
The crash sonata in D major

Received (in revised form): 14th May, 2009

Giorgio Szegö

is Professor Emeritus of Financial Economics at the University of Rome 'La Sapienza' and President of the Association for Banking and Finance at the University of Lugano. He founded the *Journal of Banking and Finance* in 1977 and remained Managing Editor until retirement in 2007. He is the author of more than 300 scholarly papers and books. He has been a consultant for major international organisations such as the International Monetary Fund, World Bank and the Organisation for Economic Cooperation and Development, and has served on the boards of major banks and markets.

University of Rome 'La Sapienza', Piazzale Aldo Moro 5, 00185 Rome, Italy
E-mail: gsz.jbf@fastwebnet.it

Abstract The current US-made financial crisis has been exacerbated by the mark-to-market rule, by pro-cyclical bank capital requirements, by fragility in the originate-to-distribute system, and by the volume of fraudulent mortgages in the USA, which have distorted profit and loss distributions and confounded all prediction models. The monetary value of such frauds in 2006–07 is estimated to reach \$100–120bn. Like most crises since the 1980s, the present one is also due to regulatory mistakes, excessive leverage and concentration in real estate investments. While previous crises tended to be localised, the most recent turmoil has unfortunately had a global impact.

Keywords: *financial crisis, regulatory debacle, frauds*

FACTS

The current economic crisis, which originated in 2007 in the US residential property market, has quickly spread to all economic sectors throughout the world. The first announcement of the coming subprime crisis was made by the International Monetary Fund (IMF) in a report published in April 2007;¹ this report was, however, overoptimistic about its consequences.

The current global crisis is due to a combination of factors, including the fragility of the originate-to-distribute (OTD) system, supervisory oversight and regulatory errors.

The first question that this paper will consider is whether this crisis could have been predicted, in particular outside the USA. It is noteworthy that nobody — no

academic, no regulator, no bank and no rating agency — anticipated it. Of course, *ex post* prophets now claim to have seen some warning signal, but the truth is that this crisis was predictable in the same way that one can predict clouds after sunshine or, to paraphrase the Bible (Genesis 41: 1–36), 'seven bad years after seven good years'.

One crucial element behind the unpredictability of the US mortgage crisis is the large number of fraudulent and criminal mortgages granted in the country. The FBI only made this publicly known in May 2007.² The present paper is neither interested in the moral issue connected with these frauds nor by the late discovery by US law enforcement organisations. Rather, this paper is interested in the impact of these

unexpected delinquencies on profit and loss distributions. These were supposed to be at least symmetric, but the unexpected 'big bump on the tail' proved sufficient to wreck all prediction methods.

During 2005–06, many people in the 'street' clearly knew that certain US investment banks were not in the best of shape, but this was not the first time this had happened without destroying the world.

The growth of unsecured and fraudulent mortgages in the USA was fed by the existence of the booming OTD financial system that allowed originators to sell these mortgages to eager investors.

The next aspect of the crisis, providing the first link with the real economy, is connected to so-called equity extraction from residential real estate. This phenomenon was strongly encouraged by US Government policy and supported by the Federal Reserve (the Fed) System. (In 1995, the Department of Housing and Urban Development agreed to let Fannie Mae and Freddie Mac support 'affordable-housing' credit in order to increase homeownership among underprivileged families. In July 1999, President Clinton proposed that, by 2001, 50 per cent of Fannie Mae's and Freddie Mac's portfolio should be made up of loans to low and moderate-income borrowers; in 2004, President Bush increased this goal to 56 per cent.) Although the policy had been designed to target low-income families, it also attracted considerable attention from the investment banks.

The scale of this phenomenon was first disclosed by Greenspan and Kennedy in May 2007.³ According to their study of the period 2004–06, 13 per cent of US households' disposable

income was obtained by pegging the mortgage to the market value of the property. This process was fuelled by the very low level of interest rates in the country, which lasted until the end of 2005. Nobody asked the obvious question: what will happen when property values stop increasing?

One last point concerns the lack of precise data on the level and structure of severe mortgage delinquencies in the USA (three months of missed payments is statistically equivalent to a permanent delinquency). The most commonly quoted data come from the Mortgage Bankers Association and only cover its 2,700 heterogeneous members: banks, mortgage brokers, insurance companies, etc. No official data are available.

THE HOME-EATERS

Most US mortgages have been arranged by brokers rather than banks. There are estimated to be some 50,000 mortgage broker firms, the majority of which are small local businesses, although some are large companies and are listed in the major exchanges (eg Ameriquest, New Century, Countrywide Financial, Indy Mac, Fieldstone Inv., Washington Mutual, etc). The financial flows of such brokers will be discussed later in this paper.

