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Designing the Public/Private Partnership: Part 1
What role for the taxpayer?

Douglas J. Elliott

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INTRODUCTION

The Administration will need to make some critical decisions soon on its plan to create a public/private partnership to buy "toxic assets" from banks. The plan was announced by Treasury Secretary Geithner on February 10th in terms of broad principles, with the mechanisms to be designed over the following few weeks. The idea is to move as many of the toxic assets as possible off the books of the banks, where they have been wreaking havoc by creating massive uncertainty as to the solvency of those banks. The Administration has concluded that there needs to be substantial involvement from private investors, who are collectively the party best able, and most motivated, to evaluate these complex assets. At the same time, the government needs to be involved in order to provide incentives to break the logjam that has held trading volumes in these securities to extremely low levels.

The most fundamental question about the public/private partnership is the proper financial role of the taxpayer. In practice, the government is highly likely to provide cheap financing for the private investors, combined with guarantees of the floor values of the assets, with a minimal emphasis on co-investing by directly purchasing toxic assets.

This answer is consistent with the author's preference to minimize the potential for losses to the taxpayers from toxic assets, even when this means giving up potential gains, but there is no "right" public policy answer here. The correct solution depends heavily on the risk preferences of the government, and ultimately the taxpayers. Therefore, this paper attempts to frame the risk/reward trade-offs in a clear manner that will assist policymakers in considering how best to invest the taxpayers' money. It starts with an explanation of the likely financial structure of the public/private partnership and then shows how the risk/return tradeoffs vary between this and an alternative approach centered around government purchases of the toxic assets.

Given the crucial importance of the public/private partnership to reducing the harm done to the financial system by toxic assets, this paper is only the first in a series on the optimal design of that partnership. Later papers will discuss the size and composition of the toxic assets to be covered by the program, the potential for losses, mechanisms to align the interests of the private investors and the government, the possible effects of the new mortgage foreclosure mitigation effort, and other important points. For background on the overall Financial Stability Plan and the role of the public/private partnership, please see "The Administration's New Financial Rescue Plan."[1] As explained there, the proposed partnership is not the author's preferred approach, since it appears better to mitigate the systemic risks of toxic assets by providing guarantees directly to the banks.

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1. Available at http://www.brookings.edu/papers/2009/0210_bank_rescue_elliott.aspx

Likely financial structure of the public/private enterprise

The Administration faces strong practical pressures to encourage private investors to buy toxic assets by offering financing and guarantees, rather than attempting to execute a large program of direct government purchases of these assets. There are three main difficulties with direct asset purchases:

- Treasury has at most $100 to $200 billion to commit to the toxic asset program without going back for new legislation, given other commitments. The Administration is understandably reluctant to ask for politically unpopular new legislation. It might not pass or might easily be festooned with unattractive provisions. Either way, it would use up considerable time and political capital.

- Such purchases would lack the multiplier effect that guarantees would have in bringing in private investment. Hedge funds and other investment funds will not value having the government invest alongside them, soaking up a portion of the limited supply of attractively priced assets. On the other hand, they would place considerable value on guarantees and on cheap financing, both of which are scarce resources in today's market.

- It would also be difficult to multiply the size of the program by using money from the Federal Reserve, the only other body with the legal authority to commit to a program this large. The Fed has almost unlimited legal authority to provide loans or guarantees to private parties under "exigent" circumstances. However, it has a very strong preference to provide loans or guarantees only if they are backed by fairly low-risk assets. (Among other things, it presumably worries about becoming a massive hedge fund for the government, investing in politically favored high-risk ventures.) Partial guarantees from Treasury, combined with retention of some risk by private investors, can create low-risk assets

out of otherwise high-risk assets, meeting the Fed's criteria.

Issuing guarantees would allow for a larger program for a given level of authorized spending by Treasury. Treasury could provide private investors with guarantees that would cover declines in the value of the toxic assets below a floor value, with the guarantee stopping at a still lower valuation level that was considered unlikely to be pierced. The Fed could then provide guarantees from that level down to zero.

