

Financial Crisis: a perfect storm or regulatory failure

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Introduction

This article deals with the recent financial crisis, which for all intents and purposes is still with us in that we are living with its consequences and paying the price of the various measures put in place to ease its effects.

There are numerous studies and points of view on the cause or causes of the crisis. All schools of thought have found ample material to voice arguments along the traditional party lines. For left-leaning individuals, markets have demonstrated their limits, while for those on the right, governments are responsible for the mortgage débâcle in the United States. Academics have looked at various culprits, such as corporate governance or credit-rating agencies, as a way of saving the intellectual foundations by which they describe the functioning of financial markets, while others, traditionally suspicious of the reliance on models, felt vindicated. The “who’s to blame?” question extends to politicians and policy-makers, for their failure to act on early warning signs or for their lax policies.

Something big happened in 2008. Just how big it was we still do not know. This does not need further documentation. Attempts at limiting the underlying causes to one or two are certainly flawed. There is no single key to that mystery, and we should not look for one in the hope that, once it is found, the problem will be easy to resolve. The world of economics, and in particular the behaviour of financial markets, is complex and defies reductionist analysis.

It can be argued that the crisis was a perfect storm. According to Wikipedia, a perfect storm is “an event where a rare combination of circumstances will aggravate a situation drastically. As such it is unprecedented and will not occur again in all likelihood.” The crisis was probably inevitable as well, even though, as I will argue, some elements have served to amplify the problem and need to be addressed.

This point of view contrasts sharply with the analysis and conclusions of the Financial Crisis Inquiry Commission. The Commission was established as part of the Fraud Enforcement and Recovery Act and its members were appointed by both parties in the US Congress.

Preliminary version. Not to be circulated!

In its own words, “The Commission concluded that this crisis was avoidable. It found widespread failures in financial regulation; dramatic breakdowns in corporate governance; excessive borrowing and risk-taking by households and Wall-Street; policy makers who were ill prepared for the crisis; and systemic breaches in accountability and ethics at all levels.”

While the Commission recognizes that multiple factors were present, it replays history as if a benevolent dictator could somehow, in advance, identify and correct the failure with respect to regulations, reduce excessive risk-taking and so forth. The task at hand is not to play Monday-morning quarterback or turn back the clock, but to identify the factors that have aggravated the situation or caused reprehensible behaviour.

The perfect storm hypothesis implicitly recognizes that the various concomitant factors were independent of each other in large part. Certainly this can be disputed. Indeed could it be that these factors were the by-product of behaviours that were induced by a set incentives present in the environment in which financial institutions operated? This is our point of view and the one we will be arguing. International regulations of financial institutions have evolved over the past 30 years in such a way as to create incentives that led to many of the distortions that have been widely documented. Hence the concept of regulatory failure. This diagnostic is crucial as those in charge of redesigning regulations are precisely those at the origin of the failure. This amounts to increasing the dosage of the medication that almost killed the patient!

THE ECONOMIC ENVIRONMENT: A New Era?

The main cause of the financial crisis was overheated mortgage markets in the United States. While the bubble was recognized early on, most policy-makers and market participants minimized either its impact or its severity. The question is: Why was the train allowed to charge ahead? There are various aspects to this question, but two appear to be fundamental: the euphoria, and the financial innovation. The latter aspect will be examined later.

The successes of the American economy – and of the world’s economies, for that matter – between 1990 and 2005 were impressive. The US GDP in constant dollars grew almost twice as fast between 1987 and 2008 as between 1965 and 1985, while inflation was kept in check. The stock market recognized this improvement. From 1982 to 2000, a balanced portfolio of 60% in shares and 35% in Treasury bills generated a yield of 14.3%, versus 3.4% for the previous 80 years. Many now argue that the 1970s war on inflation produced huge benefits, such that in the last 15 years of the 20th century growth accelerated in a non-inflationary environment, whereas the previous 15 years were plagued by inflation.

For many, a new era had begun. Globalization, sophisticated financial markets and policy analysis would produce a more favourable economic environment, for the benefit of all. This element is important in looking back at recent history. A sense of euphoria permeated society, and this allowed for the creation of the excesses and the minimization of their effects.

However, very few commentators have made the point that the growth in the late 1980s 1990s and 2000s was the result of China’s economic development. Many of the products consumed in the United States and other Western economies were made in China at very low cost; this is a significant factor in explaining low prices in a growth context. Macroeconomists tend to forget that. Indeed, when the economies of China and other Asian countries awoke, world production was undertaken by previously idle production factors. Putting people to work in these countries was bound to increase world production. An analogy may serve to drive this point home. If one looks at the household income of a particular family and notices a sizeable increase from one year to the next, might it not be due to the wife’s returning to the labour market after a few years at home raising children? The same situation applies with respect to China: previously idle people getting to work–increased production–for little pay–low prices.