As the brokers were not subject to supervision and their employees were mostly paid on commissions, they had little incentive to perform a close scrutiny of their applicants' financial resources and income. In the event of an increase in property value, they would have approached the borrowers and recommended that they increase the size of their mortgage; after all, interest rates were very low (Figure 1) and property values kept increasing (Figure 2). This is

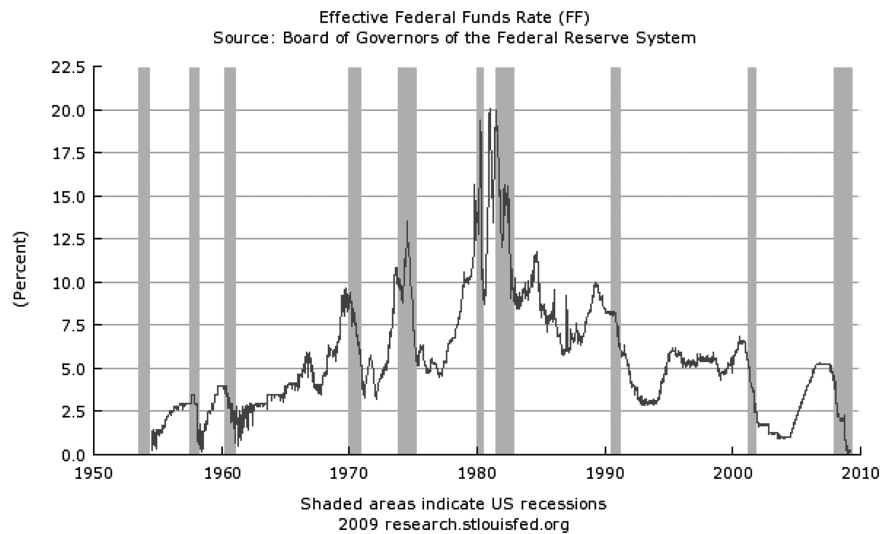


Figure 1: US interest rates, 2004–07
 Source: Fed. Res. Bank St. Louis (November 2009)

how US households ‘ate their homes’. While, in the case of prime borrowers, these additional incomes improved their standards of living, in the case of subprime borrowers this was the only way to serve their financial commitments (Figure 3).

Following precise political directives imposed on the various government-sponsored enterprises (Freddie Mac and Fannie Mae are the main government-sponsored enterprises;

privately owned, but chartered by Congress, they are exempt from taxes and publicly subsidised), banks and mortgage brokers even began granting subprime mortgages to people with no income, no job and no assets — the so-called NINJA — people with no official source of income that would enable them to serve the debt (for example, the Bank of America Neighborhood Advantage Flex granted mortgages with a down payment of just \$500). The only way these people

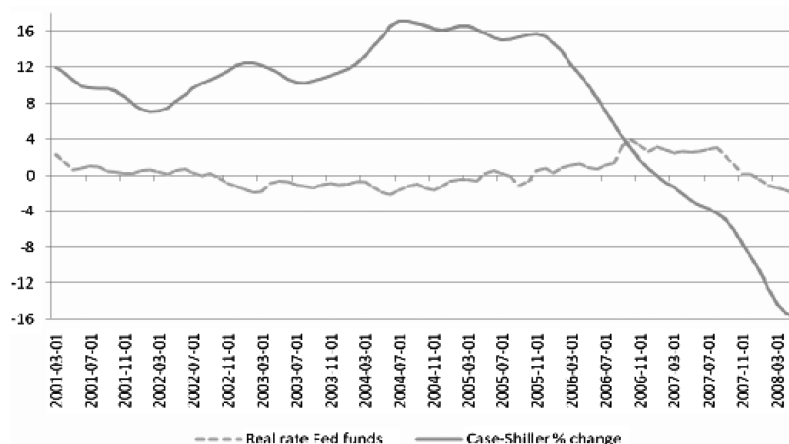


Figure 2: Real interest rates vs US housing prices, 2001–07
 Source: Fratianni, M. (2008) ‘Financial Crises, Safety Nets, and Regulation’, MoFiR WP, No. 5, October

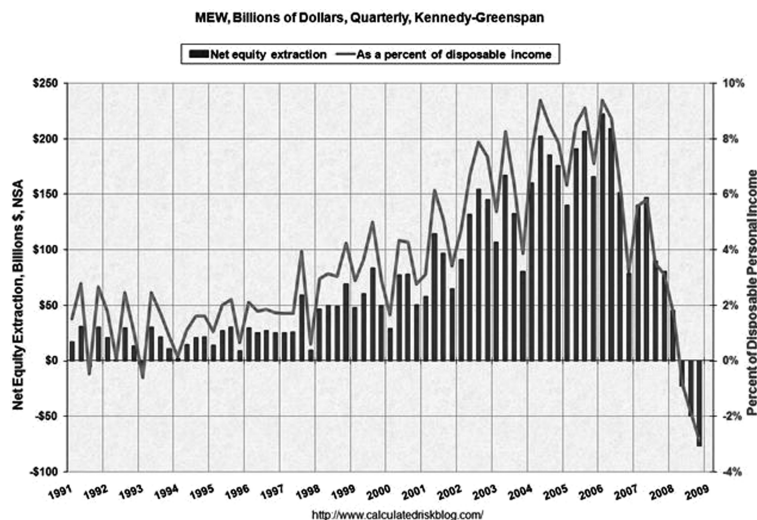


Figure 3: Equity extraction, 1991–06 and as a percentage of personal disposable income (PDI)
Source: IMF (2008)

could pay back their debt was through periodic equity extraction, ie by additional borrowing on the increased value of the property. Elsewhere this would be known as a Ponzi scheme — and in the event of stable (non-increasing) housing prices, the whole system falls apart.

