaos and economic disruption is uncertain, and the recovery in this instance has proved more resilient than many feared.
- The performance of regulatory bodies was lacking, but their capacity to have done much better is constrained.
- There is a significant risk that the longer-term consequences—especially of the rapid-response efforts to stabilize a perceived economic/financial calamity—will prove significant.

Any description of the crisis must focus on events in the United States—that was, after all, the origin. But it was systemic—becoming quickly manifest globally. As it happened, Canada was especially well placed to weather the institutional impact on its financial sector, but uniquely sited to feel the economic brunt as the US recession deepened and policy makers rushed to introduce US-centric bailouts and stimulus.

Introduction

It's over! It was supposed to be the "Great Recession"—less than 20 months ago it was even being billed as an economic catastrophe that threatened to rival the "Great Depression" of the 1930s. With the release of marginally positive data for the fourth quarter of 2009, the United Kingdom was the last of the developed economies to register a return to growth. So one of the world's more traumatic financial/economic episodes has begun to drift from its pinnacle at the head of the nightly news and lapse into the arcane world of the academic theoreticians and the obscure domain of domestic and international regulators.

But is it really over? Social democrats will rush to declare that, regardless of whether the number crunchers proclaim it over just because the growth of Gross Domestic Product advances a few tenths-of a-point, the recession isn't over until the legions of those who lost their jobs are once more employed. They make a good point. Hundreds of thousands of Canadians became unemployed along with more than 4 million Americans. Not only do those numbers represent significant personal misfortune, they also correspond to a substantial underutilization of productive capacity. Consider also the massive revaluation of retirement income experienced by many as a result of the collapse of stock prices, blatant fraud and the bankruptcy of pension plans. Add to that the enormous, unsustainable, reliance on public debt expansion and couple all those factors with the imminent climb in the retirement-age population of many advanced countries, including Canada—and it becomes clear that the consequences of recent developments are of much more lasting concern.

Before we can begin to hope of a return to "business as usual" we must learn from our experiences. So what lessons have been learned? Precious few! This paper will review a number of the incompletely answered questions concerning the financial and economic chaos of the past several years—among them:

1. What Happened? It may seem like an easy exercise to describe the manner in which global markets failed and production slumped, but there are still widely differing viewpoints about the causation and unless there is reasonable agreement about what went wrong then there will be few lessons learned.

2. Was the Financial Crisis Predictable? A great many analysts and observers predicted that an ever-expanding US housing/mortgage financing bubble would burst—so, by definition, that implies that it *was* predictable. Not so easy! To be actionable, predictions have to foretell the hows, whens and effects of an event—as well as be free of "false alarms". Placing those restrictions on predictability opens a much wider debate.

3. Were the Economic Consequences Avoidable? Even if one assumes that the root origins of the collapse were recognized, were the consequences—global contagion, revealed malfeasance, equity price hemorrhage, industrial credit crunch etc.—necessarily inevitable and equally predictable. Only if that were so, would it have been possible to mount intelligent counter-measures. Given the then-current state of uncertainty, was there anything more that could have been done?

4. Can Improved Regulation Prevent a Recurrence? This is a crucial question. It presupposes two key assumptions—that the crisis was a failure of regulation and that somehow new regulations can be designed that will preclude a reoccurrence. This paper will examine several aspects of this issue: i) the role regulatory failure played in the crisis; ii) the prospects for international regulatory coordination; and

iii) the limits of regulation, including the risk that enhanced regulation might have collateral influence on the ability of the financial system to ration credit appropriately.

5. Were the Responses Appropriate? This question follows from the preceding observations. There were concerted central bank injections of liquidity into the global monetary system; there were direct government investments into private financial and industrial firms on an unprecedented scale; and there were a plethora of government stimulus plans. Did they accomplish much? The question remains somewhat hypothetical—we do not know what would have transpired had those actions not been taken. Might the feared return to 1930s-style depression have materialized? The question is particularly apt in a Canadian context, since the initial federal government response was to “tough-it-out” and maintain a stance of fiscal control. What might have happened had that stance been maintained—would we be better off today? Would we be better of a decade from now?

What Happened? A Selective Chronology

Economic events are rarely enclosed within clearly defined boundaries. Origins, causes, milestones, and outcomes are chiefly the creation of the observer and reflect individual prejudices (or, to be more generous, opinions generated by rigorous analysis!). In consequence, it is a matter of personal judgment how much importance to attach to each of the elements in the following chronology.

For some, the very establishment of a US government agency in 1938 that would partially supplant free-market determinants of mortgage eligibility was an accident that took seventy years to happen. Others, wholeheartedly supporting government interventions to broaden home ownership, focus instead on a more recent development—the synthetic creation of derivative investment products that wildly overstated the quality of the underlying mortgages upon which they were based and which fuelled an unsustainable explosion in US house prices and mortgage debt.

With that range of differing perspectives in mind, this chronology should not be read as a cause-and-effect roadmap, wherein each event leads inevitably to the next step.

Many of the legislative and administrative actions that over the decades may have contributed to the eventual, perhaps inevitable, current financial and economic crisis were undertaken for laudable underlying reasons. President Roosevelt's New Deal sought to reopen post-depression home ownership prospects through the establishment of Fannie Mae. Subsequent measures to facilitate credit access were devised to make financing available to those who were perceived to have been victims of systematic discrimination.

Markets are never entirely free, and capital markets are necessarily among the most heavily regulated, in order to curtail misrepresentation and fraud. However, when legislators inject social objectives into financial regulation they risk creating future adverse consequences. Perhaps the lesson to be learned is that those objectives might well have been achieved without jeopardizing the health of financial markets.

US mortgage procedures are quite different from those familiar to Canadians. Typically in this country mortgages are obtained from a financial institution—most frequently now a bank—with an amortization of 25 or 30 years and frequently with a fixed term interest rate (historically this was usually 5 years) after which a new rate would be negotiated. Traditionally, in the United States interest terms were set for the entire 25 or 30-year amortization period.

In order to facilitate improved access to home finance in depression-ravaged America the Roosevelt administration created the Federal National Mortgage Association (*Fannie Mae*) whose *modus operandi* was to provide a revolving credit facility—purchasing existing mortgages from banks and other financial institutions, guaranteeing their performance and either retaining them on their own books or selling them on to investors (sometimes to the originating banks). The system appeared to work well for decades. The originating banks could easily replenish their capital requirements. The agency could experience-rate the implicit cost of their guarantee. Investors could reap superior returns while incurring little additional risk.

Canadian readers may wish to compare US practices with those in this country. Canada Mortgage and Housing Corporation *CMHC* provides default insurance to guarantee payment to the issuing institution for a fee usually amortized by the lender. The crucial difference is that, in Canada, the loan typically

remains on the books of the issuing firm. Of course, the US banking system differs markedly from that in Canada. Whereas in the United States the industry has been characterized by a limited number of "money center" banks and a huge number of regional and local institutions, the Canadian system is dominated by just a handful of major banks with national activities. When local property markets surge, as they recently did in Fort McMurray, Canadian banks satisfy the increased mortgage demand by drawing on deposits from across the country. Imagine trying to meet that need if you were a single-branch Fort McMurray saving and loan association! In the United States, where most mortgage providers were local, the *Fannie Mae* model effectively overcame the hurdle of regional illiquidity.

Another key point of differentiation between Canadian and US practices is that in the United States, mortgage interest payments are deductible for tax purposes. Over the years that has not only encouraged mortgage-financed home purchases but also fuelled a home-equity lending industry enabling, in effect, home owners to fund increased consumer spending. The concept of mortgaged-to-the-hilt could sometimes appear rational—until, of course, the underlying asset was revalued.

During the 1970s US legislators faced the socially troubling reality that access to finance in general, and house finance in particular, were in practice constrained by race and class. The solution was to enact legislation requiring lenders to actively solicit business from sectors of their communities whom they had previously excluded on the basis of their credit standing.

Coincident with social equity imperatives was a concern that the US banking sector was becoming moribund—trapped in a time warp of depression-era regulation. In 1980 legislation was introduced to eliminate the prohibition that prevented merchant banks from acting as stockbrokers and freed the banks from interest rate restraints. At the same time, the ceiling on federal deposit insurance was raised from $40 to $100 thousand.

