THE ROLE OF ADJUSTABLE-RATE SUBPRIME MORTGAGES AND CREDIT DEFAULT SWAPS IN THE GLOBAL FINANCIAL CRISIS

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Abstract: This study focuses on three key areas where excessive risk taking created systemic vulnerabilities and thus contributed to the current crisis. The first was the awarding of high-risk adjustable-rate subprime mortgages to people with limited abilities to pay them back. The second was using the same high-risk mortgages as collateral for new borrowings in the form of mortgage-backed securities (MBSs) and 'collateralised debt obligations' (CDOs). If the subprime mortgages defaulted, the securities funded by those mortgages would also default. The third area where excessive risk taking took place was in the trading in credit default swaps, essentially unregulated insurance on debt. Trading in 'naked' credit default swaps, in particular, added considerably more risk to an overleveraged system by significantly magnifying potential liabilities especially for providers of insurance who did not hedge their sales.

Introduction

The current financial crisis has adversely affected output, employment, income, pensions, savings and the quality of life. Many people have become jobless and many families homeless. Consumer spending – a key driver of economic activity – slowed down. As one observer has it:

> Between 1 January and 11 October 2008, owners of stocks in U.S. corporations had suffered about $8 trillion in losses, as their holdings declined in value from $20 trillion to $12 trillion. Pensions invested in share market lost approximately a third of their value. Losses in other countries have averaged about 40%.[1]

The global banking system has recorded write-downs of more than US$2 trillion.[2] The crisis exposed a range of weaknesses within the regulatory framework of the financial system. There is a need for better crisis management and for restructuring the regulatory framework governing trading in the financial system.

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As the current crisis started in the United States, any analysis of what led up to it and how it can be avoided in the future must begin, although not necessarily end, in America. Factors that contributed to the current crisis included excess liquidity in the US financial system, resulting in excessively low interest rates,[3] delay by the then Chairman of the Federal Reserve, Alan Greenspan, in containing growing bubbles in the credit and housing markets, the US government policy of promoting house ownership among those who could ill afford it, legislative changes that led to lax lending standards and predatory lending practices, failure by some brokers to alert borrowers to the high risks of adjustable rate mortgages, excessive lending by financial institutions, excessive borrowing by consumers, businesses and governments, misleading or inaccurate assessments of the quality of securities by rating agencies, conflicts of interest,[4] high levels of personal, corporate and government debt, misalignment of the interests of company executives and shareholders, absence of legislation separating investment and commercial banking, and excessive speculation, particularly in the form of trading in 'naked' credit default swaps (CDS). Risk also increased dramatically as a result of excessive leveraging (borrowing).

One important issue that needs to be addressed is whether debt can with justice serve as collateral for other debt. A substantial degree of risk exists about the quality of collateral in the form of debt. The collapse in the values of financial assets (mortgage-backed securities) was caused directly by the collapse in the value of the collateral backing them, subprime mortgages. This supports the view that it is risky to borrow against weak collateral such as subprime mortgages.

Deregulation

'Regular' means 'stable' and 'predictable'. Compliance with good regulations makes life more secure. Regulation draws the line between the permitted and the prohibited, between what is acceptable and what is unacceptable. Good regulation reduces uncertainty and promotes predictable behaviour in social interaction. Some feel that there should be few restraints on freedom. Since rules restrict freedom, regulations should be kept to the minimum. It is clear, however, that without regulations, inclusive of laws, humanity would fall into confusion, anarchy, and chaos.

Since 1993 commercial banks in America have provided only 20 per cent of all net lending, with the balance being provided by the 'over-the-counter' (OTC) or 'shadow' banking system.[5] The OTC financial derivatives market is currently valued at approximately US$600 trillion. Interest rate swaps amount to $US400 trillion, credit default swaps make up approximately US$62 trillion, and equity derivatives amount to US$8 trillion.[6] The total amount of debt in the world, by contrast, is about US$39 trillion. Global GDP is approximately US$55 trillion.[7]

