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# An Assessment of the Credit Crisis Solutions

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## Abstract

The paper reviews and assesses the various models that have been suggested for resolving the current credit crisis. It is argued that policymakers are inclined to adopt the 'business-as-usual' model maybe because of fear for the new or because they have been taken for a ride by bankers or for any other reason. But by pursuing this model the policymakers do not realise that they are putting large sums of money into a black hole at the risk of making governments insolvent. The paper puts forward a new model that may be a viable alternative to the ones already suggested.

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*Keywords*: Credit, financial crises, banks, other depository institutions, government policy and regulation.

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# 1 Introduction

It is increasingly accepted that the US and the global economy would not get out of this severe recession unless the credit crisis is resolved. In his recent testimony to Congress Bernanke (February 2009) emphasised once more that the Fed's forecast for a recovery later in the second half of this year is conditional upon resolving the financial crisis so that credit flows to business and households are resumed to normal levels. Fiscal policy on its own would not be able to break the back of the recession unless this precondition is fulfilled. Here an attempt is made to assess the various schemes that have been put forward to alleviate the credit crisis and recommend a solution.

The abiding principle in assessing the various schemes is that a solution is appropriate if it deals with the causes of the problem. From this angle there are two basic views on the causes of the credit crisis. In the first view the depressed assets of the financial sector are currently undervalued either because of panic or because of the recession. If this view is correct, then the measures that have been adopted by the policymakers on both sides of the Atlantic are correct and in time they will work. Undervalued assets will become fairly valued, if not overvalued, when the recession is over. Therefore the taxpayer will retrieve the money invested now and maybe with some profit if governments buy the distressed assets below the fair value. The alternative view is that the assets are worthless and accordingly the banks are insolvent. In this case the measures taken so far, and more of the same in the future, are inappropriate. The money that governments spend is wasted – it goes in a black hole. Of course, no-one knows what the fair value of these assets is and only time would tell which view is correct. But by then it may be too late!

Despite the caveat of being unable to correctly value these assets we can still assess the various schemes. Table 1 presents the consolidated balance sheet of the depository institutions. After the collapse of Lehman Brothers all remaining investment banks have become bank holding companies, so that such a balance sheet is appropriate. Good assets are bonds or the collateral to bank loans whose prices have fallen a bit from face value or the pre-crisis levels, but hold the promise that they would recover once the recession is over. Bad assets are those whose prices have fallen significantly from face value or pre-crisis levels, but are assets that can be priced with some degree of certainty because there are liquid markets upon which they trade. Finally, there are the toxic assets that no-one wants to hold in their portfolios. These assets are hard-to-price, as they do not trade in liquid

markets. They are predominantly derivatives or synthetic assets, such as Collateralized Debt Obligations (CDO), CDO-squared or even cubed and credit default swaps.

**Table 1: Consolidated bank balance sheet.**

| **Assets** | **Liabilities** |
|---|---|
| Good Assets | Deposits |
| Bad Assets | Preferred Stock |
| Toxic Assets | Secured Debt |
| | Unsecured Debt (Senior, Mezzanine, Junior) |
| | Common stock |

The liability side is presented according to the order in which claims on assets can be made in case of bankruptcy. Deposits are the liabilities that will be satisfied first and governments have increased the guarantee limit in case the assets are worthless. Preferred shares, which many governments have acquired in exchange for the capital they have injected or the insurance that have provided to troubled banks, are the next one in the queue. Then there is the secured debt in the sense that that there is collateral value, although it might be smaller than at issue. In other words the secured debt may be less than the face value of the security or bond. Next in the line is the unsecured debt, which will be satisfied according to seniority (senior, mezzanine and junior) if there is still some cash left from the sale of the assets. Finally, common stock holders will get the residual cash, if any. With this taxonomy we can group the various solutions into two categories – 'business-as-usual' and 'good bank'.

# 2 The 'Business-as-Usual' Model

The 'business-as-usual' solution is the one preferred by Wall Street and the banking community as a whole in the rest of the world. It takes three forms, which nonetheless amount to the same thing – a bailout by the government. In the first variation the government guarantees the assets or the liabilities of the banks and/or provides insurance for the bulk of the bad and toxic assets, usually after the bank takes the first 10% loss. Moreover, the government helps to capitalise the banks in need but in a way that does not interfere with the running of the bank, mainly in the form of acquiring preferred shares that have no voting rights, although this has been muddled by the government desire that

troubled banks that get their support should increase lending to business. The second variation is to remove the bad and toxic assets from the balance sheet of the banks and place them into a 'bad bank' that is capitalised by public and/or private money. When, or rather if, these assets recover, the money that has been invested will recover. But even in this second variation governments will have to add capital to the ailing banks, which amounts to $0.5 trillion. The third variation is for a temporary nationalisation or whatever term is politically acceptable to the relevant taxpayers, but with a well defined exit-strategy, meaning specified conditions under which the banks will go back to their original shareholders or will be re-privatised. It is clear why this solution has been dubbed 'business-as-usual', as despite the crisis the banks would not bear the cost of their actions and they would continue to do business-as-usual. Their losses would be borne by the taxpayer, as they are perceived as being too big to fail.