The Fed guarantee would likely be embedded inside a "non-recourse" loan. This is a loan which is secured by collateral, where the lender has no recourse back to the borrower if the borrower stops paying. Thus, a non-recourse loan effectively contains a guarantee that the value of the collateral will not fall below the amount borrowed. For this reason, borrowers normally have to over-collateralize the loan, securing it with assets initially worth more than the borrowing.

There is considerable precedent for this combined Treasury/Fed approach. It will be used for the new Term Asset-backed securities Lending Facility (TALF) program and has been used to provide guarantees and non-recourse loans to Bank of America and to Citibank in the recent past.

An example may be helpful here. A public/private partnership could be constructed that would allow for purchases of $1 trillion of toxic assets by private investors, such as hedge funds. In order to encourage this, Treasury would agree to provide, for a fee, a guarantee that the value of the investments would not fall by more than 20%, with the guarantee stopping at a 40% loss. This would result in a maximum potential loss by Treasury of $200 billion, if the whole program were put in place and all the assets suffered a decline in value of 40% or more.

(Private investors would have absorbed an equally large loss.) The Fed would agree to lend the investors up to 80% of the value of the assets on a non-recourse basis, secured by the full amount of the assets. The loans would be priced to take account of the partial protection from the Treasury guarantee. The Fed would carry the risk that asset values fell by more than 40%, an unlikely enough event that it should still be able to provide quite advantageous interest rates.

Policy considerations

Would it be better for the government to buy toxic assets directly, if it were not limited by the practical constraints? There is no clear-cut "right" answer, since the controlling factor is likely to be whether taxpayers would prefer to share in the full upside potential of these investments or prefer to minimize their risk by limiting the downside. There are other policy factors to consider, as discussed below, but they do not push strongly in one direction.

The remainder of this paper uses some numerical examples to illustrate the different risk/return trade-offs of providing guarantees compared to purchasing assets and then reviews some non-quantitative issues.

Risk/return profiles of asset purchases versus guarantees

Asset purchases have quite a different risk/return profile from the provision of a guarantee. If the assets go up significantly in value, the taxpayers would be better off having purchased the assets outright, since the only benefit to the guarantor would be the ability to pocket the guarantee fee. On the other hand, taxpayers are much less exposed to losses as guarantee providers. Small losses that did not cross the floor level would actually profit the taxpayers, who keep the guarantee fee. Large losses would be mitigated, since the investors would absorb the first part of the loss.

This section illustrates the different risk/return profiles of a guarantee and an asset by means of a simple, stylized numerical analysis. Despite its simplicity, the analysis incorporates the main aspects of the differences and the chosen parameters are broadly reasonable for many of the toxic assets. The precise conclusions will be dependent on specific parameters, but the direction of the findings should hold up under any reasonable choice of parameters.

The key assumptions are:

- The government will assume the toxic asset is worth 50% of its face value

- The floor value will be set at 40% of face value

- The government may have mispriced this asset, meaning the true best estimate may vary from the assumed 50% of face value, so the examples show the effect of various mispricings

- The toxic asset will have an ultimate value within 30 points of today's true best estimate

- The range of ultimate values is distributed normally, with a standard deviation of 10 points. This gives a 95% probability that the ultimate value will be within 20 points of today's true best estimate and a 99.8% probability of being within 30 points. (For simplicity the last 0.2% is split between the two extreme points.)

- Those proficient in statistics will note that the model assumes that the ultimate value will always be an even dollar figure, that is, the distribution is integer-constrained. The probability shown here of a value of $50 can be best thought of as the probability of the value lying between $49.50 and $50.49.

- For simplicity, the time value of money is ignored. In a real example, the price paid for the asset would be reduced to provide an acceptable return to the investor and the guarantee fee would be lowered to reflect the benefits to the guarantor of collecting the guarantee fee today, while any payouts would occur in the future.