Deregulation added a great deal of uncertainty to an already opaque OTC market. In 1999, under pressure from representatives of the financial industry, President Bill Clinton repealed the Glass–Steagall Act, originally passed in 1933. "In retrospect," Paul Krugman observed, "this was surely a move in the wrong direction."[8] The Act separated less risky commercial banking, from the higher risk, unregulated investment banking. Prior to its repeal, the Act prohibited investment banks from taking deposits and making housing loans. Deposits in investment banks, unlike deposits in commercial banks, were not insured by the government. Commercial banks, unlike investment banks, could not sell insurance or borrow by selling bonds. Under the Act, investment banks were not able to borrow emergency funds from the newly established Federal Reserve, using its so-called 'discount window', a facility available to commercial banks. In 2000, former president Bill Clinton signed into law the Commodity Futures Modernization Act, which effectively prevented the Commodity Futures Trading Commission (CFTC) from asserting any authority over the 'shadow' over-the-counter banking system. The Financial Industry Regulatory Authority (Finra) left the over-the-counter market unregulated on the grounds that "bankers could be trusted to regulate themselves". The argument that freedom is necessary for innovation carried the day. Privately owned credit rating agencies such as Standard and Poor's – paid by the same financial institutions they rate – failed to alert federal regulators to systemic risks developing in the industry. A number of rating agencies assigned an AAA rating, signifying investment grade, to securities that were collateralised to a substantial degree by risky subprime mortgages.

The OTC or 'over-the-counter' banking system is made up mainly of hedge funds, pension funds, insurance companies, and investment banks. The OTC or 'shadow banking' system performs functions similar to those of the conventional banking system yet remains largely unregulated. The absence of regulation in the informal, over-the-counter financial derivatives market, where trading parties deal directly with one another without any financial intermediaries such as clearing-houses or exchanges, allowed excessive risk taking to take place on a large scale. Taking on far too much debt in relation to shareholder funds overleveraged many companies. Bosses were paid for making their companies bigger, not necessarily better. Mergers and acquisitions were paid for in large part by borrowed money. Financial institutions took on excessive risks and, in the absence of regulations, made commitments they were eventually unable to meet.

Financial derivatives, securities whose value depends on the value of another asset, generate enormous profits on Wall Street but remain opaque to investors. This opaqueness, due in part to the inherent complexity of these instruments, dramatically increased uncertainty. Leading financial derivatives expert Satyajit Dass observed:

> It is not clear why increasingly complex and opaque products are needed other than to increase risk and leverage as well as circumvent investment restrictions, bank capital rules, securities and tax legislation […]. The unpalatable reality that few, self interested industry participants are prepared to admit is that much of what passes for financial innovation is specifically designed to conceal risk, obfuscate investors and reduce transparency. The process is entirely deliberate. Efficiency and transparency is not consistent with the high profit margins on Wall Street and the City. Financial products need to be opaque and priced inefficiently to produce excessive profits.[9]

In the OTC market, no third party, such as a clearinghouse or an exchange, regulates transactions between counterparties. There were no minimum capital, margin or reporting requirements. There were no limits on the positions insurance companies, hedge funds, mutual funds, and investment banks could take. No lender of last resort was available. There was no way to know the extent of exposure to liabilities, or the degree of leverage (debt), taken on by financial institutions. It was not possible to know whether parties that entered contracts could honour them if and when called upon to do so. Excessive deregulation[10] increased uncertainty. Warren Buffett described financial derivatives, traded in the OTC market, as "financial weapons of mass destruction".[11]

High-Interest Adjustable-Rate Subprime Mortgages

Between 1997 and 2006, prices of many properties in the US almost doubled. Due in part to rising house prices, beginning in 2001, an increasing number of 'subprime mortgages' were extended to lower income Americans. Many bought houses with the intention of reselling them at higher prices. According to one observer,

> [b]etween 2000 and 2007, underwriters of subprime mortgage-backed securities – primarily Wall Street and European investment banks – poured $2.1 trillion into the (subprime) business.[12]

Subprime mortgages were first mooted in the 1980s, but until 1994 they comprised only 5 per cent of all housing mortgages.[13] Because of poor or undocumented credit history of the borrowers, and the higher risk of non-repayment, interest rates on 'subprime' mortgages are higher than on 'prime' mortgages. A subprime mortgage is therefore more expensive to the borrower than a 'prime' mortgage. For the same reason, it is also more profitable to the lender.