In evaluating the 'business-as-usual' solution we can clearly see that it makes sense if the bad and toxic assets are undervalued, which in time will recover. Even then the success of this approach would depend on the price that the government or the 'bad bank' will pay for them. The lower the price is, the higher the protection of the taxpayer, but at the expense of the banks. On the other hand, the higher the price is, the lower the protection of the taxpayer, but the higher the benefit to the banks. It is obvious that the banks want the government or the 'bad bank' to buy these assets at, or at a small discount to, face value. The success of this solution depends on finding the correct price that is fair to both parties. But it is hard or impossible to price the toxic assets and therefore difficult to implement this approach. Moreover, it is hard to sway the public opinion in support of such a scheme. Most people would quite rightly ask why the taxpayer should pay for the mess that bankers created as a result of which many people would lose their jobs or see their incomes decline. The government reply is that this is necessary for the recovery of the economy. If the banks do not resume credit to normal levels there is no chance that the economy will ever recover. But this assumes that the 'business-as-usual' model is the only available option, that there is no alternative. Yet, it emerges that there is a viable alternative and this will make it increasingly difficult to get the public opinion behind this scheme. In addition, there is the well known argument of 'moral hazard', namely that a bailout will only encourage more risk taking in the future. The government reply that in the future there will be stricter regulation is not convincing, because regulation only closes past loopholes. It is not a forward-looking approach, but backward-looking. Given any legislation there are always loopholes to be exploited by clever people. But the biggest blow to this approach comes

from the sheer size of the problem. The losses from the bad and toxic assets may be too big to bear even for the government. The losses from the credit crisis have already swollen to $1.2 trillion; the IMF estimates that total losses will mount to $2.2 trillion, while the NYU professor Nouriel Roubini, who foresaw the crisis, thinks they will exceed $3 trillion. These estimates are based on a simple rule of thumb. The US mortgage debt is $10.5 trillion. Assuming 20% fall in house prices gives $2.1 trillion loss. However, by Jan 2009 house prices have fallen by 26% from their peak in mid-2006. This raises the loss to $2.7 trillion. According to the K-model[1] at the bottom of the current recession house prices will have fallen by 45% raising the loss to $4.5 trillion. But this estimate does not include bank losses from toxic assets (derivatives). If the toxic assets are worthless, then the banks are insolvent and the ultimate cost may run into trillions of dollars that ultimately even governments cannot afford. The insolvency case is supported by the high leverage of the consolidated balance sheet of financial institutions through toxic assets.

Barring the disaster scenario of worthless toxic assets, if the costs of $2.2-4.5 trillion were to be met by public money then fiscal deficits in the US and the UK will soar to double-digit figures (war-like levels), while the public debt will nudge 100% of GDP. With the 'business-as-usual' model the government, as lender of last resort, runs the risk of becoming insolvent itself. We may tend to think that public opinion memory is too short and irresponsible governments will get away with their decisions to postpone doing the inevitable or pass the burden to the next government, but the vigilante is always the market. Unless the US and the UK governments prepare a credible plan for curtailing the budget deficits and public debt, their efforts will be thawed in the long run by rising nominal and real long-term interest rates, as inflation risk premia, default risk premia and foreign exchange risk premia rise. Greece in the 1980s is an example of a country that operated with double-digit fiscal deficits that spurred the public debt from 30% of GDP to more than 100%. The debt has not been cut, as successive governments have been loath to take the consequences of raising taxes or cutting public spending for fear of not been re-elected. They may have avoided the consequences in the short run, as Greece under the prime-minister Simitis made an effort to curb the deficits and satisfy the criteria for convergence to the ERM and therefore qualify for monetary union. Acceptance to EMU further postponed the inevitable harsh measures, but it is doubtful whether in the current environment Greece, and many other countries, such as Italy, Spain, Portugal, Ireland and Austria, although for

[1] See Philip Arestis and Elias Karakitsos (2004), "The Post-bubble US Economy: Implications for Financial Markets", Palgrave Macmillan, London and New York.

different reasons, would ultimately avoid adopting the inevitable harsh measures, which will have to be adopted if ejected out of the common currency.

