The other part of the bailout: Pricing and evaluating the US and UK loan guarantees

Viral Acharya, Raghu Sundaram 26 October 2008

The recapitalisation aspects of the October rescue packages have been widely analysed by the world's most effective think-tank in this crisis – the blogosphere. Here finance professors from LBS and NYU evaluate the rescue packages' loan guarantees. The UK scheme has the flavour of a small tax, and is partly market-reliant; The US plan has the flavour of a $50 billion subsidy, and is almost fully government-reliant. Which scheme works better may depend upon the depth of the coming recession.

To thaw frozen credit markets, governments on both sides of the Atlantic have taken a two-pronged approach – bank recapitalisation and loan guarantees. Specifically, the US, the UK and some European governments are re-capitalising their troubled financial institutions. They are also trying to kick-start interbank lending by announcing plans to guarantee all new senior unsecured debt out to three years.

The recapitalisation has received plenty of attention, but the load guarantees have largely flown under the radar – despite the huge sums involved. This raises questions:

- Are there taxpayer costs to loan guarantees?
- How big are the costs to taxpayers likely to be?
- What are the relative merits of the US and the UK schemes?

First, some details concerning the schemes.

The US and UK Guarantee Schemes

In the UK, nine financial institutions have been identified as initially eligible for the program (though more may be added later at the discretion of the UK Treasury). Senior unsecured borrowings of these institutions made on or prior to 13 April 2009 will be guaranteed by the UK government for a period of 3 years or maturity of the issue, whichever comes first. Participation in the program is optional, not just at the institutional level, but also at the *issue level*; that is, a prospective borrower wishing to issue a "Guaranteed Liability" applies to the UK government for a guarantee on that particular issue. Limits on the total volume of guarantees that may be sought by any one institution have not been laid out explicitly, though the UK Treasury has announced a cap of GBP 250 billion as the maximum amount of liabilities that will be guaranteed under the scheme.

The US program, administered by the FDIC, works very differently. *All* banks, depository institutions, and savings and loan companies are eligible to participate in the program. Institutions *not* wishing to participate in the program must inform the FDIC by 12 November 2008. If an institution does not opt out of the program, then *all* senior unsecured loans issued by it between 14 October 2008 and 30 June 2009 will be guaranteed by the FDIC for a maximum period of three years or until maturity of the debt, whichever comes first. The only exception is if a participating institution informs the FDIC (again prior to 12 November 2008) of its desire to also issue, during this period, *non-guaranteed* long-term debt maturing after 30 June 2012, in which case the guarantee applies to all new senior ed issues except these long-term issues. The maximum amount of liabilities issued by a stitution that will be guaranteed by the FDIC is 125% of the outstanding senior unsecured

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liabilities of the institution as of 30 September 2008; but unlike the UK, no cap has so far been proposed on the overall liabilities that will be guaranteed under the plan.

The Fees

Unsurprisingly, given the differences in the schemes, the pricing of the guarantees in the two countries is also along very different lines.

In the UK, an institution seeking a guarantee on an issue will be charged an annual fee of 50 basis points *plus* that institution's median 5-year credit-default swap (CDS) spread observed in the 12 months before 7 October 2008.

As an example, on 21 October 2008, Barclays decided to issue GBP 1 billion in 3-year senior unsecured bonds backed by the UK government's guarantee. Since Barclays' median 5-year CDS spread over the 12 months to 7 October 2008 was around 82 basis points, Barclays will be paying the UK Treasury a figure of 1.32% — about GBP 13.2 million — per annum for the guarantee. A few days earlier, on 17 October, taking advantage of the issue-level optionality available in the UK scheme, Lloyd's TSB elected to issue a GBP 400 million debt issue *without* seeking a guarantee. Lloyd's median CDS spread during the relevant period was only 62 basis points, among the lowest of any UK or US financial institution.