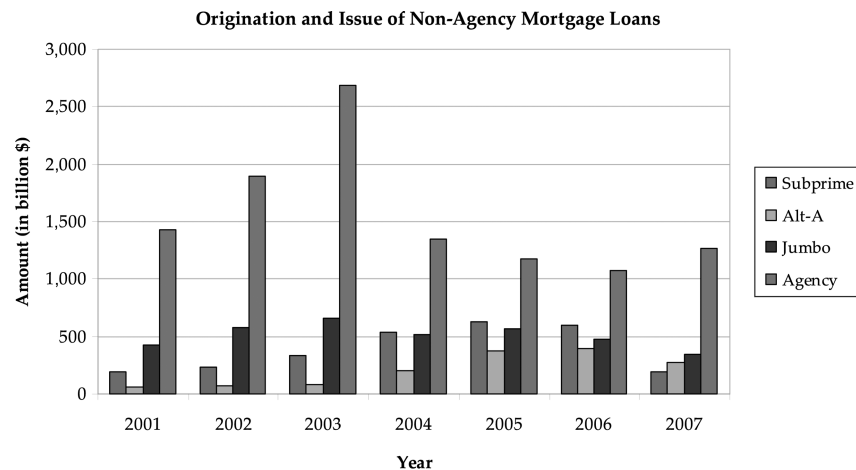
The amount lent to the subprime borrowers is staggering: between 2005 and 2006 it reached \$1.2trn, 80 per cent of which was securitised.⁴

From 2006, a third category of risky lending (Alt-A — potentially solvent applicants presenting without income documentation) almost reached the level of subprime. It is within this category that one finds the highest incidence of fraud.

Another important point is the structure of mortgages; most of the subprime mortgages had a hybrid structure, commonly known as a ‘teaser’. Like most US mortgages they last 30 years. In this case, the first two or three years’ interest was set at a fixed rate while the remaining years were variable. This model proved popular among both borrowers and lenders. The interest for

the borrower is obvious: if honest, the applicant needs money for moving and improvements; if a felon, the cost of the scam is reduced. The lender, meanwhile, benefits from the greater probability that the borrower will honour the commitment. One can therefore expect the loan to perform well for at least the first two or three years — and that the loan officer will earn a good bonus. Of course, there is a danger that the borrower will default at the end of the fixed-interest period, particularly if interest rates have increased — this explains the sharp increase in delinquencies after two years (see Figure 4). Some 80 per cent of subprime mortgages had included pre-extinction penalties⁴ which were meaningless in the event of fraud or sharply-declining property values.

A repurchase clause in the securitisation issues committed originators to buy back at book value all early defaulted mortgages and increased their interest in a good performance in the early years. This covenant may explain the sudden default among all major mortgage brokers.



Source: Insider Mortgage Finance Publications, Inc.

Figure 4: Origin and issue of non-agency mortgage loans

THE FRAUDS

According to the FBI,² 50 per cent of all early default payments are the outcome of fraud. This paper will estimate the monetary value of the fraudulent and criminal mortgages by comparing the total value of mortgages issued to subprime and Alt-A borrowers with the percentage of early defaults.

The characteristics of the frauds change according to market conditions. During a booming market, it is not in the interest of bank lending officials or mortgage brokers to act with due diligence and verify applicants' statements regarding their income or property value, or even their title to the property. Anticipating that bogus information will be overlooked, perpetrators are encouraged to submit loan applications with fraudulent information. Lending fraud frequently involves multiple loan transactions based on fraudulent misrepresentations of the borrower's financial status, such as overstating the borrower's income or assets, using false employment records or inflating property values.

The consequences of false income statements and false property value and

title are quite different. When lenders show insufficient interest in the wealth and income of applicants, false property values erode the value of the guaranty.

The downturn in the housing market crisis has increased the number of frauds and their criminal aspects.² Loan officers are now more inclined to verify applicants' statements. Fraudulent schemes now require accomplices and are sometimes designed by organised crime. The most common scam is based on the sale of the property to an accomplice at greatly inflated value. This bill of sale allows the accomplice to obtain a mortgage of an amount much greater than the true property value. The proceeds are then divided between the original owner and the accomplice, who vanishes.

Foreclosure rescue scams involve criminals who target legitimate homeowners in dire financial circumstances and collect fees or obtain ownership interests for foreclosure prevention services. Both of these fraudulent mortgage schemes may be furthered by filing bankruptcy petitions that automatically stay foreclosure.

Early payment defaults are defined as those occurring within ten months of issuance. By comparing the data on the total issuance of non-conforming mortgages (Figure 4), with the early payment defaults presented in Figure 5, the value of early payment defaults would appear to be a staggering \$100–120bn (if the defaults that occur before 10 months from the issue are defined as early). Following the FBI data, it would appear that 50 per cent of these are the result of fraud.