# 3 The 'Good Bank' Model

The credit crisis seems insolvable only because there is no consensus on a fair distribution of the costs of the bailout. So far, only bank shareholders have paid for the mess and a few bank CEOs have either willingly resigned or forced to step down. The senior management of the banks is largely unscathed and they have even received bonuses, albeit curtailed, which has aroused the public outcry. Moreover, the interests of the bond holders have so far been protected. The alternative to the 'business-as-usual' model is a 'good bank'. This entails that a new – Phoenix – bank is created out of the ashes of each old bank.[2] The balance sheet of the new bank is formed out of a transformation of the old bank. The good assets of the old bank are removed and now form the assets of the new bank. The deposits and the secured debt of the old bank are also removed from the old bank and form the liabilities of the new bank (see Table 1). The banking licence of the old bank is removed and granted to the new one. The new bank is capitalised by public and/or private money and the government guarantees the new loans of the new bank. The new bank rehires the staff, but the top senior management, of the old bank and is housed in the same buildings. The old bank effectively becomes an asset management company of the bad and toxic assets with liabilities the unsecured debt, the preferred and common stock. It would only require a handful of fund managers and as sardonically has been put it is housed in the basement of the old building. The preferred shares and the unsecured debt are converted into common stock so that both equity and bond holders share the costs of this voyage to safety.

The advantages of the 'good bank' model are obvious. First and foremost credit flows to the economy return to normal ensuring the success of easy monetary and fiscal policy in engineering the recovery of the economy. Second, moral hazard is minimised as there is a clear message to future senior management that there is no bailout. Third, this is just and fair to the public at large and to the taxpayer in particular as the bulk of the cost falls on those responsible for the crisis. However, there is a major drawback that takes away the shine of this solution as gold. If the old banks failed and the losses were very large, then the

[2] The term derives from Egyptian mythology: the fabulous bird Phoenix lived to 500 years and then consumed itself by fire, later to be born again from the ashes.

ramifications will spread to the rest of the economy sinking the entire ship. One may, indeed, argue that by removing all the sound elements from the balance sheet of the old banks the probability of failure is enhanced. Moreover, the higher the losses of the old banks are, the higher the probability that the entire economy would go down. Thus, we may be back to square one and policymakers may have no other option but to bailout the system if the losses of the old banks are too big. As it has been put, when your house is on fire you do not talk about safety zones or fences that will prevent future fires; you have to fight the fire now and worry about future fires later on.

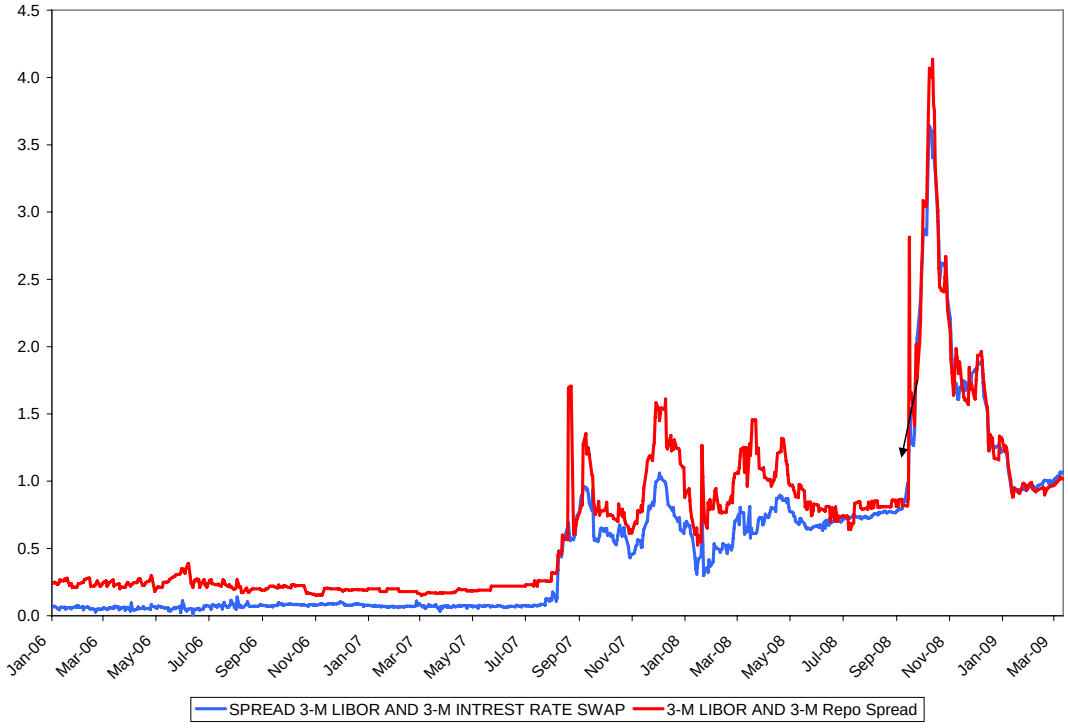
So far, the banks have been either unwilling to come clean or they don't know what their real exposure is. The potential losses from letting the old financial system to become bankrupt may be huge. Gross holdings of credit default swaps are unofficially estimated as $60 trillion, although net holdings (namely netting out cross holdings) may be half as much. But this may be an underestimate judging from AIG that has recently announced that its own nominal portfolio is of the order of $19 trillion and reporting the largest ever loss ($62 billion) for a US company. But even at $30 trillion a bankruptcy might entail losses of 30-50%, which amounts to $10-15 trillion when the entire US GDP is $14 trillion. But are financial institutions really worried about becoming insolvent? Credit default swaps provide market estimates for particular banks, but we are more interested in aggregate measures.