In the US, each participating institution will pay a flat 75 basis points per annum on the entire amount of its new senior unsecured liabilities (subject to the 125% cap mentioned above). If the institution has informed the FDIC of its intent to also issue non-guaranteed long-term debt, then the 75 basis points fee applies to the guaranteed portion of its new debt issues. But in the latter case, the institution must also pay a one-time fee of 37.5 basis points of that portion of its senior unsecured liabilities as of 30 September 2008, that will mature on or before 30 June 2009.

So, for example, under the US scheme, both Morgan Stanley – whose relevant median five-year CDS spread was over 159 basis points – and Bank of America – whose relevant median spread was 85 basis points (among the lowest of any major US bank) – would both pay the same 0.75% fee (about $7.50 million per year on a $1 billion guaranteed issue) despite the large difference in their market-perceived credit risks.

Question 1: Tax or Subsidy?

Table 1 presents information on the median 5-year CDS spreads on the eligible British banks over the one-year period expiring 7 October 2008.

Even a casual glance at these numbers suggests that the British Treasury's fees are a great deal higher than the proposed American flat fee structure (0.75% versus anything between 109 basis points for HSBC to over 178 basis points for Nationwide).

Are the British fees too steep — effectively levying a tax on participating banks — are the American fees are too low, with the taxpayer subsidising the banks?

Providing a meaningful answer to this question requires identifying a benchmark "fair price" of a three-year sovereign guarantee. Three benchmarks seem relevant. (Note we are in uncharted territory here; there is no history of sovereigns writing default protection on market issues of debt and pricing these off market quotes. The numbers we describe in this analysis should therefore be taken as indicative amounts rather than literally.)

- The *market* price of a similar three-year guarantee is a useful place to begin, namely the spread on a 3-year CDS.
  However, this market price represents a private, not sovereign, guarantee, and so is of lower quality. Using this approach will result in estimates that are possibly too generous to the banks.
- An alternative is to compensate for this undervaluation by adding the three-year swap spread to the three-year CDS spread.
  Roughly speaking, the three-year swap spread measures the difference between the three-year borrowing rates of an AA-rated institution and the Treasury in each country, and so is a

measure of the difference in credit quality of the sovereign and the "best" private borrowers. However, the greater liquidity of Treasuries may also widen the spread, so some portion of the spread may be due to liquidity factors.
- As a third option, to account for potential liquidity effects that may widen the swap spread but have nothing to do with credit risk, we can take the mid-point of the first two estimates.

We compare the fees below under all three alternatives.

Alternative 1: The first alternative we consider is where the fair value of the government guarantee is estimated as the market value of the three-year CDS spread plus the three-year swap spread.

The three-year swap spread over the last year has been on average around 90 basis points in both the US and the UK. For the 3-year CDS spread, we take the median value of the 3-year CDS spreads over the 12 months ending 7 October 2008. We note that these median spreads are well below the spreads prevailing in recent days (see, for example, the last two columns of Table 1 that describe CDS spreads as of 10 October 2008). The fourth column of Table 1 describes the resulting fair values by financial institution in the UK and the US.

The UK numbers

Table 1a: CDS fees and loan guarantee fee for the UK banks

Bank	Median 3-year CDS fee in year up to 7 Oct 2008 (bps)	Median 5-year CDS fee in year up to 7 Oct 2008 (bps)	Loan guarantee fee (median 5-year CDS + 50 bps)	"Fair-price" guarantee fee (median 3-year CDS + 90 bps)	3-year CDS fee as of 10 Oct 2008 (bps)	5-year CDS fee as of 10 Oct 2008 (bps)
Abbey National	56.5	72.6	112.6	146.5	76.5	83.3
Barclays	66.0	81.4	131.4	156.0	122.9	137.5
HBOS	93.3	112.7	162.7	183.3	180.0	185.0
HSBC	48.5	58.8	108.8	138.5	67.7	77.5
Lloyds TSB	55.6	62.5	112.5	145.6	102.4	105.0
Nationwide	122.8	128.3	178.3	212.8	248.7	291.8
Royal Bank of Scotland	73.5	85.9	135.9	163.5	185.1	190.0
Standard Chartered	50.3	67.5	117.5	140.3	80.7	91.7
Average	**70.8**	**83.7**	**133.7**	**160.8**	**133.0**	**136.5**

Source: Datastream.