Figure 5 shows a sharp increase in early payment defaults in 2006 and 2007. In 2007, 15 per cent of subprime mortgages defaulted within ten months of issuance; in 2006, this figure was 12 per cent and in 2005 only 3.5 per cent. While in 2007 the volume of subprime and Alt-A mortgages halved in comparison with 2006, the percentage of early payment defaults, and therefore the likely number of frauds, increased considerably. The combination of these two effects suggests an estimate of the monetary value of fraud-originated mortgages to be in the region of \$100–120bn. One of the most surprising aspects is the severe penalties imposed in the USA for mortgage fraud: up to 30 years' imprisonment and/or up to a \$1m fine. The threat of very severe penalties

does not seem to have any dissuasive power, since they are almost never applied. The number of frauds is large and mostly perpetrated by underprivileged people.

SECURITISATION AND ORIGINATE-TO-DISTRIBUTE

Most crimes against properties are economically viable only if they are assisted by a system that allows the perpetrator to liquidate the proceeds — a laundering technique. The availability of such a system clearly provides an incentive to such crimes. Note, however, that in many circumstances this 'crime-inducing' system has many other positive and legitimate functions. It is therefore very difficult to separate the positive functions from the negative ones.

This may be obvious, but many people, particularly regulators (who, as this paper will argue, are chiefly responsible for the current crisis), are unfortunately advocating the suppression of *all* structured finance in a manner not unlike throwing the baby out with the bathwater.

The origin of the system is the process of securitisation, which originated in the 1970s. This process provides the material for the synthetic or shadow banking system based on the origination of asset-backed securities and their distribution, possibly

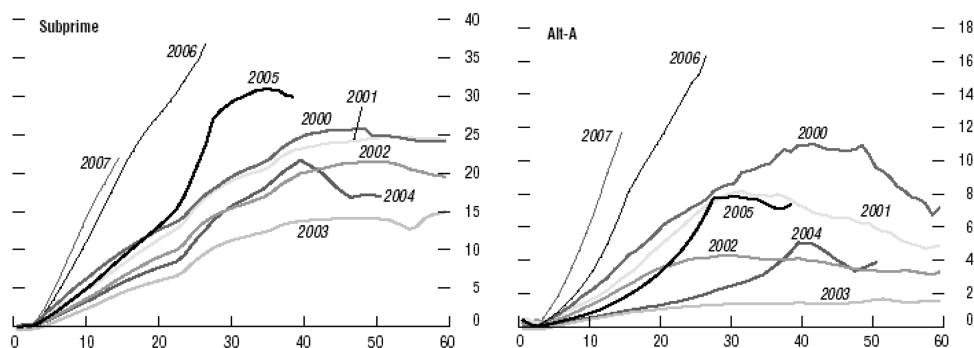


Figure 5: Mortgage delinquencies by vintage year (60+ day delinquencies, by percentage of balance)
Source: IMF (2008)

after repackaging. In the present case, the mortgage-backed securities (MBS) from the 1990s were combined with other assets in so-called collateralised debt obligations (CDOs) in order to produce more diversified, and therefore less risky, securities. This very intelligent system, which is responsible for the incredible economic growth in industrialised countries in the last decades, unfortunately allowed some originators to include and distribute low-quality, fraudulent and criminal mortgages in the packages. The possibility of reselling these loans killed any interest in due diligence from the originator: the temptation to zap the next in line prevailed. The focus on short-term profits destroyed any interest in reputation-building.

The paper will now analyse the financial flows connected with this system. The originators, in particular mortgage brokers, had to finance the loans before packaging and distributing them. This was done via bridge loans issuing short-term asset-backed commercial papers (CPs)⁵.

The distributed securities were mostly synthetic, ie they did not contain the original securitised loans, but were pegged to them.

For reasons that will be explained in the next section, in spite of the increasing distance from the originators, these securities were loved by investors, who, because of the very low level of interest rates, financed themselves via short-term CPs.⁵ Unlike the traditional financial intermediation system, characterised by a single maturity–liquidity mismatch (liabilities are demand deposits, assets are loans), the new system contains a double maturity mismatch: difficulties in rolling over short-term CPs are the equivalent of a bank run.

In the traditional system, credit is generated via the deposit multiplier; here the originator collects partners for a portfolio of loans. The rapid growth of the OTD system was aided by the de-banking process that has taken place throughout the world: customers were running away from (low-interest, insured) bank deposits to move into (uninsured) money-market funds (returning to insured bank deposits in times of panic). The system is then centred on the (*de facto* unregulated) investment banks (almost all US and theoretically supervised by the Securities and Exchange Commission) or universal banks that become either direct or indirect originators of synthetic securities.

The OTD system's positive consequences for growth can only be compared with those derived through the introduction of paper money in Europe in the 18th and 19th centuries, which was strongly delayed by two scams: the South Sea in UK and the Mississippi in France. One must hope that the scams that have dogged the new financial system will soon be addressed.

SEARCH FOR YIELD

Having introduced the operational principles of the OTD system, also known as the shadow banking system, the paper will discuss why its 'marriage' with residential MBS proved so successful until the crash. It will also explain why opaque financial instruments such as CDOs were eagerly bought by investors.

The low level of interest rates triggered a desperate search for yield among investors and intermediaries, who leveraged themselves to the extreme in order to exploit any promising spread.