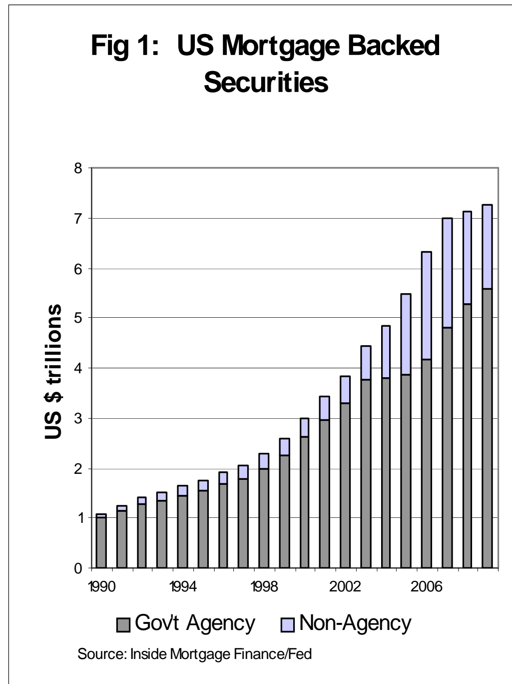
As an object lesson in excessive exuberance what followed next was a harbinger of what was to emerge a quarter century later. US savings and loans associations engaged in a frenzy of speculative commercial real estate ventures financed by overly generous rates on federally-insured deposits. The resultant collapse resulted in an unprecedented number of bank failures and a massive federal bailout.

Single mortgages are illiquid instruments. Financial innovators in the 1970s recognized that, by pooling a number of mortgages together, the risks and costs could be minimized. This quickly developed into securitization—a simple concept (even if cumbersome to implement) whereby the flows of interest and principal payments from a number of mortgages could be used to back what was in essence a bond—a mortgage-backed security (MBS). The regulatory environment of the early 1980s (whose focus was in fact deregulatory) helped create an instant success. What the innovation accomplished was the opening of huge new pools of investment capital for investment in the housing industry from pension funds, hedge funds etc. (See Figure 1)

So far, so good. In fact, so far, very good indeed. Neither the most ardent capitalist nor the most committed social advocate could fault a system that expanded access to housing finance while at the same time opening the mortgage market to a much broader range of investor. It would take several more key developments to set into motion the engine of collapse.

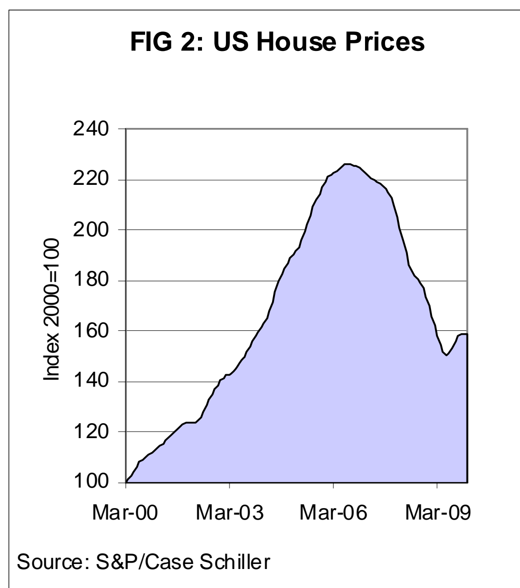
The first of these was the conversion of these mortgage pools into Collateralized Debt Obligations CDOs. This involved dividing the total returns from each pool into different "tranches"—with each tranche entitling the holder to specific rights to the income stream generated by payments. The more senior of these were graded by the rating agencies at higher investment grades and the riskier were given lower

ratings. Although reasonably straightforward in principle, the construction of each instrument was fairly sophisticated and required the issuance of a detailed prospectus before being offered to investors. Still, so long as all investors took the time to adequately understand what they were purchasing there was no systemic harm—and to the extent that investors were better able to tailor their investments to their required income stream there was a certain benefit.



The second development was the rapid increase in speculative lending to less-than-credit-worthy borrowers buying into the seemingly ever-appreciating US housing market. This development had two facets—the willingness of speculators to borrow and the incentives of the financial industry to lend.

There is a common misconception that house prices steadily appreciate over time. In current dollar terms they obviously do. But, there is evidence that adjusted for inflation, US house prices have trended relative stable since 1890 **(Shiller 2005).** The operative word is, of course, “trended”. As well as periods of decline there have been periods of rapid advancement—such as occurred following the end of World War II and, most recently in the years following 2000. In fact as Shiller demonstrates, house prices over the past decade, have been anomalous—rising at an unprecedented “real” rate prior to the collapse. (See Figure 2) Those investors who were able to flip properties and exit before the market soured made substantial returns. Not only did a strong speculative motivation develop, but even those individuals who were normally risk-averse began to worry that if they didn’t purchase a house soon they might be permanently shut-out of the market.

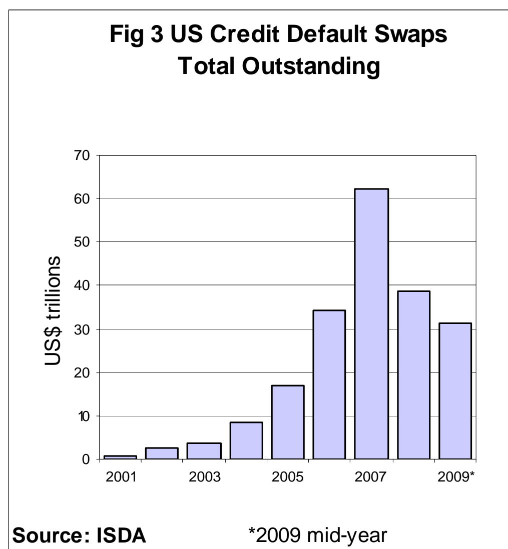


On the lender’s side, the rapid rise in securitization created an almost insatiable demand for mortgage related investment products and certain elements of the lending industry began to specialize in what was to become known as sub-prime credit. Mortgages were written without regard to the borrower’s ability to pay—other than from the sale of the property. Many were so-called 2/28 instruments—wherein the first 2 years of a 30-year mortgage were principal only. The borrower expected to sell before having to make the first interest payment and to reap a substantial reward from the price appreciation.

Had the issuing institution expected to retain these loans on their books they would never have undertaken the liability. However, there was a thriving demand for such instruments on Wall Street, where they would be packaged, securitized into various tranches and, most importantly, granted the imprimatur of acquiescent rating agencies and sold around the world as investment grade

assets. Originating institutions for these dubious loans quickly sold them on to the money centre banks (who frequently financed the issuer). They were then securitized and then sold on further to the global secondary market or retained on their own books.

The third key occurrence was the creation of a new derivative form in the late '90s—Credit Default Swaps CDSs. Although simple in concept—they essentially represented credit insurance on loan pools—they permitted a wide range of highly injudicious financial activity. Just as sub-prime mortgage underwriters were able to escape the consequences of imprudent lending by selling-on their product to the larger banks, those banks were themselves able to off-load their risk by engineering Credit Default Swaps. The counterparties to these arrangements were typically insurance companies (notably AIG, of course) and other banks—and for the most part those CDSs were *unfunded* liabilities! That is, the financial institutions that sold CDSs notionally eliminated their credit liability while the acquiring insurers made no prudential reserve against the serious liability they were risking. Outstanding credit default swaps in 2001 were less than a trillion dollars: by 2006 they had rocketed to over $62 trillion. (See Figure 3). To place that in perspective, consider that, even at its peak, total outstanding credit card debt in the US has never exceeded $1 trillion. **(FED 2010)**



To compound the risk to the overall financial system CDSs were tradable and many of the larger banks, in fact, held in different accounts some of the CDSs they had originated as well as those of other financial intermediaries. These instruments could be sold short—i.e. a commitment made to sell at a future date what the seller did not actually own. Bets could be made on the future credit worthiness of borrowers with the investment of only a small premium.

The upshot was the development of a frenetic market in which, it seems, none of the players truly understood their possible liabilities. As the sub-prime market began to unwind, defaults mounted and the entire system of credit insurance unraveled at a breakneck pace. The contagion was comprehensive—first between institutions, then between asset classes and eventually between countries.

It is not too bold to conjecture that it was this final element—the development of sophisticated and intricate derivative instruments—that was the proximate progenitor of the credit crisis. By itself, the over-extension of dubious real estate loans along with their securitization and wide distribution constituted a serious financial predicament that would have led, when the bubble burst to major losses for financial institutions, hedge funds, pension funds and individual investors. But it was the poorly understood interconnected exposure of the entire financial system that impelled both Wall Street and Washington into panic mode.

Some would say that there was a further element at play—one that allowed the peculiar state of suspended recognition to flourish. John Cassidy in "How Markets Fail" (Cassidy 2009) is one of many to identify and delineate the role played by the munificent remuneration of the movers and shakers in the banking world. Bonuses, or even job retentions, were dependant upon leveraging-up the firm's assets excessively in concert with competing banks. If the gamble paid, the individual spoils were mind blowing. If they failed, the shareholders paid the cost and the executives retained their earnings and likely walked away with enormous severance packages.