EXAMPLE 1:
The base case

In the base case, the government would charge 0.8% of the face value of the asset for providing the guarantee, assuming it only wished to break even. That is, the expected cost of making payments under the guarantee would be 0.8%, taking into account the probability of each level of potential ultimate value.

Table 1 shows the gain or loss for the taxpayer at different ultimate values for the transaction. (Note that the table is truncated for readability, showing only the values at even multiples of 10 for the ultimate value. If all values from 20 to 80 were shown, the probabilities would add to 100%.) The effects of using different floor values for the guarantee are also shown.

The table clearly shows that an asset purchase produces a superior result when prices rise by more than a small amount, whereas the guarantee is better if prices fall. Essentially, the guarantor foregoes the ability to make more than modest gains from a price rise, no matter how large, in exchange for a relatively small guarantee fee plus the ability to avoid any loss from the first portion of any price fall. In this example, with a guarantee at 40%, the guarantor has an 85% chance of pocketing the guarantee fee with

no offsetting payment, because the price either rises by some amount or falls, but by less than 10 points.

The government could secure a higher guarantee fee by insuring a higher floor value, such as the 45% assumed in the second column from the right. This results in both more upside and more downside. Taking this to the extreme, the government could guarantee that the investors would not lose anything more than the guarantee fee, by guaranteeing a floor value of 50%. This guarantee has an expected value of 4.0%, which also illustrates that there is a limit to how much more attractive the government can make investing in toxic assets. Providing a free guarantee of no losses would only allow investors to increase their bid for the asset by about 4 points, or 8% of the "fair" purchase price of 50% of face value.

Any of these transactions is "fair" in the sense that the expected value, taking into account the probabilities, is zero. In fact, one would expect to break even by repeating any of these bets a large number of times, even though in this particular financial rescue there will only be one actual result, which could be a small profit or loss or, with lower likelihood, a large one. The choice, therefore, is primarily about risk preferences, which will be discussed further on the next page.

TABLE 1:
Gain/loss for taxpayers

			Guarantee at floor value of:		
Ultimate value	Probability	Purchase	40	45	50
80	0.2%	+30	+0.8	+2.0	+4.0
70	0.5%	+20	+0.8	+2.0	+4.0
60	2.4%	+10	+0.8	+2.0	+4.0
50	4.0%	0	+0.8	+2.0	+4.0
40	2.4%	-10	+0.8	-3.0	-6.0
30	0.5%	-20	-9.2	-13.0	-16.0
20	0.2%	-30	-19.2	-23.0	-26.0

EXAMPLE 2:
Getting the best estimate wrong

The base case assumed that the government knew the proper valuation of the asset. What would happen if the best estimate of the value were assumed to be 50 cents per dollar of face value, but the actual best estimate were 45 cents? In an asset purchase, the government, alongside the private investors, would pay 50 cents for an asset worth 45, creating an expected loss of 5. In the case of a guarantee, the government would charge a guarantee fee of 0.8%, the same as in the base case, since it continues to assume the same best estimate of value. However, it should have charged the actual expected value of the guarantee of 2.0%.

This illustrates that mispricing the guarantee is less dangerous in absolute dollar terms than mispricing the asset purchase. The government would have overpaid a full 5 cents on the asset purchase, while the effect of mispricing the guarantee is only 1.2 cents.

Mispricing is a serious concern because the best estimate of the true economic value of most toxic assets lies within a very wide range. The estimates are affected by projected default rates, recovery rates (such as the value at which a foreclosed home is sold, minus expenses), and the annual return expected by an investor to compensate for the riskiness of the returns. The expected rate of return can make a great deal of difference. A $1 payment in five years is worth 33 cents today, if one demands 25% a year, but 50 cents, if one only needs a 15% return. The combination of these uncertainties means that a given security can quite easily have supportable valuations anywhere between 30 cents and 70 cents on each dollar of original principal.