An indirect way of answering the insolvency issue at the aggregate level is by decomposing risk into interest rate risk, liquidity risk and credit (or counterparty) risk. The total risk is captured in the 3-month LIBOR rate, as this reflects the true cost of money for banks. The overnight 3-month interest rate swap (OIS) is a measure of the interest rate risk, as it reflects market expectations of what the fed funds rate will be over the next three months. Thus, the spread between LIBOR and OIS of corresponding maturities is a measure of liquidity and credit risk, as it has eliminated the interest rate risk. A measure of credit risk, in turn, is the spread between secured and unsecured borrowing by the banks. One form of secure loans is government-backed Repos between banks. Thus, the spread between LIBOR and repo rates of corresponding maturities provides a measure of credit risk. Figure 1 shows the close correlation between the LIBOR-OIS spread and LIBOR-repo spread. This suggests that the banks are concerned more about credit risk than liquidity risk and hence they are worried about the insolvency of the entire financial system. So far, central banks have diagnosed the crisis as stemming from a lack of liquidity and have flooded the system; but this is not the cause of the problem. This highlights a fundamental difference between the Great Depression and the current credit crisis. The former was due to liquidity risk and

therefore the remedy was an increase in the supply of money. But the current crisis is mainly due to credit risk. The wrong diagnosis of the problem has led policymakers to apply the wrong medicine. The nature of the current crisis as stemming from credit risk is a prima facie evidence that the losses of financial institutions may surprise on the upside. The conclusion, therefore, that emerges from this analysis is that the 'good bank' solution carries a risk that the entire economy may sink into a worse depression than the 1930s.

**Figure 1**

Liquidity and Credit Risk vs. Credit Risk (Libor OIS vs. Libor Repo)




Source: Graphs based on author's calculations using original data from Reuters.

# 4 A 'Good Bank' with a Personal Sector Shield – A Viable Solution

However, we believe that the 'good bank' model can be salvaged with a modification. The high risk that the entire ship will sink lies in the cross holdings of the assets and liabilities within the financial sector. Each bank is holding as assets a large proportion of the liabilities of the others. Thus, if one bank failed it will have a cascading effect, dragging the rest down. This structure involves also the personal sector and to a much lesser extent the

corporate sector. The spill over of the losses of the financial sector to the personal sector is through the cross holdings of assets and liabilities. It is this cross holding structure that has made the bailout of the financial system by governments unavoidable, but it also holds the key to a viable solution. Thus, to save the 'good bank' model the obvious solution is to separate the cross holdings of the personal sector from those of the financial sector. The government can guarantee or provide insurance to some reasonable exposure of the personal sector to the bad and toxic assets of the old financial sector. By doing so, the government will stop the bankruptcy of the old financial sector from spilling over to the personal sector and contain the damage. Moreover, the policymakers enforce an automatic deleveraging process that will drain the excessive liquidity, which is at the root of the current credit crisis. The automatic deleverage will speed enormously the process to recovery; otherwise, the balance sheet adjustment in the old financial sector and the personal sector will be extremely long, more like ten than two years.

Is this doable? The answer depends on the channels through which the personal sector might be infected by the insolvency of the old banks, the type of assets that will need to be guaranteed and their amount. If the cost of the bailout of the personal sector is smaller than the financial system, then it is worth pursuing it (i) from an economic point of view; (ii) from an ethical and moral point of view; and (iii) from the moral hazard point of view.