When events unraveled affected corporations, regulators and the government had literally hours within which to make choices that would decide the fate of century-old firms—and they had to make those decisions in a frightening information vacuum. Similar decisions in similar circumstances followed one after another until it became evident that only a comprehensive system-wide bailout could hope to staunch the hemorrhage—and even then it was far from a sure thing. When Congress baulked, even for a day, stock markets signals upped the fear ante.

The Bank of Canada, in concert with central banks around the world injected liquidity into financial markets, but the Canadian government initially resisted calls to loosen its fiscal stance. After all, the financial problems were not Canadian in origin and indeed apart from the obvious impact of stock market contagion, Canadian institutions proved remarkably insulated.

That detachment abruptly evaporated when credit gridlock in the United States threatened the US auto industry and the administration extended financial relief to the industry. The implied and perceived threat was that if Canada did not reciprocate, the auto industry might abandon Canada. With the gun against their head the federal and Ontario governments capitulated. But in so doing they opened up a new front. Bailing out the auto companies alone was hugely unpopular and the only means to make it palatable—especially in a minority government setting, with opposition parties clamoring for stimulus—was to implement a major new spending program.

Both responses, especially that of the United States, were horrendously bad decisions but if they had not been taken the outcome might well have been cataclysmic. What has been gleaned of the private discussions that filled those tense times was the sense that New York, Washington and other capitals were in panic mode. There was no time to develop a measured response. And, there was no assurance whatsoever that there were any actions that could prevent total collapse.

The Timeline: To the Brink and Back

1938 US Federal National Mortgage Association (Fannie Mae) created to purchase home mortgages from issuing banks so as to maintain market liquidity institutions

1968 Fannie Mae reorganized as a Government Sponsored Enterprise—a private corporation benefitting from a federal government guarantee. This move removed the agency's debt from the US government balance sheet.

1969 US Federal Home Mortgage Corporation (Freddie Mac) created to purchase and securitize home mortgages in the same manner as Fannie Mae. Both Freddie Mac and Fannie Mae became private corporations with market advantages as Government Sponsored Enterprises and an implied government guarantee. Their business model involved the purchase of home mortgages (in the case of Fannie Mae chiefly from issuing banks and in the case of Freddie Mac chiefly from issuing thrift institutions) and the bundling of those mortgages into securities that carried the explicit guarantee of the agency. By providing that guarantee the agencies earned revenue.

1974 US Equal Credit Opportunity Act made it unlawful for any creditor to discriminate against any applicant on the basis of race, color, religion, national origin, sex, marital status, age or whether their primary source of income was social assistance. For many, such efforts to liberalize lending practices fostered sub-prime debt issuance.

1977 US Community Reinvestment Act encouraged financial institutions to lend to all segments of their communities, including low- and moderate-income neighborhoods

1980 US Depository Institutions Deregulation and Monetary Control Act—among other provisions, freed lending institutions from interest rate ceiling constraints. The effect was to broaden the range of financial insititutions willing to finance sub-prime mortgages.

1986 US Tax Reform Act increased mortgage loan deductibility and encouraged home equity loans for consumption purposes.

1992 US Financial Safety and Soundness Act mandated Freddie Mac and Fannie Mae to expand services to low-income borrowers.

1997 JP Morgan Chase team devises Credit Default Swaps CDS to facilitate credit risk transference from initiating/holding firm.

2006 July-August: US House prices peak.

2007 June—Bear Stearns announces serious difficulty with two subprime hedge funds. Among others **Merrill Lynch, JPMorgan Chase, Citigroup and Goldman Sachs report significant exposures.**

2007: August. Citing "complete evaporation of liquidity" **BNP Paribas** (France) suspends disbursements from three funds heavily invested in US mortgage securities. This incident was, perhaps, the **first material evidence of the global spread of the credit crisis.**

2007: October 9th Dow Jones Industrial Average reached an all time high of 14,164 from which it subsequently fell.

2007: October Swiss bank UBS announces losses of $3.4 billion from sub-prime related investments.
Citigroup unveils a sub-prime related loss of $3.1billion. Two weeks later it is forced to write down a further $5.9billion. Within six months, its stated losses amount to $40 billion
Merrill Lynch's chief resigns after the investment bank reveals a $7.9 billion exposure.

2007: December. US economy reaches cyclical peak. Recession commences—as determined by the arbiter of US business cycles, the **National Bureau of Economic Research**. The expansion of 73 months had exceeded the post-war average of 57 months.

2008: February 13th: US Economic Stimulus Act provided for tax rebates, business tax incentives and increased limits on mortgages eligible for purchase by government-sponsored enterprises. The total cost of this bill was projected at $152 billion for 2008

2008: March 16th – JP Morgan agrees to purchase Bear Stearns

2008: September 7 – Fannie Mae and Freddie Mac are taken into conservatorship, subsequently reveal immediate needs of $51 billion some estimates of final costs run to $200 billion.

2008: September 15 – Lehman Brothers files for bankruptcy. Merrill Lynch agrees to be absorbed by Bank of America.

2008: October 3: Emergency Economic Stabilization Act created TARP (Troubled Asset relief program)—a "revolving purchase facility."permitting the United States Department of the Treasury to purchase or insure up to $700 billion of "troubled assets"—originally directed towards financial institutions but later extended to permit investment in the auto sector.

2008: October 8th Canada joins coordinated interest rate cuts by central banks in USA England, China, Sweden, Switzerland and the European Central Bank.

2008: October 10: Canada Mortgage and Housing Corporation (CMHC) plans purchase of up to $25 billion in insured mortgage pools (CMHC 2008)

2008: November 10th Chinese government announces US$586 billion stimulus package

2008: November 17th UK government nationalizes Northern Rock Bank—an institution untroubled by direct exposure to securitized US mortgage lending, but whose business model relied heavily on short-term borrowing from other institution who were now unwilling or unable to supply funds.

2008: December 20th Canadian and Ontario governments announce $4 billion assistance to automobile industry.

2009: January 27th: **Canadian government introduces budget containing Economic Action Plan**; presents $39.9 billion stimulus plan.

2009: March 1st US government acquires control of two divisions of AIG in exchange for $30 billion.

2009: March 3rd Dow Jones Industrial Average reached a period low of 6,726.

The preceding chronology was assembled from a number of sources among them
(NBER 2010) (FEDNY 2010) (Royal Bank of Canada 2009) (Wikipedia 2010)

Was the Financial Crisis Predictable? You had to be blind . . . . !

Hindsight bias is a clinically recognized phenomenon also known as I-knew-it-all-along bias. Since so many people believe the crisis was inevitable and yet so many failed to take evasive action, we need to narrow our focus to ask—were precisely *what* events predictable?

Yes, we just devoted a couple of thousand words to describing *what happened*, but our chronology is not the same as a logical progression. At best, it is a framework for reconstruction—not anticipation.

It is very reasonable to suggest that US house prices could not have continued to rise unchecked and that imprudent lending practices would inevitably trigger massive foreclosures and a real estate slump. That outcome was hardly surprising. What was less foreseeable was that when it happened it somehow morphed into the bankruptcy of major financial institutions, one of the sharpest stock market corrections on record, the onset of a global credit crunch and a massive incursion of governments into erstwhile free-market activities.

It has already been suggested that the main cause of the malaise of the past several years was not simply the sub-prime mortgage fiasco, but the strain that its collapse placed on a poorly-comprehended intricately-interconnected national and international credit system. Successfully predicting a nasty outcome in the US housing market would have been only partially helpful in understanding what would happen next.

As we shall see, simply put, there is neither the unanimity of economic thought nor sufficient reproducibility in the linkages between major economic and financial developments to permit practical predictions despite the seeming inevitability of crisis—and, by corollary, the task of devising new regulations to preclude a repetition is, at best, herculean.

This may all sound pedantic. Surely, the failure is not one of understanding but simply one of a lack of resolve to address the blatantly obvious. We all knew the emperor had on no clothes but were ashamed to admit we knew it! The stark reality is that the systemic financial system implosion could have been triggered by any number of imbalances—many of which are still accidents waiting to happen.

To borrow from the title of this paper: WHO SHOULD HAVE SEEN *THAT* COMING?

A) The most obvious candidates for “who should have known” are the Wall Street financial gurus who created the markets for the risk-laden derivative instruments that precipitated the collapse. While the cynical may doubt the integrity of their assertions, they claim not to have seen it coming. Testimony before the Financial Crisis Inquiry Commission makes compelling reading. The following extract is from the sworn testimony of Lloyd Blankfein, chairman and CEO, Goldman Sachs. (Blankfein assumed the position of CEO on the appointment of previous Chairman, Hank Paulson as US Secretary of the Treasury in 2006):

For our industry, it is important to reflect on some of the lessons learned and mistakes made over thecourse of the crisis. At the top of my list are the rationalizations that we made to justify that the downward pricing of risk was different. While we recognize that credit standards were loosening, we rationalized the reasons with arguments such as: the emerging markets were growing more rapidly, the risk mitigants were better, there was more than enough liquidity in the system.