The point is that the euphoria was intensified by the neglect of this factor, which was a one-time phenomenon spread over a limited number of years. Had policy-makers in the United States been more humble about their accomplishments, expectations about the future might have been more realistic. In the words of Warren Buffet, “The whole country was involved in a fantasy.” But while Buffet argues that “when there’s a mass delusion, you can say everyone is to blame,” he neglects to add that few if any policy-makers were willing to come forth with words of caution, perhaps because they were too busy using their skills and prowess to play the public relations game.

Monetary policy was very accommodating between 1995 and 2006. As inflation remained low, and economic growth was the main objective, policy changes were not deemed necessary. Yet we now know that this policy was fuelling serious anomalies in certain sectors of the economy, in particular mortgage markets and the construction industry. Increases in asset prices in the real sector of the economy, such as housing and commercial real estate, as well as in the financial sector, such as the stock markets, should have been an indicator of an inflating bubble. Yet for the vast majority of people, both in the United States and elsewhere, income growth and rising asset prices were creating a wealth effect, further feeding the delusion. Indeed when people saw the value of their homes going up at the same as their holdings in the market, they felt richer, with consequences for their imprudent consuming and borrowing habits.

In summary, from 2002 onwards, expectations about the future reached euphoric levels, fed by accommodating policies, over-optimistic policy-makers and the sense of getting richer as the value of assets increased.

I do not intend to make much of this issue, as replaying the past is fruitless. But I have criticized policy-makers for their blind belief in skills they do not fully possess and for their failure to recognize the major contribution of China and India and other rapidly growing less developed economies to a new state of the world. *This leaves the question as to why policy-makers acted as they did.* Or, to use Buffet’s terminology, why did so many people suffer from delusion, and why did policy-makers not offer some words of caution?

FINANCIAL REGULATION

Historical background

Financial regulation has played a crucial role in shaping the behaviour of financial institutions, especially in the last 25 years as changes have occurred in the scope, nature and process of regulation. As in the previous section, I will not review all of the elements but will highlight those that are less frequently discussed and that appear to be the most relevant.

The international umbrella for bank regulation is the three-phase Basel Accord. Basel I was finalized in 1988 and implemented by various countries in the years following. Basel II, a modification of Basel I, was implemented in 2004. Basel III is a work in progress.

Following the failures of a German bank and an American bank in 1974, central bankers recognized the importance of ensuring that banks have sufficient equity to withstand a shock to their credit portfolio. Basel I mandated that a ratio of 8% of risk-weighted assets be held in capital (common equity plus certain types of preferred shares). For the purpose of weighting, the assets were classified into various risk categories. A government bond would carry a weight of zero while a corporate loan would be weighted 100% and mortgages 50%. Thus a corporate loan of \$1 would require 8 cents in capital while a mortgage would require 4 cents. Basel I addressed credit risk only.

Basel I was soon recognized as a rather crude and inefficient set of rules. In particular, regulatory capital, mandated by the Accord and based on the risk-weighted assets, and economic capital diverged. A loan to Greece was weighted the same as a loan to Canada, and a loan to Proctor & Gamble had an identical weight to a loan to a mom-and-pop operation. This led to regulatory arbitrage; banks would trade assets in the same risk category, exchanging those that had a lower yield for those with a higher yield. Clearly, a loan to a mom-and-pop operation carries a higher interest rate, but since it requires no more capital than a loan to Proctor & Gamble it is advantageous to exchange one for the other as a way of boosting profits and return on equity. Consequently, Basel I initiated many banks into the world of trading, as they could see the advantage of buying and selling loans to improve their situation while still conforming to the mandated capital requirements.

Basel I also brought a new trade: **securitization**. This became a new source of funding for banks, especially as they could package their loans or mortgages into a trust; the loans

would then serve as collateral for the **securities** issued by the trust. These securities represent a portion of the total loans packaged. So, again, a bank, instead of adding to costly common equity – a mandated prescription if the bank wishes to grow – can sell loans through securitization. The ABCP (assets-based commercial paper), famous for Canada’s participation in the financial crisis, is an example.

FROM THE WIZARD OF OZ TO FRANKEINSTEIN?

The objective of a sounder financial system grounded in adequately capitalized banks is a simple and attractive idea. It became a universal proposition. A sound financial system and adequately capitalized banking are well-intentioned objectives. However, the implementation has been full of intricacies, contradictions and perverse effects. Basel II is a good example. And, as we shall see, Basel II is the foundation of the financial crisis!

Basel I led to Basel II because of the crudeness of its armature. It also created markets for securities based on assets as a way of minimizing the impact of capital requirements. Basel II became a sophisticated apparatus with the noble aim of promoting the soundness of the financial system by maintaining the level of capital in the system and the implementation of a supposedly **better** approach to risk measurement.

Indeed banks and regulated financial institutions were now subject to a three-pronged approach: (1) risk, now subdivided into credit risk, operational risk and market risk; (2) guidelines for national supervisors; and (3) disclosure standards – more transparency in financial reporting.