Mortgage companies lent money on a large scale, with houses serving as collateral. Lenders waived down-payment requirements. Some mortgages required payment of interest only. Other mortgages gave borrowers the option to pay even less than the interest owing, resulting in 'negative amortisation', where the total

amount owed increased with time. There was poor or inaccurate risk assessment. Subprime customers did not need to show proof of job or income and often did not document having any assets. They were known as *ninjas*: no income no job applicants. Quantity of loans took precedence over quality. Lax lending practices significantly increased the uncertainty surrounding the borrowers' ability to pay back subprime loans. It would prove even more risky to use 'receivables' in the form of mortgage payments as collateral for new borrowing.

Pay practices (commissions) rewarded brokers for selling a particularly risky type of loan, the adjustable rate mortgage (ARM). A distinguishing feature of this mortgage is that the interest rate on it is variable over the lifetime of the loan. The adjustable rate mortgages enable lenders to pass risk – the risk of sudden and large increases in interest rates – on to borrowers. Typically, adjustable rate mortgages begin by offering low rates of interest. 'Teaser' rates, even lower than the initial rates, are regularly offered in the very short term (up to one year), to provide an additional incentive to people to borrow.[14] Such terms make the mortgages appear inexpensive, at least in the short term. Mortgages that were cheap in the short run, however, turned out to be expensive in the long run. After one, three or five years, however, the interest rates on the adjustable rate mortgages are 'reset', often at *significantly higher* rates. By February 2007, there were 7.5 million subprime mortgages outstanding in the United States.[15] Eighty per cent of these were adjustable rate mortgages.[16] Ironically, subprime mortgages were extended even to people who qualified for prime mortgages.

A number of ordinary borrowers did not understand the terms of their mortgages. They were particularly vulnerable to predatory lending practices. Some failed to exercise due diligence and read the fine print. Many assumed that housing prices would keep rising indefinitely. Few expected a collapse in housing prices. The pattern was one of a classic boom and bust.

Due to rising interest rates and overbuilding, the housing boom in the United States began to slow in the fall of 2005. After reaching a 50-year low of 1 per cent in 2004, with inflationary pressures rising in the share, housing and credit markets, interest rates started increasing from June 2004. They reached a 27-year high of 5.25 per cent in 2007, bursting the housing bubble. This triggered a freeze in lending. Rising unemployment compounded the problems for many borrowers. As interest rates rose, the rates on adjustable rate mortgages were 'reset' at higher levels. A growing number of house buyers who purchased houses using these mortgages could not, after initial easy payment terms expired, meet the much higher monthly mortgage payments, experiencing 'payment shock'. Many fell behind and defaulted on their mortgage payments. Due to falling house prices, they could not refinance their mortgages. In many cases, the value of the loan exceeded the value of the house, leaving homeowners with negative equity. Many borrowers simply walked

away from their homes. At the end of 2008, more than 8 million homeowners, one in five mortgage holders, owed more than their house was worth.[17] Foreclosures increased sharply, adding to the existing glut of houses, further depressing their prices. In 2007, 1.3 million US properties were foreclosed, an increase of 79 per cent from 2006.[18] In 2008, 2.4 million properties were foreclosed in the US. The number of properties projected to foreclose in 2009 is in excess of 3 million.

The adjustable rate mortgages cannot be justified for two reasons. Not only because *high* interest rates are (sooner or later) charged on such mortgages, but also because the rates on such mortgages are variable and therefore unknown to both parties. A change in interest rates effectively changes the terms of the contract. Neither the borrower nor the lender knows in advance what rate he or she will have to pay or receive later. This allows a high degree of risk about the future cost (interest) of the loan to enter into the transaction.

Should interest rates rise dramatically, lenders stand to make a windfall, but borrowers face a heavier burden. Millions of families lost their homes due to foreclosures after being unable to pay much higher monthly mortgage payments on their adjustable rate mortgages, which became effective after their mortgages were 'reset' at prevailing rates, which turned out to be significantly higher than the original rates. When interest rates on an adjustable rate mortgage increased, the monthly payments in many cases *doubled* or *more than doubled*.