A systemic lack of skepticism was equally true with respect to credit ratings. Rather than undertake their own analysis, too many financial institutions relied on the rating agencies to do the central work of risk analysis. Another failure of risk management concerned the fact that risk models, particularly those predicated on historical data, were too often allowed to substitute for judgment. **(Financial Crisis Inquiry Commission 2010)**

In other words his message was—we didn't get it!

B) If the insiders didn't recognize the risks, what about the broader corporate-institutional cadre? The Swiss-based World Economic Forum attracts the world's corporate elite to its annual conference in Davros to mingle with the most powerful political leaders. It is truly a meeting of the world's movers and shakers and its agenda is focused and serious.

Coincident with each annual meeting, the Forum issues a Global Risks report produced with the private sector collaboration of names such as Citigroup and Swiss Re. The January 2008 briefing—when the crisis was peaking—is a "must-read", although strangely dispassionate, analysis of underlying causations. **(World Economic Forum 2008)**

But what did the previous year's report have to say on the subject? The January 2007 edition identified five serious economic risks, among them*: Oil price shock/energy supply interruptions; US current account deficit/fall in US$; Chinese economic hard landing; Fiscal crises caused by demographic shift and Blow up in asset prices/excessive indebtedness*.

About the last they warned: *House prices have doubled in most mature markets (and in some emerging markets) in real terms over the last 10 years, putting price-to-income ratios at all-time highs. Many experts fear a major correction, with differential impacts on consumption, economic growth and other asset prices.* **(World Economic Forum 2007)**

Its not that the risk wasn't perceived, it clearly was and was graphically outlined. But even just a matter of months before the risk became critical reality, there were other more pressing and alarming concerns occupying the attention of the report's authors. At the time oil prices had commenced a spiral that would see them touch $140 a barrel. The threats posed by momentous current account and fiscal overhangs have already been further exacerbated and ten years from now may overwhelm the significance of the latest crisis. Quaint as it may now seem, there were many who believed the Chinese economic explosion would collapse following the Olympic games.

So was the recent financial crisis predictable? It was identifiable as a risk—but so were a number of other possible disasters that have (so far) failed to materialize.

C) If anyone should have been able to predict pending disaster surely it should have been the regulators charged with the prudential oversight of the US financial system—the Federal Reserve Board. The Fed employs an army of supervisory officials and a battalion of highly respected professional economists.

In a 2005 speech, then–Chairman Alan Greenspan made the following observation: *Two years ago at this conference I argued that the growing array of derivatives and the related application of more-sophisticated methods for measuring and managing risks had been key factors underlying the remarkable resilience of the banking system, which had recently shrugged off severe shocks to the economy and the financial system.*

Later in the same speech he noted: *To be sure, the benefits of derivatives, both to individual institutions and to the financial system and the economy as a whole, could be diminished, and financial instability could result, if the risks associated with their use are not managed effectively.* **(Greenspan 2005)**

How could the Fed so clearly distinguish the potential for mismanagement with the attendant risk of instability yet fail to recognize it when it actually materialized? Part of the answer has to lie in the fact that many of the instruments were so intricately constructed by teams of technical experts that few had much understanding of their true worth. In a CNBC interview in 2009, Greenspan, himself an accomplished mathematician, candidly revealed that he was unable to comprehend many of the minutiae of some of the derivative prospectuses offered during the period. **(CNBC 2009)**

Upon assuming Chairmanship of the Fed in 2006, Ben Bernanke clearly held a similar view to Greenspan's on the positive contribution of increased derivative development: *To an important degree, banks can be more active in their management of credit risks and other portfolio risks because of the increased availability of financial instruments and activities such as loan syndications, loan trading, credit derivatives, and securitization* **(Bernanke 2006)**

Incredibly just a few weeks before Bear Sterns was to announce serious difficulties with two sub-prime hedge funds (see Timeline), Federal Reserve Chairman Ben Bernanke made the following statement: *…we believe the effect of the troubles in the subprime sector on the broader housing market will likely be limited, and we do not expect significant spillovers from the subprime market to the rest of the economy or to the financial system.* **(Bernanke 2007)**

D) Since the study of financial market interactions is the purview of macro-economists, and since some economists make a living forecasting future trends, it might be expected that the economics community should have recognized the risks and predicted the crisis. Some, of course, did so. However, as indicated previously, simply recognizing the likelihood of an event is of limited value unless the timing and consequences can also be charted.

Typically, economic forecasts are constructed by modeling historically repetitive relationships. Excepting seat-of-the-pants prognostications, such forecasts are of limited utility when dealing with unique or first-time shocks.

For the record, the monthly poll of mostly-financial-sector forecasters conducted by the Economist in December 2007—the month the recession actually commenced—revealed an average expectation of two percent growth in real GDP in 2008 for both the United States and Canada. (**Economist 2007b)** The economists missed what everybody else missed!

This section must conclude with some prevarication. It might be argued that with all the resources available to the proposed cast of predictors—the industry moguls, the big-picture movers and shakers, the regulators and the economists—the events should have been predicted. It might be equally argued that if those same groups failed to predict what happened, then it was demonstrably not predictable!

Were the Economic Outcomes Avoidable? Of Chicken and Eggs

Why do market economies experience recessions?

> *"Whatever you say, don't say that the answer is obvious—that recessions occur because of X, where X is the prejudice of your choice. The truth is that if you think about it—especially if you understand and generally believe in the idea that markets usually manage to match supply and demand—a recession is a very peculiar thing indeed."* **(Krugman 2009)**
>
> Nobel Laureate Paul Krugman

Economic recessions occur with regularity but without reproducible frequency. Economists don't really know what causes every recession. Financial crises can spark economic slumps but not all such crises result in recessions and not all recessions are associated with financial chaos.

The current episode is widely referred to as a "financial crisis". There is, however, a non-trivial distinction to be made between a "banking crisis" and a collapse in the stock market. Moreover, although they may be intrinsically linked, financial crises do not necessarily generate stock market crashes.

When most people's exposure to financial markets was chiefly through their local bank or branch a threatened "run on the bank" was greatly feared. However, for the developed countries of Europe and North America bank failure no longer creates the apprehension it once did. Bank deposits are now almost totally government insured.

Bank crises are, in fact, a very frequent occurrence. Between 1980 and 1994 more than 1,600 US banks insured by the Federal Deposit Insurance Corporation (FDIC) were closed or received FDIC financial assistance, far more than in any other period since the advent of federal deposit insurance in the 1930s. **(FDIC 1997)** Nevertheless, for most of that period US stock prices appreciated strongly (the Dow Jones Industrial Index rose during the period from around 800 points to about 3,700).

Systemic crises, whereby the contagion spreads throughout the financial system are also quite common—certainly within less developed financial systems, but often spreading to other countries. The LDC debt crisis and the Asian Financial Crisis are notable examples of contagion One study by the IMF suggests that there have been 124 systemic banking crises globally over the period 1970 to 2007. **(Laevan & Valencia 2008).** See also **(Kindelberger & Aliber 2005)**

The authors of the former study were careful to emphasize that these episodes can stem from a multitude of causes—varying from current account shortfalls, excessive public debt, currency swings along with, of course, excessive credit booms and off-balance sheet banking operations. In some cases these events triggered major recessions, quite frequently they resulted in exchange rate corrections or (if not already the source of distress) current account complications.

Financial markets were in calamity mode during the first nine months of 2008 (see Timeline). The Dow Jones index fell about 17 percent from its all-time highs. Serious—but not severe. During September alone they fell about 25 percent further. That, for many, signaled the point of greatest virulence of the financial crisis and the trigger point of the recession. Wrong!

In fact the onset of recession was a year earlier—coinciding with the very quarter in which the Dow Jones recorded its highest record value ever—capping a year of steady stock market appreciation.

The same phenomenon was true in 1929. In fact, US industrial production had been declining for about four months prior to Black Tuesday, October 29th1929. As noted by John Kenneth Galbraith in his 1955 classic "”The Great Crash 1929 **(Galbraith 1955)** many subsequent observers accepted that by the time of the crash the depression was already underway and one he quoted observed that the market "reflected in the main, the change that was already apparent in the industrial situation". Galbraith added the important distinction that what was clearly underway was a recession and that what the disaster on Wall Street achieved was to propel a garden-variety downturn into a uniquely brutal depression. In a curious reversal the current experience was to see a feared revisitation of a Great Depression transformed, in the event, into a not especially noteworthy recession.