The measurement of risk is still the cornerstone of capital adequacy. Three different approaches have been suggested, but for our purposes the most relevant is A-IRB, or advanced internal risk-based. Banks can now use their own internal models to assess and measure risk. That led to widespread use of the VaR (value at risk) analysis; VaR is a measure of the value of loss on a portfolio of risky assets; it is the value such that for a given probability the portfolio will decline by more than the given amount within a specific time horizon. For example, if the VaR is \$10 millions for a month at a 95% confidence interval, it means that there is only a 5% chance that the loss will be greater than \$10 millions over the month. VaR became the ultimate tool, to the delight of consultants and finance specialists who implemented the modelling in financial institutions.

This approach has great benefits; it has imposed a structured methodology on banks in their thinking about risk. All the financial exposures are categorized and brought into the model; that allowed for the various types of financial instruments to be assessed against each other. Better risk planning and asset management would follow.

Eliminating diversity

The universal adoption of VaR methodology had serious consequences. The virtue of competition is that it offers consumers a variety of different products. However, as the world is complex and not reducible to a few set of rules, the social outcome is that the failures are borne by those who have not adequately provided efficient products. Strategy 1 succeeds and strategy 10 fails; those who provided strategy 10 are losers and must bear all of the social costs.

The reliance on VaR has greatly homogenized the behaviour of both regulators and financial institutions. Thus everybody behaved in the same way, playing a game that is far from a typical market approach. Behaviour became convergent, reinforcing, to an extent never before seen, the herd mentality that is prevalent in the financial sector. The herd mentality is explicit or implicit imitative behaviour; banks copy each other so as to appear equally profitable. Using the same model led to convergent strategies. It is no surprise that most of the top 10 banks in the United States were technically bankrupt at the same time and had to seek relief during the recent crisis; market discipline failed.

The source and magnitude of the crisis had indeed produced various offspring, all perverse effects of regulation.

For instance, because securities were treated differently from direct loans, it became more lucrative for a bank to hold mortgages it issued in the form of securities than to treat them as direct loans. Under what is known as the recourse rule, mortgage-backed securities rated AAA or AA received a weight of 20% – lower than an “unsecuritized” mortgage, which has a 50% weight. Since the mortgage-backed securities had a better yield than an AAA bond from an industrial company, an immense appetite was developed for such instruments; the lure of lower capital, hence higher return on equity and greater profit, was a powerful regulatory carrot. The irony was that in 2007 there were only three US companies with an AAA rating, while from 2003 onwards there were more than 37,000 mortgage-backed securities rated AAA. In the event of a default – say, by General Electric – the whole production and sales apparatus of the company is backing its AAA bonds, while defaults from the residential property market had nothing but the value of the houses to serve the securities.

. . . and a poisonous epidemic

Securitization contained a yet more poisonous pill: systemic risk. Systemic risk occurs when the problems of one institution have a cascading effect on others. The strong interconnection of institutions is the main cause of systemic risk; a problem with a single institution will spill over into the system as a whole. This is alarming enough, but the problem was compounded. When a loan is made to an individual, the originating bank

ensures that its ancillary elements, such as the income of the borrower and, in the case of a mortgage, the insurance and tax payments on the house, are properly verified. With securitization, if the originating bank does not hold a portion of the loan it has little reason to be diligent in verifying loan conditions; risk is not only spread from the bank to the system, but it changes in nature and magnitude because of misaligned incentives. The underwriting of these securities is not as diligent. And as the yield-enhanced securities were extended from mortgages to car loans and, especially, credit card receivables, the induced systemic risk became magnified. We know that this was the main contributor to the financial crisis itself and to its magnitude. Yet regulators and public officials did not foresee it, in spite of warnings, known irregularities and abuses. In the April 2006 issue of its monthly *Global Financial Stability Report*, the International Monetary Fund stated: “There is a growing recognition that the dispersion of credit risk by banks to a broader and more diverse group of investors, rather than warehousing such risk on their balance sheets, has helped make the banking and overall financial system more resilient. . . . Consequently the commercial banks may be less vulnerable today to credit or economic shocks.”

While the mind-boggling intricacies of the securitized vehicles commanded attention – or devotion – old-fashioned boot-and-blister research would have been quick to notice the degradation of underwriting standards, as many people did as early as 2005.

Regulatory failure and the capture theory

The two preceding sections have pointed out a major regulatory failure. Basel I, with its imperfections, was corrected through Basel II – a monster of sorts. And Basel III will see more tinkering still. The rational mind never quits and does not learn much from past mistakes.

While the international regulation of banks was flawed, national regulation is not without problems of its own. For instance, some of the regulatory standards were relegated to rating agencies that are in a conflict of interest situation and are the facto an international oligopoly. The agencies are paid by those who issue securities; as the demand for securitized mortgages exploded because of the recourse rule, the credit agencies had a lucrative market, which may have contributed to further leniencies.