Securitisation

Securitisation is a way of borrowing by selling securities backed by assets in the form of receivables, such as subprime mortgages. Securitisation started in the mid 1980s. It has been carried out mainly by government-sponsored enterprises such as Freddie Mac (Federal Home Loan Mortgage Corporation) and Fannie Mae (Federal National Mortgage Association),[19] investment banks and hedge funds.

Mortgages extended by finance companies – the originators – were first sold to 'special purpose vehicles' (SPVs), sponsored by private investment banks or hedge funds, or 'government-sponsored enterprises' (GSOs) such as Freddie Mac or Fannie Mae. The SPVs and GSOs then issued bonds (effectively borrowed more capital) collateralised by the 'pooled' mortgages. Bonds collateralised by mortgages are known as mortgage bonds or mortgage-backed securities (MBSs). With the funds obtained by selling mortgages, mortgage-originating companies were able to extend additional mortgages. With the sale of mortgage bonds, Freddie and Fannie were able to raise additional funds to buy still more mortgages and issue more mortgage bonds. The demand for mortgage-backed securities was strong. From 1996 to 2007, the amount of MBSs issued nearly tripled to US$7.3 trillion.[20] Before being taken over by the US government, Freddie and Fannie between them had guaranteed or

underwritten US$4.8 trillion of mortgages, with the rest being underwritten by private institutions.[21]

Freddie and Fannie typically sold the 'mortgage bonds' to investment banks, which resold many of the MBSs to institutional investors, either directly or in a repackaged form, where they were 'pooled' once again with other loans of varying quality, to form highly structured securities known as 'collateralised debt obligations'. CDOs are similar to MBSs, except that while the portfolios for MBSs are invariably made up of mortgages, the portfolios of CDOs typically include not only mortgage bonds but also real estate loans, auto loans, students loans, leases, credit card receivables, corporate bonds, and even parts of previously issued CDOs. Nevertheless, residential mortgages made up approximately 40 per cent of the collateral of CDOs, with subprime and second mortgages making up the bulk of these. A typical CDO is collateralised and funded by between 20 to 500 loans.[22]

While hardly any CDOs were issued in 1995, by 2006 the amount of capital raised by selling CDOs reached US$500 billion.[23] Securitised debt surpassed bank lending for the first time in 1998.[24] Between 1980 and 2008, securitised debt increased 50 fold, compared to a 3.7 fold increase in bank loans. During the same period, approximately US$8.7 trillion worth of assets worldwide has been funded through securitisation.[25] Securitisation contributed to a significant expansion of credit and fuelled the bubble in the housing market.

When borrowers defaulted on subprime mortgages, triggering the credit crunch, the value of the mortgage-backed securities dropped dramatically, in some cases by as much as 90 per cent.[26] An overwhelming proportion of CDOs turned out to be toxic (illiquid). No one in the private sector wanted to buy them, especially as it was also becoming clear that insurance 'covering' CDOs in the form of CDSs (credit default swaps), in a large number of cases would not materialise. Insurance companies such as AIG sold CDSs on a large scale without setting aside sufficient reserves, and without hedging their sales by purchases of insurance from other sellers of CDSs. They left themselves vastly exposed to liabilities.

Mortgage companies, government sponsored enterprises, investment banks, commercial banks, hedge funds, and insurance companies on several continents were affected by the collapse in the prices of MBSs and CDOs. Financial institutions in America, Europe, and Asia, found themselves with large amounts of bonds (debt) at significantly marked down values. Few institutions were spared. According to the *Financial Times*, as of February 2009, in the United Kingdom alone "about $305bn of the CDOs are now in a formal state of default".[27] Some institutional investors complained that they were not sufficiently warned about the risks inherent in the complex instruments sold to them by investment banks. Buyers of CDOs have since launched lawsuits alleging misrepresentation, if not outright fraud and

deception.[28] A number of subprime lenders "were forced to pay billions of dollars to settle government charges of abusive or predatory lending practices".[29]

Credit Default Swaps and the Risks of Unregulated Insurance

The growth in subprime mortgages was fuelled by a massive growth in credit default swaps, in effect unregulated insurance for debt, in the form of MBSs and CDOs.