Clearly there is no simple correspondence between financial calamities and economic corrections—but there may be a simultaneous coincidence of imbalances that contribute to financial collapse while at the same time eroding economic performance. Galbraith posited several such factors: a bad corporate structure (i.e. a multiplicity of holding companies and investment trusts); a bad banking structure and a highly distorted personal income distribution. Modern counterparts to these may be hedge funds, the explosive growth of derivative and massive banking bonuses. Galbraith also notes that in good economic times people are *"relaxed, trusting and money is plentiful."* Under these circumstances the rate of embezzlement increases but when the tide turns the opposite applies and the rate of discovery of embezzlement increases. Ponzi schemes such as those carried off by Bernie Madoff might be still operating in a world of perpetual growth.

Galbraith concluded, even two-and-a-half decades after the event that: *"…among the problems involved in assessing the causes of depression none is more intractable than the responsibility to be assigned to the stock market crash. Economics still does not allow final answers on these matters"*.

So what does cause recessions? In 1998 the Federal Reserve Bank of Boston selected as the subject of its 42nd annual economic conference: *Beyond Shocks: What Causes Business Cycles?* **(FRB Boston 1997)** What prompted the choice of topic was the recognition that two themes were pervading the economic literature: the first being that cycles were caused by essentially unpredictable shocks (a presidential assassination, an oil embargo etc.); the second being that the business cycle was dead—or, at any rate, had become so well-behaved that whenever occasional recessions arose they were mild and of short duration.

Of course the Bank, as part of the Federal Reserve System charged with devising and enforcing monetary regulation found neither position especially appealing. If cycles are triggered by extraneous shocks then the Fed's role is relegated to emergency first responder. If cycles had been reduced to relatively minor economic irritants (even if regulators could take credit for the achievement) then the need for maintaining a massive supervisory bureaucracy was diminished.

What the conference delivered was a remarkably diverse collection of views that resolved little—except to emphasize how little is understood about cycles, and hence, how unpredictable they are.

The proceedings of the conference are available on line and make intelligent reading for those whose interest extends beyond the few straightforward points of difference presented here. What is also revealed, reading between the lines, is the extent to which economists seeking to explain business cycle behaviour in a contemporary context, are still wedded to the academic orthodoxy of their schooling—ranging from classical to Keynesian to University of Chicago monetarist.

The following excerpts from Fuhrer and Schuh's overview suffice to demonstrate that when it comes to providing unequivocal causations for business cycles, the economics community just can't identify common ground.

Economists and financial market participants simply have no theory that can predict when a bubble will end. As a result, an individual investor will be perfectly rational in participating in a bubble, as he will make money from the bubble so long as it continues, which could be indefinitely. As Samuelson puts it, "You don't die of old age. You die of hardening of the arteries, of all the things which are actuarially associated with the process. But that's not the way it is with macro inefficiency." Bubbles go on until they stop, and no one has ever been able to predict when that will be **(Fuhrer & Schuh 1998)**

They went on to quote one of the presenter's Peter Temin's conclusion that…*"It is not possible to identify a single type of instability as the source of American business cycles."* And to contrast it with Rudy Dornbusch's assertion that: *"None of the U.S. expansions of the past 40 years died in bed of old age; every one was murdered by the Federal Reserve,"* **op. cit.**

Perhaps the last word on the predictive power of financial markets on real economic developments is best left to Nobel Laureate Paul Samuelson who once famously quipped: *"It is indeed true that the stock market can forecast the business cycle. The stock market has called nine of the last five recessions."*

The Role of the Regulators

This section examines the role of various regulators during the evolution of the credit turmoil and considers what they could do more effectively in the future—along with the question as to whether or not we want them to do it. In this regard, it is appropriate to briefly consider the stance of US lawmakers. Congress is the regulator of the regulators—certainly with respect to the US financial sector and by extension with consequential impact on global financial markets. It is perhaps unfair to expect that any country's legislators, few of whom are expertly grounded in the intricacies of finance, to fully appreciate that virtually all government laws and regulations can have unintended financial consequences. However, intensive lobbying activities by Government Sponsored Enterprises—i.e. Fannie Mae and Freddie Mac—seem, to those outside the US system, as highly inappropriate. How such systemically dangerous practices could be resolved is, of course, way beyond the scope of this paper.

A) After the Test—The Report Card

The immediate cause of the financial crisis was the collapse of the credit default business founded on the sub-prime mortgage market in the United States. Since US regulators clearly failed to apprehend the crisis a *prima facie* case would appear to have been made that they fell substantially short of their responsibilities. That judgment may be a little harsh—a little like complaining that the medical fraternity is demonstrably at fault every time someone dies. In order to assess their performance fairly one must judge the regulators against what it is reasonable to expect them to accomplish—and even more importantly what it is that we want them to accomplish.

The historical purpose of bank regulation in North America was the protection of depositors. When regulations were originally introduced, for the average individual, bank savings were their primary financial resource. Today, government plans in most advanced countries guarantee almost total recovery of deposits lost in bank failures. (The Canada Deposit Insurance Corporation CDIC in Canada covers up to $100,000 per account) A second primary role of supervision is to provide consumer protection—from fraud, misrepresentation or misuse of private information.

In a modern context, perhaps the overriding function of regulation is to permit the smooth operation of the financial system so as to permit the efficient allocation of capital from savers to economic producers—in essence to encourage systemic integration. What regulation is not intended to do, according to most commentators, is to prevent bank failures or indemnify bank shareholders. (eg. **Spong 2000)**

Any reasonably comprehensive overview of international financial regulatory structures and responsibilities is beyond the scope of this paper. Even an examination of just the United States is fraught with complication—since it is characterized by a plethora of federal and state agencies, many with shared responsibilities. (The Canadian system is vastly more streamlined.). But it is possible to briefly discuss the roles played by a few key players in the regulation of the system.

In the United States the Federal Reserve Board fills the role of central bank and is the ultimate regulator since it acts as lender-of-last-resort. In essence, The Fed serves as the final arbiter of whether to sustain a firm—or indeed a system—that has exhausted all commercial avenues. Since sufficient liquidity was made available during in the recent credit crunch that the cataclysmic outcome some feared was averted, some would argue that the Fed performed well.

More severe critics argue that the US central bank badly mishandled the crisis—from start to finish. In the final analysis, it is argued, the Fed and the US administration further entrenched the disturbing notion that some institutions are too big to fail. We will revisit that troublesome concept later in this section.

A second criticism is that despite repeated warnings the Fed ignored the mounting risks and failed to convince market participants to adopt corrective actions. The first part of that charge is a little easier to dismiss. As pointed out earlier, far more crises are apprehended than actually materialize and while the Fed was certainly complacent it was in the best company!

The second element—that, had it been aware of the dangers, it should have been able to dragoon financial markets into conformity is more complex. As a regulator, the Fed, like similar agencies, is also a supervisor. In addition to setting out immutable rules and procedures, it also has an overarching oversight responsibility for the health of the financial system. It exercises this through its monitoring and administrative powers—persuading market participants and, if necessary, applying coercion through its ability to change the rules.

Traditionally that has been a more common practice in Canada, where market concentration makes its use more feasible. At best, coordinating the competing views of thousands of federal and state level institutions and jawboning them into compliance must be a protracted exercise and a blunt tool, effective only to corral outliers or in cases of immediately perceived systemic risk. Contrast that with the more "gentlemanly" (bank CEOs are currently all male) custom of the Governor of the Bank of Canada exercising "moral suasion" in conversation with the heads of as handful of Canadian banks!

The opportunity for a more direct intervention has been suggested as one of the factors that helped insulate Canada from the financial effects of the US credit collapse. **(Finance 2008)**. However, the Canadian response to the LDC debt crisis of the 1980s suggests that this country's system responded no better in what were similar, if less severe, circumstances.

The aftermath of the 1987 stock market crash substantially elevated the reputation of the Federal Reserve Board and its then-Chairman Alan Greenspan. In that instance, the Fed's immediate liquidity injection was widely perceived as having controlled the damage and helped create the notion that, under the prescient eye of the regulators, business cycles had been tamed.

Although a "new depression" has been avoided, observers are far less generous in according credit to the Fed's current Chairman, Ben Bernanke. In large measure, that displeasure has less to do with immediate emergency responses than it does with the longer-term effects of a too-big-to-fail TBTF policy orchestrated in conjunction with Treasury and Administration officials. When history is revisited the Fed will do well to emerge from this episode with better than a "C" grade.