Table 2 provides the crucial assets of the personal sector that may be infected by the bankruptcy of the old financial system. First and foremost the assets that must be protected are those held indirectly on behalf of the personal sector through pension funds for those working in the private sector and the government (Federal, state and local). Next in the line are the assets of life insurance and other insurance (property-casualty) companies. Because of securitisation a large portion of federally related mortgage pools by Government Sponsored Enterprises (GSE) are held indirectly by the personal sector. It is safer to insure all these assets at source and this will provide an extra shield to old banks. Money market funds, mutual funds and other funds are of less importance in providing insurance. Certainly hedge funds do not need to be insured as their investors are sophisticated and presumably were aware of the risks they had undertaken, or at least they should have been. These assets amount to more than $30 trillion, as Table 2 reveals. But the exposure of the personal sector to the assets of the banks is through its exposure to credit market instruments. This exposure is only $13 trillion, less than half of the total. Within that category it is impossible to know precisely who holds what. But there is no doubt that the personal sector has a large exposure to bad assets because of securitisation, but a smaller exposure than the banks to credit

default swaps. The largest chunk of credit default swaps are held by the banks. Thus, as a working hypothesis we can assume that the potential loss of the personal sector will be around 20%. This implies that the total loss of the personal sector will be $1.3-2.6 trillion.

**Table 2: Potentially infected assets** (million dollars).

| | **Total Assets** | **Assets, Total Credit Market Instruments** |
|---|---|---|
| Money Market Funds | 3,376,470 | 2,186,636 |
| Mutual Funds | 6,588,339 | 2,366,281 |
| Closed-end Funds & ETF | 578,409 | 49,692 |
| Private Pension Funds | 5,192,809 | 917,639 |
| Fed Gov pension Funds | 1,188,495 | 115,095 |
| S&L Pension Funds | 2,730,283 | 809602 |
| Life Insurance Co | 4,797,992 | 2,949,652 |
| Other Insurance Co | 1,337,292 | 842,090 |
| GSE Mortgage Pools | 4,894,922 | 3,021,176 |
| **TOTAL** | **30,685,011** | **13,257,863** |

Source: Author's calculations based on the Flow of Funds Accounts, Board of Governors of the Federal Reserve System.

The government can assume an amount of potential losses on the credit market instruments of the personal sector that will be fair to both parties, say, the first 10-20% with the personal sector bearing the excess. Alternatively, the government can let the personal sector bear the first 10% of the loss and guarantee the remainder. In this case the government cost may be zero to just $1.3 trillion, which in the worst case is equal to the amount of money that it plans to spend for the bailout of the financial system. Such a solution is not only more economical, but it is ethical, morally correct, just and fair with the

common sense of justice that the ones responsible for the mess must also pay for it; it also minimises the moral hazard risk.

# 5 Summary and Conclusions

In this paper we assess the various schemes that have been put forward to resolve the credit crisis, which is a precondition for a recovery of the US economy and the rest of the world.

All these views can be grouped into two schemes – 'business-as-usual' and a 'good bank'. The first takes different forms – insurance or guarantee of the assets or liabilities of the financial institutions, 'bad bank' and temporary nationalisation – and it is the one favoured by banks and pursued by governments in the US and the UK and other countries. It amounts to a bailout of the financial system with taxpayer money. Its drawback is that the cost may exceed by trillions the original estimates of $700 billion; and despite the mounting cost it may not even prevent the bankruptcy of financial institutions. Moreover, it runs the risk of making the US and the UK government insolvent, and turning an already severe recession in a depression worse than the 1930s. It is also immoral, unfair and unjust with the common sense of justice and maximises moral hazard.

The 'good bank' solution consists of creating a new (Phoenix) banking system from the ashes of the old one by removing the healthy assets and liabilities from the balance sheet of the old banks. It has a small cost and has the major advantage that credit flows will be resumed and the economy will recover. It is also fair and just and minimises moral hazard. Its drawback is that it lets the old banks swim or sink. But if they sink with huge losses, these might spill over to the personal sector and the ultimate cost may be the same as the 'business-as-usual' model. The downside may be again a depression.

Our own solution is for a 'good bank' but with a government guarantee of a large proportion of the assets of the personal sector or the assumption of the first loss by the government in case the old banks fail. It has the same advantages as the original 'good bank' model, but it makes sure that in the eventuality that the old banks become insolvent, the economy is shielded from falling into depression and the ultimate recovery is insured.