Indeed, after the burst of the dot.com bubble, few investments promised good returns. Possibly due to increasing uncertainties, there has been a decline in industrial projects (eg oil refineries) in both developed and developing countries. The hope of rapid progress in biotechnologies has been frustrated. The aging of the population in industrialised countries and the consequent decline of aggressive business attitudes may have also contributed to the decline.

Residential real estate promised good returns. Risk appetite increased and risk blindness came to dominate (both the *Wall Street Journal*⁶ and Bloomberg⁷ reported on financial firms sacking staff who warned against excessive exposure). Due diligence vanished.

CDOs and other structured products containing mortgage-backed or mortgage-pegged securities were presented with very opaque offering circulars. Indeed, the offering circulars of MBS and derivatives were extremely long, fuzzy and designed not to clarify the structure of the product and its possible risks, but rather to shelter originators from damage claims.

The structured instruments were snatched up by 'ignorant and imprudent'⁸ investors solely on faith in the seller's reputation. Soon the demands for such products became so high as to create a 'seller market', and the portfolio of assets included in CDOs became increasingly less diversified.

This is not the first time such herding behaviour has been observed in financial markets. Unfortunately, herding is a rational choice in financial decisions: nobody can risk missing an opportunity, especially if the opportunity is shared by others. Furthermore, if the decision turns out to be wrong, but shared by the

majority, a saviour (the taxpayer) will come to the rescue.

This blind search for yield is also demonstrated by the rush to get involved in the Madoff-Ponzi scheme. Every 'victim' of this scam seemed to have forgotten that there is no such thing as a free lunch.

The interconnection between the residential real estate market and OTD is much closer, however, as Loop 1 shows:

- (1) MBS provide liquidity to an illiquid credit (ie mortgages).
- (2) The cost of mortgages decreases.
- (3) Existing mortgages become negotiable.
- (4) Demand for residential properties increases, as does price.
- (5) More equity can be extracted, thereby increasing the disposable income of home-owners.

The price formation process is led by the MBS and derived structured instruments. Home-owners and prospective home-owners gain by the process.

REVERSAL IN THE REAL ESTATE MARKET

During the second part of 2005 (see Figure 2), the average residential real estate prices in the USA started declining. This decline may have been caused by overbuilding in certain states, such as California, Florida and Arizona, and also by the increase in interest rates (see Figure 1).

If a property's value shrinks to less than the total of the mortgage and it is likely that the decline in value will last for a long time, it is profitable to 'return the keys to the bank'. This practice further depresses the property market.

The depressed market brought an end to the additional income that US

households were realising via equity extraction; meanwhile, the NINJAs — the sub-subprime borrowers — could not meet their obligations and were forced to walk away.

With US households leveraged to the extreme, the end of equity extraction meant not only a reduction in consumption, but also the impossibility of meeting obligations. In such situations, a credit card crisis may be next in line.

The decline of residential real estate was enhanced by Loop 1, which inverted its action. Thus, one obtains Loop 1 bis:

- (1) Real estate market decline.
- (2) Reduced MBS liquidity level.
- (3) Further decline of residential real estate market due to lack of liquidity induced by MBS.
- (4) End of equity extraction process and reduction of disposable income, ie consumption, investments and previous commitments.
- (5) Property values drop below mortgage levels.
- (6) Residential real estate borrowers advised (forced, if NINJA) to walk away.

This development was particularly severe at the time of mortgages switching from fixed to variable rates. As discussed previously, originators were forced by the issuance covenants to buy back non-performing mortgages at book value. This led to the bankruptcy of many mortgage brokers, as shown in Figure 6.

ABSENT SUPERVISION, WRONG RULES AND SPILLOVERS

It is tempting to view the supervisory authorities as lazy and short-sighted. The various Basel Accords have simply imposed increasingly high compliance costs on banks, while leaving US investment banks unregulated, unsupervised and free to ravage the world with global Ponzi schemes. Monetary authorities seem to have learned nothing from the case of Long Term Capital Management (LTCM),^{9,10} a totally unregulated hedge fund that had to be saved by the Fed fearing dire consequences. The various Basel Accords on the harmonisation of capital

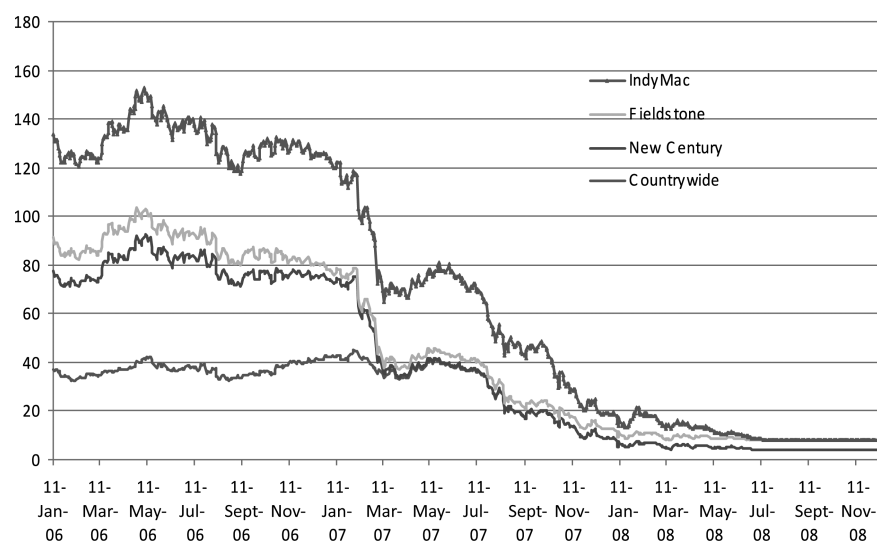


Figure 6: Values of traded MB shares (crash early March 2007)