This valuation range is narrower if one is attempting to estimate a market price at a given point in time, such as is required on most securities by the accounting rules on "fair values," which require a process of "marking a security to market." Under current market conditions, investors do demand high rates of return and also tend towards the more pessimistic end of the range of potential default and recovery rates. Therefore, in the earlier example, a market price might be in the 30-45 cent range. These ranges are often still fairly wide, reflecting the extent of the uncertainties, as well as fluctuations in the balance of potential buyers and sellers in these illiquid markets.

EXAMPLE 3:

Differing estimates of the true value

The figures from Example 2 can be used to illustrate a point about an alternative structure to the public/private partnership. The author has previously suggested that it would be more advantageous to provide guarantees directly to the banks on their toxic assets than to incentivize transactions between banks and private investors. It should be easier to persuade a bank to enter into a guarantee transaction than to sell its toxic assets. One reason is because pricing differences become less critical with a guarantee.

For example, assume that the government believes an asset is only worth 45, while the bank thinks it is worth 50. For a purchase transaction to occur, a gap of 5 in value must be bridged. However, the pricing for a guarantee would only differ by 1.2, as shown in the discussion of Example 2. Given the strong desire of the banks to reduce the uncertainty of their valuations and the public policy benefits of facilitating this, it should be possible to strike a deal with a difference this small.

EXAMPLE 4:

Misestimating the variability

Even if the government correctly estimated the expected value of the asset, it might incorrectly assess how variable the outcome could be. This would not affect the correct pricing of an asset purchase, but would cause it to over- or under-price the guarantee. For example, assume that the standard deviation of the outcomes is 15 points instead of 10. This would mean that instead of there being a 95% chance that the ultimate value would lie within 20 points, there would be the same probability of it lying within 30 points of the best estimate.

The impact of underestimating the variability in this way would be an under pricing of the guarantee. The government would again charge 0.8% for a guarantee with a floor value of 40%, whereas it should have charged 2.1%. The under pricing would be somewhat larger in absolute dollars for a higher floor value. At a floor of 45, the guarantee fee should be 3.7% rather than the actual 2.0%. Still, the mispricing remains relatively small compared to the risk taken on by participating in an asset purchase.

Non-quantitative reasons for choosing a guarantee or an asset purchase

Risk aversion

One of the most interesting, and fundamental, questions is how risk-averse the government is compared to private investors. Risk aversion matters a great deal. Private investors and institutions in the financial markets show a clear aversion to risk; riskier investments such as stocks are required to offer a significantly higher expected return than low-risk investments do. Public policy theorists have often held that the government, on behalf of the taxpayers, can afford to be relatively indifferent to risk, since there is such a large base of taxpayer revenues that any one investment project becomes insignificant and governments can diversify risk over time as well as across projects. If that were to hold true here, then it would argue for the government to take on the riskiest portion of the transactions. This could be an argument for either asset purchases, which bring exposure to the full downside as well as the potential to earn the full upside, or it could argue for offering a guarantee with a floor close to the purchase price of the toxic assets.

On the other hand, as a practical matter, taxpayers and politicians may not feel indifferent to risk on this program. The author's belief is that both groups would rather have a more limited downside, even if that means giving up significant potential profit. The program is very large compared to normal government investments and there is already a sense of pessimism among many about the early TARP program and about the prospects for the next round of action.

Again, there is no "right" answer here. Any of the approaches can be designed to be fair economically by setting the appropriate purchase price or guarantee fee level. It is a matter of risk preference. The author simply believes that other taxpayers, as he does, would generally prefer to limit their downside exposure to toxic assets while providing the incentives needed to move them off the books of the banks.