The rules and practices of regulation are conceived of in a more or less closed and non-transparent forum by national regulators and central bankers in close consultation with the industry. These parties tend to favour rules and measures that help them to avoid what

could be perceived as arbitrary decisions and pay little attention to behaviour. The underlying thesis of this paper is that the behaviour of the industry conditions outcomes and that no matter how tight or well intentioned the rules may be, the end result is greatly influenced by the actors who are regulated.

While Basel I created the incentive to securitize, Basel II created incentives to do so in a more complex and less transparent fashion.

There is about regulation something called the capture theory. According to this theory, regulation ends up being tailored for the benefit of the regulated. This theory has deep intellectual roots, both on the right and on the left. It is an old concept that seems to prevail because the incentives to convince are tilted towards the regulated due to the economic payoff and their resources.

This theory is generally dismissed by regulators, who are usually bureaucrats attracted by the intellectual coherence of rule-setting. They deny that they can be influenced, as if bad intentions were being imputed to their motivation. But regulators owe their existence to regulated entities, and whatever they do in terms of frameworks must be to the liking of the industry. Also, rule-setting is only half the solution; implementation and supervision is necessary; rules makers tend to ignore or neglect that.

At any rate, in the case of the transition from Basel I to Basel II there is ample evidence to indicate that the major international financial institutions played a key role. From the initial proposals for Basel II in 1999 to the final documents in 2004, many modifications were made favouring regulated institutions. This is illustrated by the reliance on internal models for measuring risk (models will be discussed further in the next section). One of the aims of the 1999 declaration was a willingness to maintain levels of capital in the financial system; no measures were presented for ensuring this – it is no wonder that, in spite of the growth of financial institutions, capital decreased for many global financial institutions. Finally, while the main motivation for “improving” upon Basel I was the arbitrage between economic capital and regulated capital, Basel II may have exacerbated the problem by treating market risk differently and practically excluding the trading book of banks; it also favoured securitization by appreciably reducing the capital requirement of off-balance-sheet items.

The bottom line on this issue is that regulation is at the source of the behaviour it induced in industry participants who have, in turn, made representations to tilt many of the regulations in their favour.

Public officials, attracted by a tidy and coherent system founded on sophisticated financial analysis of great intellectual appeal for its ability to quantify risks with few numbers, produced the behaviour that is at the root of the crisis. In that sense, markets

have functioned very well; indeed, market participants have reacted rationally and predictably to the set of incentives presented to them. Hence regulatory failure! Regulation has induced a set of behaviour which defeated its own purpose.

Many people view the financial world through a moral lens, decrying greed and self-interest. Should we blame the horses for going out of the barn if we put the hay outside? Would it not be easier to recognize that this was a case of regulatory failure and then draw the appropriate conclusions? Unfortunately this is not how the world works. The self-interest of regulated institutions, mixed with the appeal of ruled-based, measurable regulation by bureaucrats convinced of their intellectual prowess, is running the show. It comes as no surprise, then, that the meetings of the various Basel committees are held in secret, with little transparency even after the fact.

FINANCIAL INNOVATION AND RISK MANAGEMENT

An intellectual breakthrough

From the mid-1960s through the late 1970s the foundation of what is still referred to as modern financial theory was developed. This theory opened up a new world in academia; the transfer of this innovation to industry was as rapid as it could possibly be – a rather unusual development. For many people, this new approach to the analysis of capital markets and securities pricing was the most important innovation in economics of the 20th century. At least eight Nobel prizes in economics were bestowed on individuals who made a contribution in this field.

Before that time, analysis of financial markets was described by means of intuition and impressions. Certainly rational behaviour is not new to capital markets, but there was no comprehensive set of theories to explain and describe markets and the value of securities. New concepts were developed and the application of these theories to decision-making by market participants created a field of expertise that became standard for the financial industry as a whole.

The world of finance has always been viewed with apprehension by the layperson. Within companies, finance managers are a little apart, with their specialized knowledge and their buzzwords, their trade not only firm-specific but also industry-specific – perhaps even more so. The new, modern theories have served to widen the gap. Even within academia, the shock was so great that it still lingers. A knowledge gap was created. Within companies, the new expertise is still confined to a subset of individuals. Imagine a CEO with little expertise in the world of finance attempting to coordinate the roles of the various experts in his company!

The gap still exists, even within companies situated in the world of finance. Major banks and insurance companies have had to integrate the new knowledge, as it became necessary for serving customers and as a source of revenue and profit. The cultural clash provided opportunities but presented its own set of problems. The proliferation of complex financial products was an increasing source of revenue and served to magnify the aura of this new trade. I would even argue that a form of intellectual arrogance and hegemony developed, with these new experts, or heroes, frowning upon the rank and file who were serving customers with traditional products such as credit or insurance. And heroes they indeed were, because they provided the world with an array of forms of capital mobility and versatility and because of the profits they were able to generate. But

they were arrogant heroes, these educated people playing with difficult, intellectually rewarding concepts, forming a club and placing their loyalty to their trade above their loyalty to the company that employed them.