requirements all appear to have been concentrating on absurd banking regulation, which is the equivalent to preparing to protect oneself from bows and arrows (banks) when nuclear weapons (investment banks, large insurance companies and large funds) are ready for action. The lack of action after the warning signal of the LTCM case in 1998 is very suspicious: some individuals, leading financial firms, are perhaps more equal than others. The lack of any pre-emptive action in the Madoff-Ponzi scam throws a sinister light on the US financial supervisory system. The only rational explanation for this lack of action is the desire to punish investors so greedy and irrational to fall into this trap. The Fed's interventions in this area seem to be fully discretionary, from the attack on Drexel-Burnham and Lambert in 1992,¹¹ to the orchestration of the LTCM and Bear Stearns bailouts,¹² to the lack of intervention in the case of Lehman Brothers — it is difficult to see any consistency in terms of adherence to a clear design or a rational principle.¹³

Regarding wrong rules, consider the totally wrong approach to measuring risk based on value-at-risk (VaR) adopted by the Basel gang. According to Danielsson *et al.*, 'the use of VaR as a measure of risk can destabilise the economy and induce crises that would not have otherwise taken place'.^{14,15} J. Blum of the Swiss Central Bank has since reinforced this point, arguing that: 'instead of sheltering banks from unexpected shocks, VaR, that is based on past history, forces banks to comply to capital requirements, at the worst possible moment: after shocks and losses'.¹⁶ It seems that regulators idly apply to different settings rules that have been

proposed and have proven to be effective in totally different environments.

Another regulatory folly that applies not only to banks is the mark-to-market (MtM) rule. MtM has been defined as a 'present to the world given in the early '90s by SEC Commissioner R. Breeden, against Greenspan's opinion'.¹⁷ This rule, adopted by the International Accounting Standards Board, forces all firms to account in their books each asset according to its 'market value'. This rule, which could make some sense in the case of traded securities with high turnover and small volatility, becomes a weapon of mass destruction in the case of illiquid, non-standardised, un-traded assets like CDOs and other structured products. There are very basic flaws in the MtM concept, even in the case of traded assets, as MtM cannot provide the true value of a multiple assets portfolio. The total lack of coordination among regulatory agencies is appalling.

Banks and other financial institutions holding structured instruments in their portfolios are forced to use some estimates very often based on the synthetic index, ABX, published by the Markit Group Ltd.

Important international organisations like the IMF,¹⁸ OECD¹⁹ and BIS²⁰ have pointed out the dire consequences of the MtM rule, and have reached the conclusion that market pricing models cannot give a fair estimate in the presence of liquidity problems and panics. More precisely, OECD and BIS have computed that these synthetic figures overestimate probable losses of 62 per cent. These figures are consistent with a 0 per cent recovery value. Using a more realistic recovery value of 40 per cent, OECD estimates that the US mortgage market losses will reach

\$420bn, instead of \$1,200–1,500bn. Unfortunately, these over-pessimistic predictions fuelled panic and killed the US residential mortgage-backed securities (RMBS) market. The voices defending the MtM rules have been very weak and originate solely from the accounting establishment. An important contribution from Plantin *et al.*²¹ proves that the worst damage of the MtM rules concerns long-term, illiquid, senior assets — the very ones that are more present in banks' portfolios.

One of the actions taken by central banks to help their banks is the discounting of illiquid structured instruments. (All financial instruments that are too complicated to be understood by regulators are automatically labelled 'toxic', by the very people who made them so. Central banks are at least immune from the MtM madness. Indeed, if OECD estimates are correct, central banks may make some large profits in the long run.

The MtM rule is one of the main causes of the current crisis and is in part responsible for a perverse loop in banks that are forced to meet the highly procyclical Basel capital requirements. The combination of MtM and Basel^{22,23} drove down the market via Loop 2, as follows:

- (1) Contraction of the estimated market value of an asset.
- (2) Increase of regulatory capital.
- (3) Sale of (even illiquid) assets in order to reduce capital requirements.
- (4) Further reduction of estimated asset value, and increase of the regulatory capital.

It is important to point out that this loop does not affect just one bank, but rather

all banks with the same, or similar, assets in their portfolio.

The opacity of some structured instruments, bought on faith by financial institutions without an exact knowledge of their content, triggered huge mistrust among banks and sharply reduced the liquidity of financial instruments. This is responsible for Loop 3, as follows:

- (1) Liquidity reduction on asset trade.
- (2) Price contraction due to liquidity decline.
- (3) Decline of value of bank assets portfolio.
- (4) Impossibility of refinancing.
- (5) Bankruptcy.