A credit default swap (CDS) is a contract between two parties, normally arranged over the telephone or by instant messaging, to insure a loan or a bond, typically for a period of five years. Trades were sometimes recorded on scraps of paper.[30] A party entering the contract, such as an investment bank, pays an initial payment plus quarterly premiums to the insurer. The seller of a credit default swap agrees to compensate the buyer for the face value of the bond in exchange for the bond (or cash equivalent) in case the issuer of the bond experiences a 'credit event', such as a bankruptcy filing, a default on a payment, a restructuring, or a downgrading. Unlike conventional insurance policies, the CDS is marketable. Its price rises and falls with the risk of default by the underlying security. It is relatively inexpensive to insure a CDO that is unlikely to default. The premiums that buyers of insurance have to pay, however, rise with the risk of default. CDSs were excluded from the definition of 'securities', and were therefore outside of the jurisdiction of the SEC, the Securities and Exchange Commission. They were not subject to any securities laws, and it was not mandatory to trade them on any exchange or clearinghouse. CDSs were not considered 'insurance' either, and thus were not subject to any legislation governing the insurance business. Sellers of CDSs thus were not required to set aside any reserves against potential claims.

The credit default swap has been the single fastest growing financial derivative. The market for CDSs grew from US$900 billion in 2000 to the notional value of US$62 trillion at the end of 2008, an amount nearly ten times the US national debt, with a fair value of US$2 trillion.[31] Five top US banks, JP Morgan Chase, Bank of America, Goldman Sachs, Citigroup, and Morgan Stanley together traded 96 per cent of all credit default swaps.[32] In many cases, institutions that invested in MBSs and CDOs bought and sold insurance not only for the securities they possessed but also on securities they did not possess. This type of CDS is known as a 'naked' CDS.

> Initially, this market [for CDSs] was intended to make hedging a corporate bond position easier. But speculators who don't hold bonds now dominate the market, using the swaps instead to wager on a company's health or the prospects of a securities portfolio. In Wall Street parlance, these investors would be characterized as trading the contracts 'uncovered' or 'naked.'[33]

Unlike in conventional insurance, *the buyer of a naked swap does not have an interest in protecting the asset being insured* by the swap. On the contrary, the buyer of the naked swap can gain (collect a payout) *only if* the asset for which he bought insurance is destroyed or damaged.

Buying naked swaps resembles 'naked' short selling, where speculators sell shares they neither own nor have borrowed, in the hope of buying them back at a lower price in future, delivering them to the buyers, and pocketing the difference between the (higher) selling price and the (lower) buying price. Naked short selling has been banned in some countries, notably New Zealand.

Buying insurance for an asset that one possesses is understandable, and can be thought of as 'hedging' or protecting against loss. But buying insurance for an asset that belongs to someone other than the party buying the insurance cannot be considered 'hedging', as it is *not* done with the intention of protecting oneself or one's property against loss. On the contrary, if the asset remains safe, the buyer of insurance (who does not own the asset being insured) stands to *lose* money (premium payments). Far from protecting against loss, the intention in buying 'naked' swaps is to *benefit* – from someone else's loss. A person buying insurance should have an interest in the asset being insured. Because buyers of naked swaps do not have an interest in the asset being insured, it is difficult to justify naked swaps as 'insurance'. Accordingly, some have called for a ban on all swaps while others called for a ban only on naked swaps.[34]

Trading in naked swaps is closer to *betting* than it is to hedging. The party selling naked swaps is *betting* that it will never have to pay compensation for the asset being insured, while the party buying naked swaps is *betting* that the asset will suffer a 'credit event', which will trigger a payout by the counterparty, the insurer.

Buyers of the naked swaps had much to gain if the subprime mortgages backing the insured CDOs defaulted. *Bona fide* buyers of swaps, who owned the securities insured by those swaps, could claim at most the amount they paid for the bonds, unless they bought multiple insurance contracts for the same bonds. Assuming they did not buy multiple contracts, their compensation in case of a payout would be equal to their loss. Overall, they would experience neither gain nor loss. The buyers of naked swaps, however, would experience a large gain in case of a payout, because they would collect the payout without suffering a major loss. The gain by buyers of naked swaps is thus greatly disproportionate to their 'loss', the initial 'investment', in the form of premium payments, as no asset in their possession was damaged or lost.