The average guarantee fee over all eligible institutions works out to 133.7 basis points, whereas the average fair price works out to 160.8 basis points. This means an average *subsidy* of 27 basis points per year. If the entire available guarantee amount of GBP 250 billion is taken up, the resulting subsidy to be borne by UK taxpayers is of the order of about GBP 0.675 billion per year, or about GBP 2 billion over the three years of the scheme. The figure will be higher if the stronger banks opt out of the scheme, but even if only the four weakest banks participate in the scheme, the subsidy e rises to only about GBP 3.4 billion.

US numbers are of a different order altogether

The guarantee fee for all institutions is 75 basis points, while the average fair price works out to almost 120 basis points higher at 194.9 basis points. Assuming a total guarantee figure of $1.5 trillion (an estimate that is likely on the lower side), this means an annual government subsidy to the participating banks of $18 billion, or well over $50 billion over the three years of the scheme.

Table 1b: CDS fees and loan guarantee fee for the US banks

Bank	Median 3-year CDS fee in year up to 7 Oct 2008 (bps)	Median 5-year CDS fee in year up to 7 Oct 2008 (bps)	Loan guarantee fee (bps)	"Fair-price" guarantee fee (median 3-year CDS + 90 bps)	3-year CDS fee as of 10 Oct 2008 (bps)	5-year CDS fee as of 10 Oct 2008 (bps)
Bank of America	71.0	85.0	75	161.0	149.1	186.2
Citigroup	100.0	115.2	75	190.0	367.2	341.7
Goldman Sachs	109.0	107.0	75	199.0	605.2	540.0
JPMorgan Chase	70.6	85.0	75	160.6	152.1	162.5
Morgan Stanley	174.1	159.4	75	264.1	1621.6	1300.9
Average	**104.9**	**110.3**	**75**	**194.9**	**579.0**	**506.3**

Source: Datastream.

Alternative 2: What if we take a very generous (to the banks) approach and use the unadjusted 3-year CDS spread to represent the fair value of the guarantee? In this case, the average CDS spread for UK banks is around 70.8 basis points, about 63 basis points *less* than the average fee of 133.7 basis points. In this case, the UK fee represents a *tax* on participating banks that amounts, over the three years of the scheme, to over GBP 4.5 billion. If only the four weakest banks participate, then the tax figure falls to about GBP 3.3 billion.

But even if we use the unadjusted three-year CDS spreads for the US banks, a substantial subsidy remains. The average three-year CDS spread works out to 104.9 basis points against the fee of 75 basis points. This means a subsidy of 30 basis points per guaranteed dollar per annum, or about $13 billion over three years on a guaranteed principal amount of $1.5 trillion.

Alternative 3: As a final computation, we take the mid-point of the two earlier estimates. The cost of the guarantee scheme to UK taxpayers ranges between a low estimate of –GBP 4.5 billion and a high estimate of +GBP 2 billion. Averaging these estimates results in a figure of –GBP 1.25 billion, i.e., in a *tax* on the banks of about GBP 1.25 billion. If only the four weakest banks participate, then these low and high estimates become -GBP 3.4 billion and +GBP 3.3 billion, for an average cost near zero, meaning the scheme breaks even.

The high and low estimates for the US are, however, $13 billion and $54 billion, so even the average of these numbers leaves US taxpayers with a bill of over $30 billion over the three-year period.

Question 2: Optional Participation and Pooling/Separating Outcomes

ave noted earlier, the US and UK schemes have very different optionality features for the ating banks. What are the implications of these differences for take-up of loan guarantees

and easing of inter-bank lending and other credit markets?