Budgeting considerations

Some have argued that budget considerations will or should push the government into the role of guarantor rather than purchaser. This is based on the mistaken theory that a guarantee would involve no initial cash outlay and therefore no initial budget cost, while asset purchases would require up-front payments and up-front budget expense. The law authorizing the TARP requires that the budget treatment be based on the Federal Credit Reform Act of 1990, (Credit Reform Act), which instructs budget scorers to calculate the net present value of future cash flows, rather than using the cash budgeting that is the rule for the great bulk of the federal government's activities. (Please see "Measuring the Cost of the TARP,"[2] for a fuller explanation.) The Credit Reform Act mandates this treatment in order to put guarantees and loans on the same basis, by measuring the ultimate expected cost to the taxpayer taking into account expected repayments and interest receipts, rather than using cash accounting.

Further, any loans or guarantees that are provided through the Fed are virtually "off-budget." Cash flows at the Fed do not directly affect the overall federal budget. The only effect would be if profits or losses on these transactions caused the Fed to provide a greater or lesser dividend to the Treasury at the end of the year. Such a profit or loss should not be affected by whether the form of the transaction is a loan or a guarantee.

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2. Available at http://www.brookings.edu/papers/2009/0123_tarp_elliott.aspx

On a related point, some have assumed mistakenly that a guarantee would not count against the $350 billion remaining in the TARP authorization. However, the Emergency Economic Stabilization Act specifies that each dollar of guarantee counts as a full dollar against the authorized limit, just as an asset purchase or loan would. Again, this assumes that the Treasury made the guarantee; Fed guarantees and loans are not covered by the Act.

Funding considerations

There is a funding advantage to providing guarantees rather than buying assets. The federal government will be borrowing immense sums going forward, which may eventually cause higher interest rates or even temporary funding glitches. Guarantees would not require the same initial outlays. That said, this is a second order point, not a determinative one, since few expect the federal government to be unable to borrow the funds to purchase toxic assets. Further, much, if not all, of those outlays would come back in the next few years as investment returns.

Pricing issues on guarantees

One argument against an emphasis on guarantees is that there will be no private sector party helping to price the guarantee fee. The government will be on the opposite side of that transaction from the private investors, unlike asset purchases where the government would co-invest at the same price as negotiated between the private investors and the banks.

This issue is considerably mitigated by the smaller absolute size of the guarantee fees compared to the asset purchase price. It is harder to lose a lot of money by mispricing a guarantee worth about one cent per dollar of face value than to lose on an asset purchase at thirty to fifty times that value. (See example 2-4 earlier for greater quantification of mispricing risks.)

In addition, there is a subtle pricing risk on the asset purchases which could be even more costly. It seems likely that the government will end up providing some form of subsidy to private investors to help bridge the gap between what they would otherwise be willing to pay and what banks will demand. (See "The Administration's New Financial Rescue Plan.")[3] If such subsidy, either explicit or implicit, causes private investors to pay more for toxic assets than an unsubsidized market price, the government will end up paying that higher price as well, without any benefit from the subsidies. So, if the government invests the same amount as the private investors, it would effectively pay the subsidy twice, once directly to the investors and once by paying a higher than true market price for the assets. If there is an explicit subsidy, the government could insist on paying an unsubsidized price, but this would leave a continued gap between the bank's offering price and the joint public/private bid price, potentially killing any transaction.

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3. Available at http://www.brookings.edu/papers/2009/0210_bank_rescue_elliott.aspx

Summary

It appears highly likely that the public/private partnership will emphasize government guarantees of toxic asset values, rather than significant outright purchases of such assets by the government. This approach has the major practical advantage of allowing Treasury dollars to be leveraged by money from private investors and the Fed, without having to seek additional legislation.

This may or may not be the best answer on pure policy grounds. The main factor driving such a conclusion is an assessment of the risk preferences of the taxpayers and/or the government, which are not obvious. The author believes that his own preference for the lower risk of the guarantee approach would be shared by most taxpayers, but this is impossible to know without considerable further study. This paper was designed to raise the issue and to help frame the discussion for policymakers, to allow them to draw their own conclusions.

ABOUT THE AUTHOR

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