A hodgepodge of other agencies oversees US financial institutions. The Comptroller of the Currency is the oldest financial regulator in the United States, having been established following the Civil War. It is responsible for the regulation of nationally chartered banks—other than the key institutions organized as "bank holding companies". The Federal Deposit Insurance Corporation FDIC is the agency that guarantees depositors. Many banks and savings institutions are state registered and governed by state regulators. A simplified roadmap to the overlapping responsibilities with those of the Federal Reserve Board is published by the Fed **(FED 2005).**

Insurers are regulated at the state level. For the most part, these agencies play a support role in the formulation of finance policy. While they provide the important function of audit and prudential

compliance for solvency purposes, their horizon is generally too narrow to expect them to have played a role in avoiding the crisis. An exception might be an act of omission rather than commission: the absence of a federal insurance regulator, which, had it existed, might have been able to prevent the development of off balance sheet credit default swap liabilities—the proximate trigger of the credit collapse.

In marked contrast, in Canada, the Office of the Superintendant of Financial Institutions has industry-wide regulatory authority.

The role of the US Securities and Exchange Commission SEC is ambivalent. One might expect that the investment industry would exhibit greater internal discipline—because unlike commercial banks investors are provided no public protection against asset erosion. Hence the SEC has historically acted more like an enforcement agency attempting to curb fraud and accounting misrepresentation. It has been less concerned with the prudential oversight of broker-dealers. Since it was the interface between, and among broker-dealers, and the under-regulated insurance industry that precipitated the emergency, the SEC must receive a failing grade.

Hedge funds are required to register with the SEC. Since the funds have largely been designed to circumvent "interference" from the paternalistic over-regulation of supposedly sophisticated investors, it would be unfair to fault the SEC for failing to identify and signal risks. Nevertheless, the apparent breakdown within the Commission in responding to complaints respecting outright fraudulence in the Madoff funds is inconsistent with vigilant monitoring. That breakdown may, in fact, reflect an overly familiar relationship between the industry and its regulator.

Credit rating agencies are independent, private, supposedly arms-length, units that assess and grade the quality of investment instruments. While those agencies do not have any regulatory powers, regulators regularly stipulate acceptable risk levels financial organizations must maintain and the criteria are couched in terms of the rankings determined by the rating agencies. Since the issuer pays the rating agencies, a potential conflict-of-interest clearly exists—one that the agencies have assiduously sought to avoid. **(NYT 2008)** Since the ratings attached to various tranches of structured mortgage investment vehicles proved so disastrously inappropriate, the agencies must shoulder a very substantial portion of the blame for the crisis—whether though incompetence or naïve complicity.

B) How Many Regulators does it take to Asphyxiate Innovation?

All responsible regulators recognize that they play a balancing role. Failure to remain adaptive as well as vigilant can result in outcomes such as the recent breakdown. But too dictatorial a regime can stifle useful innovation or drive its practitioners to foreign markets. Successive Fed Chairmen have played homage to that mantra. Robert Litan paints the dichotomy well:

There is widespread agreement on the need to strengthen our financial regulatory framework so that we are far less exposed to the kind of financial and economic crisis we are now experiencing, without at the same time chilling innovation and prudent risk-taking that are essential for economic growth. It would be a major mistake to conclude that just because market discipline and sound regulation failed to prevent the current crisis either one now should be jettisoned. Neither pillar alone can do the job. Market discipline requires rules, and these rules must be enforced. **(Litan 2009)**

In the United States there is a rising chorus urging the rationalization of the multiplicity of federal and state levels bureaus that currently oversee the financial industry in that country. International agencies,

always quick to expand their authorities, are pressing for much wider trans-border standards. If contagion is global they argue, then so should be the remedy.

However desirable an expanded set of consistent international regulations may be, there are major hurdles to their creation. **Firstly**, the US Congress has consistently resisted ceding extra-territorial authority (consider for example the problems encountered in NAFTA dispute resolution)—and, at least for the time being, the US markets are quintessentially dominant.

Secondly, international agreements are typically cumbersome. **(Litan 2009) (Oatley)**

> *The Basel II* [international bank capital requirement standards] *revisions took roughly a decade for the participating countries to debate and finalize, and by the time they were done, they were essentially irrelevant, for the banking crisis had already begun. Beyond the excessive time that is inherent in any international rulemaking process is the inevitable complexity that such efforts are likely to entail. The Basel II rules eventually grew to over 400 pages of complex rules and formulae, none of which is necessary.* **(Litan 2009)**

There is a **third** consideration that will likely bog down the early adoption of international financial regulatory standards. The financial sectors of all countries are not created alike. Neither the powers of banks nor their niche activities are uniform and there is a clear risk the timetable for introduction of such standards can be manipulated for national advantage.

In essence, if domestic regulators face substantial hurdles balancing the need for effective control against the necessity of maintaining flexibility, introducing a whole new layer of supervision is unlikely to enhance information absorption or quicken response reactions.

Consider the case of the recently created Financial Stability Forum; an umbrella organization that at last count numbered more than 60 national and international regulatory agencies. Given that each of those is generously staffed, it represents a mind numbing complement of regulatory bureaucrats! Enough, perhaps, to stifle innovation!

While the prospect of such a behemoth attempting to orchestrate some sort of global consensus appears highly dubious, international coordination under the aegis of the Financial Stability Forum has produced some very worthwhile analysis—in particular focusing of the individual firm-level dynamics of the emergency**. (FSF 2009)**

Not content with broading the international scope of financial regulation some theoreticians have started promoting a relatively new concept called m*acro-prudential regulation*. Proponents suggest that regulatory standards should be modified over the business.economic cycle. The argument is that during the early phase of economic expansion, lower bank capital ratios (along with other measures of solvency) can be tolerated with significantly less systemic risk, but that they should be tightened as the cycle ages and the risk of default and contagion increase.

Charles Wyplosz argues that you can't make the system safe by making each bank safe. His point is that *..selling an asset when the price of risk increases, is a prudent response from the perspective of an individual bank. But if many banks act in this way, the asset price will collapse, forcing institutions to take yet further steps to rectify the situation.* Hence, some form of discretionary regulation is what is indicated. **(Wyplosz 2009)**

It is an intriguing intellectual construction—quite appealing to the academic. But, to accept any prospect of its effective implementation one has to not only trust that the regulator's assessment of the financial risk is superior to that of market operators but also have some faith in the ability of the economic profession to correctly assess the phase of the business cycle. Both are fairly large leaps of faith unlikely to find much favour among hard-nosed participants in global capital markets!

C) As a Rule Regulation has its Limits

Fundamentally, the role of financial intermediaries is to channel temporarily surplus funds from one individual or organization to another in the form of a consumer loan, home mortgage, corporate or government bond, shareholders equity etc. Regulation can inadvertently or deliberate distort that transaction.

There are a number of circumstances whereby the existence of regulation alone, or its selective or too-rigorous application can interfere with that process of prudent risk-taking.

i) Transference of responsibility. Most companies strive to abide by regulation and maintain comprehensive compliance units. Perhaps the very existence of regulation implies a conservative floor of prudence beyond which slightly less risk averse investors spurred by salary and bonus incentives may be induced to believe they can trade without catastrophic consequence—fertile ground for encouraging satisfaction of the letter of regulation while circumventing the intent.

ii) Creation of a Moral Hazard TBTF. Notwithstanding the consensus that regulation should permit the orderly closure of insolvent financial institutions US authorities have now not only explicitly recognized that some organizations are "Too Big To Fail" TBTF but have allowed themselves to become the arbiters of which firms are to be sustained. Hence Lehman Brothers was allowed to fail, Meryl Lynch and Bear Sterns were compulsorily absorbed and AIG was recued by a direct federal infusion.

This development establishes a dangerous precedent on several fronts that may hamper the effectiveness of future regulation. **Firstly** it risks creating an institutional moral hazard encouraging firms to adopt less prudent but more rewarding strategies knowing that they are TBTF. **Secondly** it may create individual moral hazard whereby portfolio managers may similarly engage in more risky strategies under the belief that neither their firms not the shareholders will bear the full costs of miscalculation but that they can expect sizeable bonuses if they are successful.

Recognizing the concept of Too Big To Fail introduces an additional risk of subjectivity. In the recent episode the order in which corporations experienced difficulty may have determined a firm's destiny. Had AIG—arguably the more culpable of the troubled corporations—been the first to declare its insolvency it might have been allowed to lapse into bankruptcy. Since its problems surfaced in the wake of a series of confidence-ebbing shortfalls, it was deemed TBTF and was bailed out. There is even a question as to whether it may have been Goldman Saks exposure to AIG that led to the latter being considered TBTF. Such developments introduce a disturbingly arbitrary element into public policy choices.