Rating agencies followed a prudent policy to grant 30 per cent overcollateralisation to top-grade securities, ie they imposed a buffer of 30 per cent above the theoretical risk limit. Of course, were MtM to reduce the size of that buffer, the rating would have been reduced accordingly. Thus, the rating agencies, designated culprits of the crisis by the real felons, the regulators, have been the victims of Loop 4, another perverse loop caused by MtM:

- (1) Thirty per cent overcollateralisation for AAA.
- (2) Collateral value reduction, enhanced by MtM.
- (3) Downgrading and fire-sale by subjects that either cannot own securities with lower ratings or have insufficient additional collateral.
- (4) Further value contraction.

Regulatory constraints prevent some funds, in particular money market funds, from keeping securities that are rated below top grade in their portfolios.

Downgrading may therefore have dire consequences on financial markets.

The same process of buying obscure financial instruments on faith, which caused the rise of the seller market, then reversed itself: banks and other financial institutions now want (or are forced) to sell them at all costs. The seller market has now become a scalper market, as summarised by Loop 5:

- (1) Opaque instruments with no clear information on the assets bought on faith by investors in search of yield — seller market.
- (2) Structured products are not standardised, liquid only during booms, with long maturities (30 years?).
- (3) MtM-induced synthetic value decline.
- (4) Forced fire-sales — scalper market.

In the meantime, there is a freeze on the interbank market and the consequent credit crunch. Three explanations have been proposed:

- Banks are not in a position to know the exact value and the risk of some of the more complex new assets (CDOs, etc) and are therefore wary of the stability of counterparts.
- Banks perform precautionary hoarding in case of possible future shocks or difficulties in obtaining outside funds; each bank has increased uncertainty about its own funding needs.¹³
- Banks opt to stay liquid in order to profit from possible fire-sales.²⁴

Unfortunately, of these three explanations, the second seems the most likely. The attempts to eliminate counterparty risk by introducing anonymous orders and a centralised clearinghouse have so far been

unsuccessful. The herding behaviour of banks enhances neurotic decisions: credit go — credit stop.

Under the current circumstances, investors have increasingly short horizons. Their first rule is not to risk short-term losses. Thus the market-destroying Loop 6 is dominating the stage:

- (1) Market declines.
- (2) Investors are reluctant to buy even when long-term profits are certain.
- (3) Further market decline.

It is reasonable to assume that the speed of market decline with respect to the investor horizon is the key element of this loop and of the current market conditions.

CONCLUSIONS AND PROPOSALS

The key points of this paper are as follows:

- The unexpected volume of mortgages obtained through fraud, estimated to be in the region of \$120bn in 2006–07, has distorted all profit and loss time series data used for predictive models.
- For institutional reasons, regulators have concentrated their attention on banks, which may be considered more (albeit willing and risk-blind) victims than culprits.
- The search for yield, fuelled by the very low interest rates in the first half of the decade, made investors risk-hungry. Delinquent borrowers were once left to rot in jail; now, on the contrary, individuals in some countries can simply obtain new credit. Some balance between these two extremes must be re-established.

- Supervisory authorities are lazy, deaf and almost resentful of any suggestion, criticism or comment of even their most absurd decisions (VaR, MtM, etc).
- The very weak US financial supervision system has had a very high cost for the whole world.
- Central banks' actions have forced current and future taxpayers to cover the losses of some subjects.

In the 1930s, the economic crisis led to some well-considered regulatory decisions. One can only hope that the present crisis will lead to similarly rational moves. For example:

- Establishment of a clearinghouse to change the interbank souk into a proper market. The clearinghouse would serve as the counterparty for all contracts, thus eliminating counterparty risk, helping to revitalise the market and restart credit. For example, on 2nd February, 2009, the Bank of Italy and Italian Bankers Association started such a centralised interbank market. The Italian system is also open to other European banks, if authorised by their central bank and if they satisfy the same basic requirements imposed on Italian banks. To date, the number of transactions has been rather small, but it is increasing steadily.
- Establishment of a clearinghouse for the swap market, not just the credit default swap market, as recently proposed by the Banque de France.
- Standardisation of CDOs and other structured product contracts and their trading in public exchanges.
- Pricing models based on default probability (DP) and loss given default at maturity.
- Acknowledge the failure and the irrationality of the mandatory capital

requirements (Basel 2 is dead — it is time to organise a proper funeral). A simple system to control leverage ratio would do the job.

- As the main systemic problems derive from the size of intermediaries, regardless of their charter (commercial banks, investment banks, hedge funds, etc) and from excessive leverage for unregulated subjects, capital requirements or fiscal rules should discourage the increase in intermediary size, or compensate the taxpayer for the likely higher costs.