From knowledge to voodooism

The implementation of these new theories was not without its own difficulties. It led to opportunism, malpractice and various hiccups that have cost some companies dearly. Systemic disaster was flirted with in 1998 in the case of Long Term Capital Management (LTCM), a hedge fund whose participants included two Nobel laureates. The fund was market-neutral and was essentially arbitraging bonds that were almost identical – a 30-year Treasury with 30 years to go and a 30-year bond with 29 years and three quarters before maturity; in spite of being “identical,” sometimes they were priced differently by a small amount. Buying one and selling the other would generate a modest profit – but leveraging the position could turn a small profit into a large one. This strategy hinges on the convergence of values. Unfortunately for LTCM, its bets on convergence of foreign debt were dealt a blow by the Russian crisis of 1998; to cover some of its losses it had to sell securities in a turbulent market that had dried up. With a leverage of 30 to 1, a loss in position attacks equity quite soon. This case illustrates the limits of these new capital market theories. We saw the benefits earlier on, but there are limits that the best and brightest in the financial world had not foreseen. The \$120-billion failure of LTCM shook the system but concerns raised about this type of venture were hastily dismissed.

It is worth noting at this point that modern modelling has sometimes been misused and on many occasions has replaced judgement. This is an important observation full of managerial lessons. Uncertainty cannot be eliminated or arbitrated away. This is a basic lesson from history, and some people – albeit too few in number – have not lost track of it.

Canada had its own market failure with Asset Backed Commercial Paper (ABCP), a sophisticated, structured financial product. All but one of the Canadian banks participated in that market as originator and as distributor through their securities subsidiary. The Toronto-Dominion Bank deemed the free lunch offered by having a higher yield with the same risk as a probable deception. It did not participate in that market, which was already quite lucrative for its competitors. In this case, judgement and comprehension most likely preceded modelling.

The foundation of these theories is also limited. This does not mean it is invalid or useless. The generalization of the practice within the financial industry brought comfort to managers, accountants and auditors, and to board members as well; a single number (VaR) can reflect the risk of a portfolio.

The limits were known to a few and not communicated to the many. A well-known 20th-century mathematician, Benoît Mandelbrot, raised the matter convincingly: “We have been mis-measuring risk.” The distribution of stock prices does not follow a pattern that

can be described by normal distribution, or the bell curve, yet the normal curve is the basic assumption of most risk calculations used to produce VaR. It is contradicted by the facts. For instance, according to the normal distribution, a variation of 3.4% of the stock index should not happen more than 58 times in 87 years, yet it occurred 1,001 times between 1916 and 2003. On October 19, 1987, the index lost 29%; the probability of that happening is 1 divided by 10 with 50 more zeros. On August 31, 1998, during the Russian crisis, the index fell by close to 7%; if you trade every day for 100,000 years, you would not expect to witness such an occurrence. The point of these examples is to illustrate that while the normal curve is adequate for small variations, it grossly underestimates the probability of rare events. These rare events are far from the mean, and from an economic standpoint they tend to have enormous consequences. They are called *fat tail* events.

So while risk is measurable and manageable in most circumstances, it is not so for rare events that occur more often than postulated; consequently we are ill-prepared for these extreme loss events. The financial crisis obviously fell into this group of unforeseen events.

It is worth repeating that the mathematical complexity and sophistication underlying risk measurement make it difficult for CEOs and board members to appreciate the recommendations of those in charge of dealing with these products. The assumption of normality has caused these managers to offer false assurances.

A system lesson for managers

Managing is dealing with the future; decisions taken today, following assessment of current market conditions, will affect actions implemented tomorrow under a different set of market conditions. The illusion of the rational mind whereby “everything has been considered” is often a prescription for disaster. Bounded rationality is a good description of the management process; decision-making is limited or bounded by the information available, time constraints and cognitive ability.

From time to time, the illusion that we *finally know* creeps into management and economics. It could well be that economists play a crucial role in propagating this illusion. This is certainly the case with modern finance theories. Seemingly, everybody acts independently of each other, as it should be. However, when most agents use the same rule book, they create an environment that induces interdependencies. When such interdependencies are significant, there is a system effect. A loss – or a gain, for that matter – incurred by one agent induces a loss for other agents. This is what is referred to when some institutions are designed to be too big to fail. Interdependencies occur frequently in markets that are oligopolistic. Because an oligopoly entails few companies,

interdependencies are inevitable; this may explain why there are cycles of boom and bust in the real estate industry.

The financial industry is an oligopoly; there are entry restrictions, regulation is specific and comprehensive, and rules tend to apply universally. There is likelihood that collusion will be the outcome in the industry. One particularity of financial companies is that they explicitly discuss prices charged to customers. In most industries, this is forbidden by anti-trust laws. Indeed most financing deals are made with bank syndicates, where information about a given client is exchanged and where terms and conditions of the financing package are explicitly discussed.