The issue will undoubtedly spur substantial controversy over how best to address the phenomenon of Too Big To Fail. US Senate Banking Committee Chairman Christopher Dodd has already introduced legislation that would substantially widen the authority of the Fed to force the dismantlement of such enterprises. **(Dodd 2010)**

For free enterprise proponents the concepts of TBTF and the unprecedented willingness of the US government to support that stance by becoming a major equity holder in the financial and auto sectors (as well as the Canadian participation in the latter) are deeply troubling.

iii) Contradictory regulatory objectives As detailed earlier in this paper, many analysts suggest that legislation requiring financial institutions to make credit more available to less advantaged communities and to require agencies to explicitly improve credit access for affordable housing most likely contributed to the gestation of the crisis. To ensure efficiency, regulations should be directed uniquely towards their explicit objectives. The higher costs of inefficient regulation will always be born by the consumer.

iv) Backdoor regulation Raising taxes disproportionately from one sector can have much the same effect as imposing regulations. Canada has, in the past, maintained disproportionate income taxes and sector-specific capital taxes on the financial sector. The United States is contemplating imposing a special tax on financial institutions to help recoup some of the funds expended in the bailout—without consideration as to whether the incidence falls on those who were net beneficiaries of the program.

The Canadian government response to both taxation and regulation initiatives in other jurisdictions was delivered by the Prime Minister at the Davros Economic Forum in January 2010. Prime Minister Harper committed that: Canada will not go down the path of excessive, arbitrary or punitive regulation of its financial sector and would eschew bank-specific taxation. (**Vieira 2010)**

Were the Responses Appropriate?

Less than two years ago respected observers like the Economist were optimistically voicing views like the following: *But most companies will be able to shrug off the credit squeeze. That is partly because creditworthy borrowers still have access to debt (albeit at a higher price), and partly because many firms don't have to borrow. Across the rich world, firms are flush with cash. Their profits have been fat for the past five years and, on average, companies have been funding their capital spending from their own resources. Credit wobbles by themselves, therefore, need not prompt an investment slump.* **(Economist 2007a)**

Between then and now, financial markets have teetered on the brink and then clawed back to a firmer footing; corporate icons have smoothly dipped into and sometimes out of bankruptcy or been made wards of the state; a "great recession" has been apprehended and subsequently survived. What's not to applaud? Don't those outcomes bespeak the success of response initiatives around the world?

In assessing how appropriate or otherwise official responses have been we are dealing with a counterfactual that, at the time few would have wanted to put to the test. As we have seen, policy decisions had to be made at breakneck speed. As quickly as each round of measures was implemented, negative market sentiment was temporarily staunched before lurching into a deeper bout of pessimism until the final bets were called—a trillion-plus in US TARP funds; a half-trillion dollar Chinese stimulus and, in Canada, a $50 billion plus Economic Action Plan.

If, as we have contended, events like the financial crisis are difficult to foresee and their consequences even less predictable, then the very fact that economic conditions and prospects are as buoyant as they now appear should justify a wholehearted vote of thanks for a task well accomplished under near-impossible circumstances. What is fair to question, however, is whether in hindsight the magnitude may have been overly generous and whether it was appropriately targeted.

Now that we have stepped back from the brink we can ask certain questions:

A .If we weren't able to predict the event what made us think we could predict the cure? The answer has to be that there was little conviction among policy makers about what was the right course of action—but something had to be done! In the United States the response was to engage in a massive incursion into government ownership and control. While that most likely provided the necessary reprieve, it was in no way a measured response—and will almost certainly have longer-term consequences.

The Canadian response was different because the Canadian circumstances were different. The seeds of the sub-prime mortgage derivatives fiasco were uniquely American in origin. That, of course, did not prevent the effects from being manifest globally. But in this regard too Canada was relatively insulated. The Canadian financial system is markedly different from that in the United States and proved more resilient than in many other countries (see BOX: Canada's Sound Financial System).

Where Canada was uniquely vulnerable was in terms of the "real" economy. Canada is heavily export oriented and, as is widely recognized, some 80 percent of the country's exports are bound for the United States. As the credit crunch began to eat away at US demand, Canada's trade position eroded, converting merchandise trade and current account surpluses into deficits and dragging down gross domestic product.

Canada's Sound Financial System: Points to Ponder

Canadian participants in the 2009-2010 World Economic Forum survey gave this country the highest ranking in terms of how they rated the soundness of Canadian banks—out of 127 countries.

It is undoubtedly true that Canada's financial system has been substantially insulated from financial contagion during the global crisis. Canadian institutions held relatively low exposure to toxic assets generated by the derivatives of US sub-prime mortgage schemes. Their performance is a credit to the prudence exercised by Canadian lenders and the efficiency of the regulatory system in this country. But that caution has not always been in evidence and part of the explanation for the superior outcome can be traced to the historical structure of the industry rather than corporate perspicacity.

During the Less Developed Countries LDC Debt Crisis of the early 1980s Canadian banks were excessively exposed, however industry concentration permitted banks to recover losses through attrition.

The comprehensive differences in Canadian and US mortgage lending, noted earlier, served to prevent similar imprudence developing in this country's housing markets—and averted the proliferation of unsound products.

Lenders are required to insure against default any mortgages made without large down payments and that insurance is backed by the government. Prudent lending standards must be met to qualify for government-backed insurance. These insured mortgages provide a reliable backstop for Canadian mortgage-backed securities, which are well accepted around the world**.(Finance 2010)**

Canadian capital requirements for financial institutions are well above minimum international standards and higher than in many other jurisdictions. Canadian institutions voluntarily maintain capital buffers well above the required minimum and are less leveraged than many of their international peers. **(Finance 2010)**

The consolidation of securities trading within the Canadian banking system results in common oversight by the Office of the Superintendent of Financial Institutions and monetary responsibility by the Bank of Canada—in contrast to the plethora of federal and state regulators in the US system.

Perhaps Canada could have avoided engaging in overt fiscal stimulus altogether. The Conservative government certainly made that claim before and after the 2008 election campaign. Arguing the point that there was no home grown financial crisis and that tax reduction measures already implemented along with "automatic" fiscal stabilizers such employment insurance that kick-in when the economy slows, would be sufficient to moderate the severity of the recession.

Two things changed their mind: the hiatus in the North American auto industry and their political vulnerability. Once American authorities moved to bailout carmakers in the US the threat (perceived or real) was raised that the industry could be reorganized around US-only facilities. Given the overwhelming importance of auto production and the associated parts business to Ontario and to the country's export performance, capitulation was inevitable. The Canadian (and Ontario) government had to step up to the plate and pledge assistance. To do so without extending incentives to other industries

and sectors, as demanded by opposition parties, might well have resulted in the government being toppled.

In light of the prevailing extreme economic uncertainty and the turmoil that the loss of the Canadian auto industry would have created, few have criticized the choice not to call the carmakers bluff.

B. How appropriate were the bailout targets? So much rested on restoring immediate continuity to US and global capital markets that, however philosophically distasteful, there was little stomach for permitting the collapse of mega banks in the US or abroad. As noted earlier, however, the moral hazard associated with that response along with the artificiality of selecting the beneficiary institutions will likely prove harmful over time.

Much could be written about the US auto company bailout. In addition to the third party losses incurred in bankruptcy, the US government has acquired a majority stake in General Motors and a substantial stake in the company's financing arm GMAC. As an op-ed article published in the New York Times identifies, GM's claim to be repaying its commitment to TARP obscures the reality that US taxpayers are highly unlikely to ever recoup their $50 billion-plus investment. **(Niedermeyer 2009)** The longer-term viability of an industry that has been steadily losing ground to its international competitors for years will continue to be the subject of learned papers.

As an economic stimulus package Canada's Economic Action Plan is reasonably well put together—its strength being its focus on accelerating ultimately necessary infrastructure spending rather than on frivolous make-work projects (which feature more prominently in the US measures). But that is also its weakness. Infrastructure requires lead design and planning time—even for supposedly shovel-ready projects and construction is necessarily spread over many months. Opposition parties have steadily criticized the program for supposed tardiness in delivering actual expenditure. The irony is that the recession ended in the middle of 2009—just as spending was getting under way. Like others, the author has questioned the wisdom of continuing to implement the entire program when the recovery is already underway. **(McIver 2009)**

C. How appropriate was the size of stimulus? Considerable notice has been taken of the alacrity with which major US banks have hastened to repay their commitments under TARP so soon after receiving them. Many have ascribed this haste to a desire to escape the onerous constraints on executive remuneration attached subsequently to the funds. It is equally plausible that as liquidity and profitability have rapidly returned to the industry the ability to raise funds in the marketplace is more attractive than more costly government–owned equity. From one perspective the development demonstrates the success of the program in restoring confidence—on the other hand it hints of overkill.

If, in Canada, strong economic growth re-emerges quickly, bringing forward necessary infrastructure spending and sustaining employment and jobs during the early stages of recovery would be a classically correct application of stimulus. Certainly Canada's recent fiscal performance provides some greater degree of freedom than that available to the United States—but the reversion into significant deficit occurred with alarming rapidity.