In the past, some such actions were directly undertaken by market participants without the need of sovereign suggestion or ruling: futures markets and clearinghouses, stock exchanges and standardised tradable contracts were all initially created by traders and then regulated. The establishment of these efficient markets in the 18th and 19th centuries was made possible through ongoing personal contact among a small number of traders: around an oak tree in Wall Street, in a pub in Chicago, in rue Quincampoix in Paris, etc. Nowadays, operators are scattered across the four corners of the globe. Cooperation is much more formal and difficult, and the dream of harmonising decisions, self-defeating. Rapid actions, such as the establishment of the centralised interbank system in Italy, and ideally the establishment of a swap market and standardisations of CDO contracts, are essential. It only needs some countries to reach an agreement before everyone else will fall into line.

If one compares the current crisis with previous crises (eg Savings & Loan, Japan, Scandinavia and South-East Asia), one can detect a common pattern: rapid

financial and capital deregulation without addressing the consequent need to improve supervision and enforcement.

Unfortunately, past crises were mostly local; the current one, however, reaches across the globe. Governments have taken emergency action by pumping money into the economy. It remains to be seen whether the recovery will be accompanied by a burst of inflation.

Acknowledgment

This work was finalised during a visit to Birkbeck College, University of London. The results obtained in this paper were presented at a Seminar at Birkbeck College on 18th February, 2009 and at Cass Business School of City University, London on 19th February, 2009.

References

- 1 IMF (2007) 'Global Financial Stability Report', IMF, Washington, DC, April.
- 2 FBI (2007) 'Mortgage Fraud Report', May.
- 3 Greenspan, A. and Kennedy, J. (2007) 'Sources and Uses of Equity Extracted from Homes', Federal Reserve Board, Washington, DC.
- 4 Gorton, G. (2008) 'The panic of 2007', paper presented at the Federal Reserve Bank of Kansas City, Jackson Hole Conference, Jackson Hole, WY, 4th August.
- 5 Bank of England (2007) 'Turmoil in Financial Markets', Bank of England, London, 12th September.
- 6 *Wall Street Journal* (2008) 16th April.
- 7 Bloomberg (2008) 7th March.
- 8 Hartmann, P. (2008) 'Lessons from the financial market turmoil', paper presented at the International Summer School on Risk Management and Control, Rome, 30th June to 4th July.
- 9 Bookstaber, R. (2007) 'A Demon of Our Own Design', J. Wiley, Hoboken, NJ.
- 10 Lowenstein, R. (2001) 'When Genius Failed', HarperCollins, New York.
- 11 Fromson, B., Katayama, F. and Mendes, J. (1990) 'Did Drexel get what it deserved?', *Fortune*, 12th May.
- 12 In the words of Paul Volcker, 'The bailout is just the latest evidence of the Federal Reserve and the Treasury Department aiding and abetting Wall Street's Ponzi scheme and investor fraud'. Regarding the Bear Stearns bailout, Volcker's comments were even stronger — he accused the current Fed Chairman, Ben Bernanke, of 'toeing at the very hedge of the Bank's legal authority'. Volcker, P. (2008) 'Speech to the Economic Club', New York, 8th April.
- 13 Brunnermeier, M., Crocket, A., Goodhart, C., Persaud, A. and Shin, H. (2009) 'The Fundamental Principles of Financial Regulations', Geneva Reports on the World Economy 11, International Center for Monetary and Banking Studies, Geneva.
- 14 Danielsson, J., Embrechts, P., Goodhart, C., Keating, C., Mennich, F., Renault, O. and Shin, H. S. (1999) 'An academic response to Basel 2', Special Paper No. 130, FMG, LSE, London.
- 15 This view is shared by Financial Services Authority (2009) 'The Turner Review', FSA, London, pp. 22–23.
- 16 Blum, J. (2008) 'Understanding the "subprime crisis": Capital requirements and leverage', paper presented at the International Summer School on Risk Management and Control, Rome, 30th June to 4th July.
- 17 Jenkins, H. (2008) 'Why MtM are a fabulous failure', *Wall Street Journal*, 5th March.
- 18 IMF (2008) 'Global Financial Stability Report', IMF, Washington, DC, October.
- 19 OECD (2008) 'The Subprime Crisis: Size, Deleveraging and Some Policy Options', OECD, Paris, pp. 11–18.

- 20 BIS (2008) 'Quarterly Review', BIS, Basel, June, pp. 6–7.
- 21 Plantin, G., Supra, H. and Shin, H. S. (2008) 'Marking-to-market: Panacea or pandora's box?', *Journal of Accounting Research*, Vol. 46, No. 2, pp. 435–460.
- 22 Clerc, L., Drumetz, F and Jaudoin, O. (2000) 'To what extent are prudential and accounting arrangements pro- or countercyclical with respect to overall financial conditions?', paper presented at the BIS Autumn 2000 Central Bank Economists' Meeting on Marrying the Micro and Macro-Prudential Dimensions of Financial Stability, Basel, 9–10th October.
- 23 Kashyap, A. and Stein, J. (2004) 'Cyclical implications of the Basel II capital standards', *Journal of Economic Perspectives*, Vol. 10, March, pp. 18–31.
- 24 Diamond, D. and Rajan, R. (2009) 'The Global Financial Crisis', The University of Chicago, Booth School of Business, February.

Copyright of Journal of Risk Management in Financial Institutions is the property of Henry Stewart Publications LLP and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.