Trading in 'naked' default swaps explains why the total amount of insurance (CDSs) far exceeded the total value of bonds being insured. According to Market Oracle, the 'naked' swaps comprised 89 per cent of the total of all swaps sold.[35] Ordinary swaps amounted to only 11 per cent of the total CDSs. In 2008 the total

notional (face) value of CDSs was US$55 trillion. Yet the sum of all corporate debt was only US$6 trillion. In other words, the amount of 'naked' CDSs amounted to US$49 trillion. For every dollar of legitimate insurance there were 9 dollars' worth of excessive speculation. The excess of US$49 trillion of naked swaps over the $US6 trillion of legitimate swaps significantly magnified risks to the financial institutions that sold naked CDSs on a large scale, especially those, such as AIG, that did so without hedging their sales.

Passing liability for default on CDOs backed by subprime mortgages to others by buying default swaps was touted as a 'diversification' of risk. Far from diversifying risk, the proliferation of CDSs has, on the contrary, spread risk farther and wider throughout the global financial system. 'Naked' CDSs add risk that was not there before.

Financial institutions such as the insurer AIG, the biggest seller of the CDSs, were eager to sell this unregulated 'insurance', as initially they made enormous profits from collecting insurance premiums for securities they considered relatively risk-free.[36] As of 30 June 2008 AIG had written over US$440 billion of CDSs on securities collateralised by residential mortgages, which significantly exposed it to the subprime crisis. When its securities were downgraded, AIG was faced with calls for collateral, which it could not meet. In addition, the interests of the shareholders of AIG were misaligned with the interests of executives. The chief of AIG Financial Products, which sold credit default swaps in very large quantities, received a 30 per cent commission from the profits earned by sales of CDSs. While he personally benefited from high commissions, at the same time his actions, together with the negligence of his superiors, bankrupted the world's biggest insurance company.[37] The US government rescued AIG four times, using a total of US$182.5 billion of taxpayer funds.[38] Rescue efforts have put enormous demands on the US and other central banks, resulting in higher national debts, printing of money,[39] and inflation. Investors in subprime mortgages, such as the major banks, were bailed out using the government tax revenue. Profits remained private, but losses were socialised.[40]

Investment or Speculation?

Securitisation was carried out by government sponsored enterprises (Freddie and Fannie), special purpose vehicles, and investment banks. The main investors in mortgage-backed securities were hedge funds, pension funds, and insurance companies. A large proportion of the funds raised by securitisation from the high-income group was channelled, ironically, to the lower income group, the subprime customers. Subprime loans, however, proved difficult to repay with low-paying jobs, and impossible to repay without any jobs, even more so after people's monthly mortgage payments increased dramatically as a result of increases in interest rates on adjustable

rate mortgages. The subprime crisis illustrated the failure of an unregulated financial system to allocate resources efficiently. What was needed was investment that generates jobs and income, investment that generates real wealth rather than just more indebtedness. Instead of what they needed most – jobs – the lower income group (and even jobless people) were offered *high interest subprime loans*.

As of July 2009 there were 14.5 million officially unemployed people in the United States, approximately 10 per cent of the work force. Real unemployment is likely to be substantially higher than this number. At the same time, there were 4 million unsold houses in the US.[41] If each unsold house on average is worth $US200,000, there is US$800 billion of completed houses on the market for which there are no buyers. Assuming they can find jobs to provide them with the necessary income, a number of people would be in a position to buy some of the unsold houses.[42] The fact that a substantial surplus of unsold houses exists alongside a large surplus of labour demonstrates the inability of a poorly regulated or unregulated economic system to utilise resources fully. Too many products (houses) were produced in one market, and too many resources remained idle in another market, the labour market. Investments by banks, hedge funds, and wealthy individuals did not provide what ordinary people needed most: jobs that provide income to meet basic needs, including the need for affordable housing. There was a shortage of venture capital and a surplus of speculative capital. Instead of channelling funds into investment that generates jobs and real wealth, financial institutions – left to themselves by government authorities – channelled billions of dollars of resources into unproductive, excessively speculative uses, aiming at quick and extraordinary profits while ignoring genuine human needs. Speculation, where wealth is merely transferred rather than created, took precedence over real investment. Clearly, strong incentives for real investment were lacking. It is the responsibility of governing authorities to provide a structure of incentives and disincentives to channel the flow of resources into productive uses, and to make it costly for resources to flow into unproductive, highly speculative uses. Regulation to prevent excessive speculation was lacking. Surplus funds were channelled into the *wrong uses*: excessive speculation on Wall Street rather than real investment on Main Street. This misallocation of resources reflects an unjustified emphasis on finance at the expense of economic activity. Wall Street by right should be at the service of Main Street, not *vice versa*. If any meaningful recovery and correction are to take place, real investment will have to receive priority over excessive speculation and extraordinary profit seeking. For this a change in thinking and operating procedure are required. It is necessary to provide incentives that value work, integrity, honesty and fair trade. Similarly, it is necessary to put in place a structure of disincentives for excessive speculation and extraordinary profit seeking. Society as a whole must