There is, naturally, little consensus among economists concerning the effectiveness of fiscal stimulus. Those with a more Keynesian-bent are given to employing phrases like "kick-start" and "multiplier-effect"—to argue that judiciously applied fiscal interventions can help create a self-sustaining momentum. Others, such as those initially advising the Canadian government, tend to view stimulus as a zero sum game—increasing debt only borrows from future spending.

D. Does it really matter? Massive interventions most likely stemmed a raging US credit crunch and may well have avoided a much harsher economic outcome. But, economic growth has re-emerged—and much sooner than many imagined.

In Canada, confidence has returned. A recent survey of over 200 financial executives reveals that more than 60 percent expect that Canada will return to normal economic growth in either the first or second half of 2010, and another 4.5 percent believe we already accomplished that in the latter part of 2009. Less than 40 percent believed that credit remained tight. Survey participants cite industry-specific reasons for their confidence—not government stimulus. **(CFERF 2010)**

So perhaps, those massive interventions may have made only a modest contribution to the recovery. We can never be sure of what would have happened without them. But we can be sure that we will face the consequences in terms of higher debt and taxation and raised expectations of government involvement for a very long time.

Conclusion

Whether predictable or not, whomever might or might not share culpability, it might be tempting to conclude that the event has passed and that just as the financial executives have comfortably construed we will shortly be back on the course of business-as-usual.

There is not scope to develop the arguments in the present paper, but there are disquieting signals that a number of the occurrences of recent times may have much longer-lasting consequences. The accelerated fiscal deterioration in the United States has all the earmarks of unsustainability—a process that could lead to serious erosion of the US dollar's reserve currency status. While Canada has in general maintained a more responsible budgetary stance, the rapidity with which reversal has occurred is unsettling.

In any case, its deep dependence on US markets makes Canada uniquely vulnerable to longer-term shifts in that country's economic health. During the crisis Canada's current account balance slipped from a long-standing surplus into deficit. It is not clear that that pattern will be easily turned around. With the continuing decline in North American manufacturing (especially evident in the tenuous future of the automobile industry) Canada is, more than ever, a commodity-dependant exporter and increasingly the destinations are overseas. **(Conference Board 2010)** That development has already resulted in the western provinces almost edging out Ontario as the country's largest exporter.

Given the evident trepidation at the height of the panic, the recovery is more painless than anticipated—but the longer-term prospects leave no grounds for complacency.

References

Bank of Canada 2009 Bank of Canada Monetary Policy Report Ottawa July 2009
http://www.bankofcanada.ca/en/mpr/pdf/2009/mpr230709.pdf

Bernanke 2006 Bernanke' Ben S. "Modern Risk Management and Banking Supervision" at the Stonier Graduate School of Banking, Washington, D.C. June 12, 2006
http://www.federalreserve.gov/newsevents/speech/bernanke20060612a.htm

Bernanke 2007 Bernanke' Ben S "The Subprime Mortgage Market" at the Federal Reserve Bank of Chicago's 43rd Annual Conference on Bank Structure and Competition, Chicago, Illinois May 17, 2007 http://www.federalreserve.gov/newsevents/speech/bernanke20070517a.htm#f3

Cassidy 2009 Cassidy, John "How Markets Fail-The Logic of Economic Calamities", Farar, Straus and Giroux, New York 2009

CFERF 2010 Canadian Financial Executives Research Foundation CFERF Executive Research Report "Managing The Upturn: Key Strategies For Sustained Profitable Growth", Toronto 2010

(CMHC 2008) Canada Mortgage and Housing Corporation Supports Canadian Credit Markets Ottawa, October 10, 2008
http://www.cmhc-schl.gc.ca/en/corp/nero/nere/2008/2008-10-10-1700.cfm

CNBC 2009 Special Report "House of Cards", first aired February 14, 2009

Conference Board 2010 Conference Board of Canada "Re-Energizing Canada's International Trade Strategies for Post-recession Success" Ottawa February 2010

Economist 2007a The Economist 2007 "Good Time for a Squeeze" Tighter credit conditions are just what the markets need" Aug 2nd 2007 | From print edition

Economist 2007b The Economist December 2007

FDIC 1997 Federal Deposit Insurance Corporation "An Examination of the Banking Crises of the 1980s and Early 1990s History of US Banking Industry" Volume 1, Washington 1997

FED 2005 Board of Governors of the Federal Reserve System 2005 The Federal Reserve System: Purposes & Functions Ninth Edition, Washington June 2005 page 63
http://www.federalreserve.gov/pf/pdf/pf_complete.pdf

FED 2010 Federal Reserve statistical release G19 Consumer Credit
http://www.federalreserve.gov/releases/g19/hist/cc_hist_sa.html

FEDNY 2010 Federal reserve Bank of New York "Timelines of Policy Responses to the Global Financial Crisis" New York 2010
http://www.newyorkfed.org/research/global_economy/policyresponses.html

Financial Crisis Inquiry Commission 2010 Testimony January 13 2010 Washington
http://www.fcic.gov/hearings/01-13-2010.php

Finance 2008 Department of Finance Canada Government of Canada Strengthens Canadian Advantage in Credit Markets"" Ottawa, October 23, 2008 http://www.fin.gc.ca/n08/08-080-eng.asp

FRB Boston 1998 Federal Reserve Bank of Boston "Beyond Shocks: What Causes Business Cycles?" 42nd annual economic conference Boston 1998
http://www.bos.frb.org/economic/conf/conf42/index.htm

FSF 2009 Financial Stability Forum, Senior Supervisors Group Risk Management "Lessons from the Global Banking Crisis of 2008" October 21, 2009
http://www.financialstabilityboard.org/publications/r_0910a.pdf

Fuhrer & Schuh 1998 Fuhrer Jeffrey C., and Schuh, Scott Beyond Shocks: What Causes Business Cycles? An Overview FRB Boston 42nd Conference op. cit.
http://www.bos.frb.org/economic/conf/conf42/con42_01.pdf

Galbraith 1955 Galbraith, John Kenneth; The Great Crash 1929 Houghton Mifflin 1955

Greenspan 2005 Greenspan , Alan 2005 Risk Transfer and Financial Stability Federal Reserve Bank of Chicago's Forty-first Annual Conference on Bank Structure, Chicago, Illinois May 5, 2005

Kindelberger & Aliber 2005 Kindelberger, Charles P. and Aliber, Robert. "Manias, Panics and Crashes"5th Edition, Wiley New York 2005

Krugman 2009 Krugman, Paul "The Return of Depression Economics and the Crisis of 2008) W.W. Norton, New York 2009

Laevan & Valencia 2008 Laeven, Luc and Valencia, Fabian. " Systemic Banking Crises: A New Database"" WP/08/224 2008 International Monetary Fund WP/08/224 2008

Litan 2009 Litan, Robert E. "Regulating Systemic Risk" Brookings Institute March 30, 2009

McIver 2009, McIver, Don "If the recession is Over, Stop Trying to Fix It" op-ed Halifax Chronicle Herald July 29th 2009

NBER 2010 National Bureau of Economic Research, "Business Cycle Expansions and Contractions," http://www.nber.org/cycles.html

Niedermeyer 2009 Niedermeyer, Edward Taking Taxpayers for a Ride New York Times November 30, 2009

NYT 2008 "S.E.C. Criticizes Ratings Agencies' Conflicts of Interest" New York Times July 8, 2008 http://dealbook.blogs.nytimes.com/2008/07/08/sec-criticizes-ratings-agencies-conflicts-of-interest/

Oatley Oatley, Thomas "The Dilemmas of International Financial Regulation" Cato Institute, undated

Royal Bank of Canada 2009 The credit crisis — Overview and chronology of main events http://www.rbc.com/economics/market/pdf/crisis_chronology.pdf

Schiller 2005 Shiller, Robert J. "Irrational Exuberance" Princeton University Press Princeton 2005

Spong 2000 Spong , Kenneth Banking Regulation Its Purposes, Implementation, and Effects Fifth Edition Division of Supervision and Risk Management Federal Reserve Bank of Kansas City 2000 http://www.kc.frb.org/banking/bankingpublications/RegsBook2000.pdf

Vieira 2010 Vieira, Paul, Financial Post "Canada will not 'micromanage' bankers, Harper says" January 28, 2010 http://www.financialpost.com/story.html?id=2495105

Wikipedia. 2010 "Subprime crisis impact timeline"

World Economic Forum 2008 Global Risks 2008 A Global Risk Network Report, Davros, Switzerland, January 2008

World Economic Forum, 2007 Global Risks 2007 A Global Risk Network Report, Davros, Switzerland, January 2007 http://www.weforum.org/pdf/CSI/Global_Risks_2007.pdf

Wyplosz 2009 Wyplosz, Charles The ICMB-CEPR Geneva Report: "The Future of Financial Regulation" 27 January 2009 http://www.voxeu.org/index.php?q=node/2872

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