UK scheme to produce a separating equilibrium

The UK scheme is likely to lead to what economists term a *separating equilibrium.* Banks (with some hindsight, HSBC and Lloyds TSB) whose credit risk is lower than the market's perceptions can opt out since the loan guarantee scheme provides them little subsidy relative to the fair price for guaranteeing their debt (and potentially imposes a cost). And there is no cost to opting out. In contrast, banks whose credit risk is worse than market's perceptions would find it costly to opt out and thus avail of the scheme. This separation will reveal to the markets which banks are healthy and which are not. It should be noted that the UK capital injection scheme has similar features too: it allows healthy institutions to opt out of accepting government infusion, and indeed HSBC, has opted out there as well.

US scheme to produce a pooling equilibrium

In contrast, the US loan guarantee scheme will force a *pooling* outcome wherein *all* banks within the eligible set – regardless of their health – will participate because it is not possible to re-enter later should conditions worsen and capital become even harder to access. To this stick is attached the carrot of guarantee rates that seem to be heavily subsidised relative to fair price. As an aside, we note that the US capital infusion plan too involved such pooling, with none of the nine eligible institutions allowed to opt out.

One would expect that in either case, government guarantees of bank debt should boost inter-bank lending in the near future. The question really is whether they will thaw markets sufficiently that the guarantees are not relied upon any further. On this front, the separating and pooling outcomes have sharply differing implications.

By revealing healthy banks from the pool, the separating outcome enables banks and markets to provide credit at prices that more accurately reflect the credit risk of counterparties. Such pricing of credit risk is also an important step in ensuring lending markets continue to function in an orderly manner once guarantees are removed. Separation also enables healthy banks to signal their quality to other banks and markets, making it costly for the unhealthy ones to raise debt and equity capital in future. Thus, the UK scheme, by design or coincidence, aims to achieve a market-style outcome at little cost to taxpayers (and possibly even at negative cost). All this is to the good.

The pooling outcome, in contrast, may keep the system reliant on government guarantees for a longer period since it does not facilitate a better pricing by banks and markets of individual banks' credit risk. It effectively gets healthy banks to subsidise the borrowing of unhealthy ones and does not impair capital-raising ability of the latter. The US scheme is best characterised as a bailout that transfers taxpayer funds to the banking sector.

But might the UK scheme end up being too harsh under some scenario? The answer is: it depends on the evolution of the financial crisis over next several months.

US vs UK schemes if the financial crisis deepens

The UK scheme implicitly relies on the assumption that following the recent capital infusions, even the unhealthy players are now solvent to a point that they are simply unlikely to fail in foreseeable future. If the financial crisis deepens further, due to global macroeconomic woes or revelation of more losses linked to imprudent lending, this assumption may prove incorrect. Under this pessimistic scenario, the unhealthy banks, having been separated out, will find it more difficult to issue capital and/or borrow and potentially fail. The inter-connectedness of banks may transform a significant bank failure, through contagion risk, into a systemic crisis that once again causes credit markets to freeze. And, the unhealthy banks, that took the government recapitalization and loan guarantees, will be forced to rely even more on taxpayer money. That is, the strength of the UK scheme – its attempt to achieve a market-style outcome – could end up being its Achilles' heel in case of further market stress. In contrast, the US scheme, by being a government bailout, has the one virtue in that it will ensure smoother tiding over such stress in future.

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How should governments assist banks during a severe systemic crisis: in the UK style that uses market information in its operation and looks to separate healthy and unhealthy institutions, or in the US one-solution-fits-all style? The answer is ambiguous.

The only clear picture that emerges at this stage is that the US and the UK schemes – both part of a globally coordinated rescue plan – in fact sit at opposite extremes – one with the flavour of a subsidy, the other laden with a tax; one partly market-reliant, the other almost fully government-reliant. Which one will emerge better? We will be able to tell only once we gauge the depth of looming recessions.

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