In an oligopolistic market, collusive behaviour creates a rent that can be extracted from the rest of the economy; a rent is a form of permanent profit that is immune to competition. And because of there is rent, remuneration will be excessive. The explosion in banks' profits and managers' remuneration bears out this presumption or conclusion. Add the asymmetry of information between users of financial products and banks (managers of financial institutions know much more about the products they sell) and the presumption becomes even more plausible.

There is another point worth noting. I stated above that managing is about dealing with the future. The VaR models look at the future through a rear-view mirror. They calibrate the risk assessment by running the models backward to assess probabilities and to stress-test their conclusions. The distribution of profit and loss on a financial instrument is based on past observations. If the world were to remain stable, that would be reasonable. But conditions change over time for many reasons, including regulation; therefore the observed reaction to past events does not proceed from the same behaviour at each point in time. Thus past observation is not a good indicator of future behaviour. This is known as the Lucas critique. Hence, the future is not what it used to be.

Let us now summarize this section. Over the last 40 years the world of finance has witnessed a major innovation in the way that financial institutions compute risk; risk has become measurable and manageable. This innovation was an intellectual revolution and it was adopted by regulators and auditors as well. Unfortunately, the limits of the new modelling were gradually dismissed or ignored, conveying a sense of false security to most market participants. Many of the sophisticated financial products that became so prevalent in the period 2000 to 2007 were developed in that context. The surge in the creation of the new complex financial products reinforced the oligopolistic structure of the financial industry because information about these new products was not shared equally between financial firms and their clients. It probably increased the economic rent to the industry, allowing for large increases in profits and remuneration.

ORGANIZATIONAL DIAGNOSIS

This final section takes a more in-depth look at financial organizations. Up to now I have argued that a sense of euphoria prevailed based on the economic environment, with good growth and low inflation; policy-makers became rather complacent and pursued their expansion policies. In this environment many regulatory changes to the world financial industry were adopted. These changes placed a heavy reliance on common equity related to risks for financial institutions. The international banking world had a great deal of influence over the rules under which they had to operate. This led to practices designed to minimize the impact of the rules on profitability. In particular, through securitization banks were able to create and to dispose of some assets that turned out to be in high demand due to their relative regulatory attractiveness.

The regulation of banks also reinforced their oligopolistic structure, increasing their market power and their ability to generate increasing profits.

Thus, by shedding assets, banks were able to make the train lighter so that it could go faster, and greater speed meant increased profits. A look inside financial institutions will reveal how they organized themselves to make this happen.

The remuneration structure

A controversial yet popular idea with respect to the remuneration of managers evolved in the early 1970s. Managers are not owners; if their interests are aligned to those of the owners a better performance would result from the managers' actions

Incentive-based compensation became standard. Bonuses based on performance and stock options are the cornerstones of this alignment principle.

Stock options are relatively straightforward. The value is related to an objective measure: the price of the underlying shares in the stock market. The price of a share can go up because the market in general goes up even if the company underperforms in relation to its competitors. Let us leave that criticism for now.

Performance is trickier. It requires some form of comparative measurement. The measure used can be internal, such as year-over-year metrics, but an external component is also necessary. Benchmarking is the process usually referred to. Originally benchmarking was

used to compare one's performance to the best, but it can also refer more simply to comparing one's performance to the industry-market share or the median. A financial institution usually comprises different divisions, each serving its own market. In a bank, for instance, you have corporate loans, the bond market, deposits and so forth; division managers have their own performance criteria based on the market they serve. Bonuses and options can also be tailored to the overall performance of the company; this is the case as you move up in the hierarchy. The irony is that some managers receive incentive remuneration for doing well in their own market while the company may have had disastrous results overall; incentive remuneration prevents good performers from being attracted by competitors. Incentive remuneration is a fixture of the financial world and it is not uncommon for the rules or goal posts to be changed along the way as managers strive to improve their pay conditions. In banks, insurance companies and with investment managers, the financial markets experts fought hard to divorce their incentive compensation from the overall performance of the company where they work. The alignment principle got lost along the way. Hence the loyalty of these experts to their trade ahead of the loyalty to their company.

In any case, as managers receive incentive compensation based on relative performance, the goal of performing better than the benchmark is crucial. This has two consequences. The first is the tendency to more or less do what the others are doing so as not to fall behind, reinforcing the herd instinct discussed earlier. The benchmark or the industry index or the market index brings everybody into a similar position; imitation and use of the same models put everybody in the same boat. Often these wide and sudden swings are typical of the convergence discussed above. It is almost a case of *panic buying*.

The second consequence is the home-run syndrome. Incentive remuneration tends to be associated with great rewards relative to one's base salary: a very good performance will be associated with a large payment, while a small improvement over the index or benchmark will pay little. Thus, to achieve this great reward is to undertake more risk, or to occasionally hit a home run; a simple first-base hit does not carry much weight and a strike-out entails no penalty. So fat cats will not see fat tails!