reject the ideology of greed currently driving Wall Street. Change in legislation is required to operationalise the change in thinking.

Wealthy people's money was lent to help poor people in America to buy homes. The reason it didn't work was because subprime borrowers could not pay the higher monthly mortgage payments that became effective when the Federal Reserve raised interest rates, triggering large increases in the monthly payments on adjustable subprime mortgages. Apart from deflating the share market and housing bubbles, higher mortgage payments forced millions of families out of their homes into apartments or homeless shelters. For many, the dream of owning a home turned into a nightmare. Surely there must be better ways to manage economic and financial activity. The regulatory superstructure governing financial and economic activity needs to be built upon ethical foundations.

Conclusions and Recommendations

Adjustable rate mortgages are highly risky to borrowers. Their terms are slanted heavily against borrowers (who bear most of the risk) and in favour of lenders. For this reason, adjustable rate mortgages should be banned altogether. Using weak collateral in the form of receivables from loans for new borrowings needs to be reviewed. A convincing definition needs to be developed for what constitutes acceptable collateral for issuing bonds. Strong collateral should reduce the risk of a collapse in financial asset values that we have seen in the current crisis. It is necessary to regulate trading in credit default swaps; either by means of clearing-houses or exchanges, and to proscribe trading in 'naked' swaps altogether. Price and volume transparency need to be enhanced.

As of 16 September 2009, the US government has "spent, lent or committed US$12.8 trillion to revive the economy".[43] The safeguarding of the public interest requires protecting taxpayers from potentially catastrophic losses. Government rescues of private failure are paid for with taxpayer money, whether through loans, equity acquisitions, or higher prices as a result of the monetisation of losses. The first two add to the national debt while the latter results in inflation. It is necessary to ensure that public funds do not end up going to private bondholders and shareholders. The latter are ultimately responsible for the actions of the management of their company.[44] The principle 'no bailouts without representation' on boards of directors should be implemented as a matter of policy. Companies should not be allowed to become 'too big to fail'. Anti-monopoly legislation should be vigorously enforced. Government service needs to recruit persons committed to serve the interests of the people. It is necessary to educate public servants on the noble values of public service and prohibit conflicts of interest.

Policies need to be put in place that reward real investment and wealth creation in communities through job creation, and provide strong disincentives for excessive speculation aiming at quick and extraordinary profits. "It is lending which is required if our economy is to be revived; it was gambling that got our financial system into trouble."[45] Special interest groups, such as financial industry lobbies, have to be reined in by effective regulation and vigorous enforcement.[46] More importantly, a new way of thinking is required on the part of both corporate and political leaders, a moral and intellectual paradigm that encourages the creation of real wealth and discourages excessive speculation, and uses wealth for the purpose of meeting pressing needs such as the alleviation of poverty, overcoming of illiteracy, elimination of waste, respect for the environment, and a fair distribution of wealth and income.

Notes

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2. Financial institutions reduced the book-values of the assets on their balance sheets to reflect the current market value of those assets. Write-downs are recorded as expenses on income statements; thus as far as reporting requirements are concerned, they have the effect of reducing the banks' net income before tax.
3. This in part resulted from on-going deficit spending by the US government, as well as from a persistent balance of payments deficit the United States has been experiencing with the rest of the world.
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12. "How Wall Street's Greed Fuelled the Subprime Disaster", *Center for Public Integrity*, 6 May 2009, available online at http://www.publicintegrity.org/investigations/economic_meltdown/articles/entry/1343/ (accessed on 6 September 2009).
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