The remuneration of brokers and investment bankers also has perverse effects. It is based on transactions being completed, whether these be purchases or sales. Thus the more transactions or deals one completes, the greater one's profit. So why worry about the underlying validity of a security being sold or bought if a transaction can take place? In the frenzy and euphoria that led to the explosion of structured investment vehicles, especially mortgage-backed securities, the soundness of the security, particularly if it received an adequate rating from an external agency, was of little interest. Unfortunately, these structured investment vehicles were not confined to mortgages, further intensifying the interdependencies during the financial crisis.

Options and pay: How much is too much?

The one-sidedness of the remuneration structure described above is not very different from that of options reserved for top managers – if the company wins, you win as well, but if the company loses, you do not. Again, there is a powerful incentive to take greater risks, as there is no penalty for failing. All that can be said is that one would be richer if things had gone well. And indeed sometimes options do not pay out. Over the past 15 years, however, they have been fairly lucrative for the top managers in the financial industry.

Outside the financial industry the pay packages of financial managers are viewed almost universally as excessive. And in discussing this issue use of the word “excessive” is fraught with peril. This judgement can be based upon moral standards or ethical points of view. I have found few if any arguments that are convincing. Is it not sufficient to invoke morality or ethics to judge the compensation of financial managers? How much is too much? By what standards, and compared to whom?

Taking home a lot of money should not necessarily be condemned. Take the case of Céline Dion, for example. She is fairly wealthy. She receives her income from performances and perhaps from endorsements. Yet she has made a bundle by enticing people to attend her shows or to purchase her recordings. She is not granted any privileges. People vote for her with their wallets.

The financial industry is regulated and firms are granted privileges. The most important one is a bailout if they fail, which is a privilege that most of us would probably like to have. The privileges have been extended to limit entry from competitors, imposing, de facto, an oligopolistic structure on the industry that creates a rent to be distributed. Up to now, this has caused little controversy.

But the huge payments to financial managers are deemed outrageous. The oligopolistic structure has always existed and did not lead to perceived abuses in the past. So why now?

One might say that because the financial crisis was so severe and imposed such great costs on society, the portion of value added transferred to managers was not justified. This may be true, but it can be stated only after the fact. The huge payouts were also criticized before the crisis occurred, and the arguments are convincing. If payouts are not normal or not justified, they tend to attract talent that may be put to better use in some other industry. In other words, the signals are not appropriate. And this is where we should pause, because it is where the problem lies.

First of all, it is clear that the huge payouts induced financial managers to play the game to such an extent that a crisis situation resulted. If somehow we could have changed that behaviour beforehand, maybe the disaster could have been averted. This point of view suggests that behaviour is responsible for the predicament the world has been in since 2008. So, in a sense, if remuneration had been reduced and/or better aligned, the world would be different today. This is a difficult question, fraught with the perils of the rational mind. For instance, some argue that had the bonuses distributed had a claw-back feature over time, incentives would have been better aligned. I am afraid that this would not have been enough, as the timing of the period during which bonuses or options are paid out cannot be set in advance. I would even venture to say that the pressure exerted by self-interested managers would have circumvented these obstacles.

So the size of the payments to managers exacerbated the crisis. Managers played the game and devised a remuneration structure to take advantage of it. So the issue boils down to the following question; *why was there a game?* I have argued that regulation failed at a high level. The Basel framework unifies the central bankers and the world's finance ministries. It is a non-governmental framework lacking in disciplinary power. But it provided for a set of incentives that led to the proliferation of the financial instruments at the root of the distortions described above. Had these incentives been different, one can guess, the game would not have been the same.

The public officials that each nation delegates to the Basel environment are connected to the national regulation of institutions incorporated in their countries. Each country is, in practice, responsible for what goes on within its own national environment. This is where we should point the finger. Signals were misdirected, as was recognized in the early to mid-2000s. The financial industry was bloated and underwriting standards had deteriorated. Which brings us back to my first question: Why have policy-makers turned a blind eye to the problem?

CONCLUSION:

SHOULD WE EXPECT MORE OF THE SAME?

To many observers the lessons of the crisis have been quickly forgotten. The financial institutions so crucial during the crisis became instrumental in the transmission to the economy of the measures taken to restore growth. Indeed nothing has happened except new tinkering with securities, disclosure and governance legislation. The game is still being played, but perhaps it is being played with more rules. I doubt that additional rules will have any effect other than, perhaps, to reinforce the tight and closed structure of the industry.

The conclusion I have reached may not be very appealing. But just as it took more than 40 years to understand the forces that led to the Great Depression, it will take some time to fully understand the recent crisis. But let me point out a few ideas currently being examined:

- *Too big too fail may be too big.* Indeed, given the high degree of innovation in financial markets introduced through risk measures and securitization, it is possible that markets would function better if large institutions were not intertwined in an oligopolistic structure. And certainly as fluidity and ease of transaction have increased appreciably the size of any given institution is secondary to the depth of the markets.
- *Separation of trading and deposit-taking.* While the proposal would confine and limit the scope of some institutions, deposit-taking institutions should have access to bailouts because they are crucial to individuals and businesses. Hence, they should be forbidden to risk their capital in trading. This proposal was well regarded initially and again fluid markets can cope with this constraint as the experience of 70 years under Glass-Steagall has shown.
- Those more vociferous today against this rule and its territorial application are public official and central bankers of various countries afraid that the liquidity of their

government's debt might be impaired. It looks much like having your cake and eat it to; but more importantly, it fails to recognize that the current institutional set-up under this rule will change and other arrangements will spring up to deal with this issue.

– *Winding down.* If large institutions cannot be allowed to fail, then why not “wind them down”? This means that shareholders and managers are pushed aside in favour of an administrator who collects what is due and pays what is owed, with the deficit being covered by the public purse. If this becomes standard it might reduce the liquidity problem during a crisis or shock as financial would keep on trading with each other as they have the certainty that their lending would be reimbursed.

– *Rules versus discretion.* We have seen that rules can lead to aberration. I adhere to this point of view in general, even for internal company governance. Discretion forces one to look at the end result and at behaviour instead of simply complying. This, by the way, could resolve a serious problem we currently have with corporate governance, where the emphasis is placed on oversight and too little attention is given to insight. In Canada, the regulation of financial institutions puts the emphasis on discretion; there are some rules, but auditing and due diligence by the regulators have also looked at behaviour with a view to modifying it on occasion, even at the expense of being accused of arbitrary decision-making.

– *More reliance on national regulation.* Let countries compete for the regulation of financial institutions instead of mandating a framework that puts all financial institutions on a so-called competitive footing. With the proposed approach, decision-making would be assigned close to where the responsibility lies. Citizens feel helpless with respect to the current situation because they do not know who is accountable. Usually our political system gives voice to the recriminations, but little has been done in this regard. The situation in the United States is certainly not promising, but we are only in the first inning in terms of political reaction. This raises two crucial points. The first one addresses the foundation of democratic representation; as earlier said international regulations is designed in great part by non elected officials of various countries making their own compromises among themselves. The aftermath of the recent financial crisis have shown us that one cannot isolate regulatory policies from monetary and fiscal policy. The various measures implemented to deal with the consequences of the crisis due to regulatory problems had huge consequences on debt, taxes and monetary conditions. The second observation deals with the consequence of the first. Countries that have adhered to the international set of rules have suffered from the spill-over of the crisis.

They may want to insulate themselves from future contamination. If the thesis of regulatory failure is adequate, one should observe some countries distancing themselves from the international consensus inasmuch as there is one. And indeed this is what is happening. For instance, Singapore insists on mandating the clearing of derivatives involving a party based in its jurisdiction. Dodd-Frank is a made in America solution that conflicts with many proposals originating from the G-20. Some of the EU proposals for hedge fund managers might force them to move away from Europe. This point can be summarized easily: harmony and domestic interest do not always move in the same directions.

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EPILOGUE

One other conclusion can be drawn. In my introduction I argued that there is no one single factor that induced the financial crisis. A perfect storm is the coincidence of many factors. But is the financial crisis a perfect storm? Or, are these factors not the result of a framework ill conceived and badly implemented?

Good times fed the mood of confidence and euphoria; increases in asset prices – housing and stocks – led people to borrow against them to increase their well-being, adding to the expansion. Bigger and more numerous houses fed the appetite for the mortgage-backed securities that were so palatable for banks under the regulatory regime. Brokers doped up on transactions encouraged the proliferation of these instruments. The motivation for huge bonuses fed the frenzy; financial models induced a false sense of security and allowed for the development of more financial instruments, transferring to society many risks that should have remained private. Herding and convergent behaviour contributed to the building of a substantial bubble, to which policy-makers turned a blind eye – perhaps because they were following the same model as market participants.

Looking at these intertwined causal factors begs the question *What is to be corrected?* I have argued that it was a case of regulatory failure establishing the incentives for market participants to act in a socially reprehensible way. Few people are voicing this argument. They prefer to tinker with remuneration, with financial models to account for fat tails, with governance rules (again!), with securitization rules and so forth. But I contend that if you put the hay outside the barn, you can hardly blame the horses for finding a way to get at it.

Unfortunately, the Basel III design and various national regulations have a sense of déjà vu all over again. More complex rules based on the credo that tinkering with a multitude of financial instruments and corporate behaviour is rendering the management and assessment of compliance extremely difficult and ultra-specialized. This will reinforce the oligopolistic structure of the industry by increasing concentration and limiting entry. Too big will become bigger and regulators once again will be a step ahead in design and two steps back in monitoring and assessing behaviour.