

**The Road to Better Resolution
From Bail Out to Bail In**

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The Road to Better Resolution:
From Bail-Out to Bail-In

Thomas F. Huertas^{*}

Better resolution forms a key component of the cure against future crises – along with better regulation, better supervision and better macroeconomic policy (Huertas 2010a). This paper outlines a possible path toward better resolution for large, systemically important firms.

Achieving better resolution of such firms is essential. “Too big to fail” is too costly to continue, and ways must be found to assure that failing banks can be resolved at no cost to the taxpayer and limited cost to society at large. Too big to fail distorts competition, creates moral hazard and threatens the public finances. The foundations for moving away from too big to fail are being laid: they are the introduction of special resolution regimes for banks and the requirements that banks prepare living wills (recovery and resolution plans). Atop these foundations now needs to come a means of resolving large, complex cross-border banks without equity support from taxpayers. Bail-in offers the promise of such a solution, and this paper analyses how that promise might be fulfilled.

Much is riding on the outcome. If bail-in can work, too big to fail can become a relic of the past. If bail-in cannot be made to work, the case for structural solutions (make banks smaller or make banks simpler) would become more compelling, as might the case for taxes on banks to pre-fund the resolution expenditures that might be required to bail out banks in the future.

The probability of bail out determines risk

For any private sector creditor the risk that the creditor will incur a loss is a product of three things:¹

- a) the probability that obligor will (absent a bail-out) have to default on its payments to the creditor (PD);
- b) the probability that a bail out will occur (PB); and

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¹ The expected loss may be expressed as $EL = PD \{PB * LGB + (1 - PB) * LGD\}$ and the risk premium demanded in the market will be a function of the expected loss. Note that the probability of default and the loss given default (without bail out) may be positively correlated.

- c) the loss given either bail out (LGB) or default (LGD).

Probability of bail out determines risk

	Likely to be rescued	Likely to be abandoned
Probability of default	20%	20%
Loss given default	25%	25%
Loss given bail out	0%	0%
Probability of bail out	95%	5%
Expected loss	25 bp	475 bp

A simple example shows the dramatic impact that the possibility of bail-out can have upon the expected loss associated with a credit. Take the case where there are two borrowers, “Likely to be rescued” and “Likely to be abandoned”. Each has a probability of default of 20% and a loss given default of 25%. If a bail out occurs, the loss given bail out is zero. The only difference between the two borrowers is the market’s estimate of the probability that the authorities will bail out the institution, if intervention is required.² For “Likely to be rescued” the probability of bail out is 95%. For “Likely to be abandoned” the probability of bail out is 5%. For the former the expected loss is 25 basis points; for the latter, the expected loss is 475 basis points. This dramatic difference in expected loss will lead to significant differences in the risk premiums that the two borrowers would have to pay.

This simple example suggests two things: (i) that the analysis of the probability of bail-out is integral to credit analysis; and (ii) changes in the market’s estimate of that probability can have significant effects on the spreads that borrowers will have to pay. If the change in the estimate of probability is either sudden or large, the consequent change in the spreads that borrowers would have to pay can adversely affect the economy at large.

Estimating the probability of bail out

The probability of bail-out depends on two factors – ability and willingness of a possible guarantor to bail-out the borrower in question. In some cases, legislation attempts to prohibit or limit the scope of guarantors who would be able to bail out

² Note that this market estimate may differ from the probability that the authorities themselves would assign to the possibility that they would bail out the institution, should intervention be required.

borrowers from doing so. Examples are the Maastricht Treaty restrictions on the ECB and the Dodd-Frank Act restrictions on the FDIC and other US authorities. In other cases legislation mandates that possible guarantors support borrowers, even though one or more of those guarantors might be unable to do so.

But there are limits to the constraints that a legislative authority can impose on its successors. Even if no bail-out rules exist, authorities have found ways to bail out borrowers. Governments have injected equity into banks to prevent their failure/closure; and Euro-zone Member States have created a financial solidarity pact to underpin the ability of such Member States to meet their sovereign obligations.

So it is in order for market participants to conduct some analysis of authorities' ability and willingness to conduct a bail out. Ability is a question of relative resources: does the possible guarantor have sufficient resources to provide a bail-out at the time the bail-out might be required? Will the bail out compromise the ability of the guarantor to meet its own obligations? Such questions can be answered via classic credit analysis under the assumption that the possible guarantor is obliged to bail-out the borrower, and such analysis can also shed light on the most cost-effective method for the guarantor to implement the bail out.

The willingness of the possible guarantor to bail out the borrower is more difficult to analyse. A starting point is a simple extrapolation of past behaviour. If an authority has executed a bail out in the past, the market is likely to conclude that the authority will act in a similar manner in the future if presented with a similar situation.³

Such a simple extrapolation could be expanded to include the cost – benefit analysis that the possible guarantor might conduct if presented with the question of whether or not to bail out a borrower. This would compare the benefit of the bail-out with the costs of providing the bail-out. The benefits of bail out relative to no bail out are generally considered to be greater financial stability, higher output and higher employment. The costs of bail out should at a minimum be the financial cost of the bail out itself. Ideally, however, the costs of providing a bail out should also include the knock-on effects of the bail out: reduced financial flexibility for the guarantor, and greater expectation among market participants that bail outs would become the norm – a factor that could actually promote future crises. Focusing solely on immediate benefits and costs (which are more certain and more likely to materialise during the term in office of the official decision maker) biases the results of the cost-benefit test in favour of bail outs.

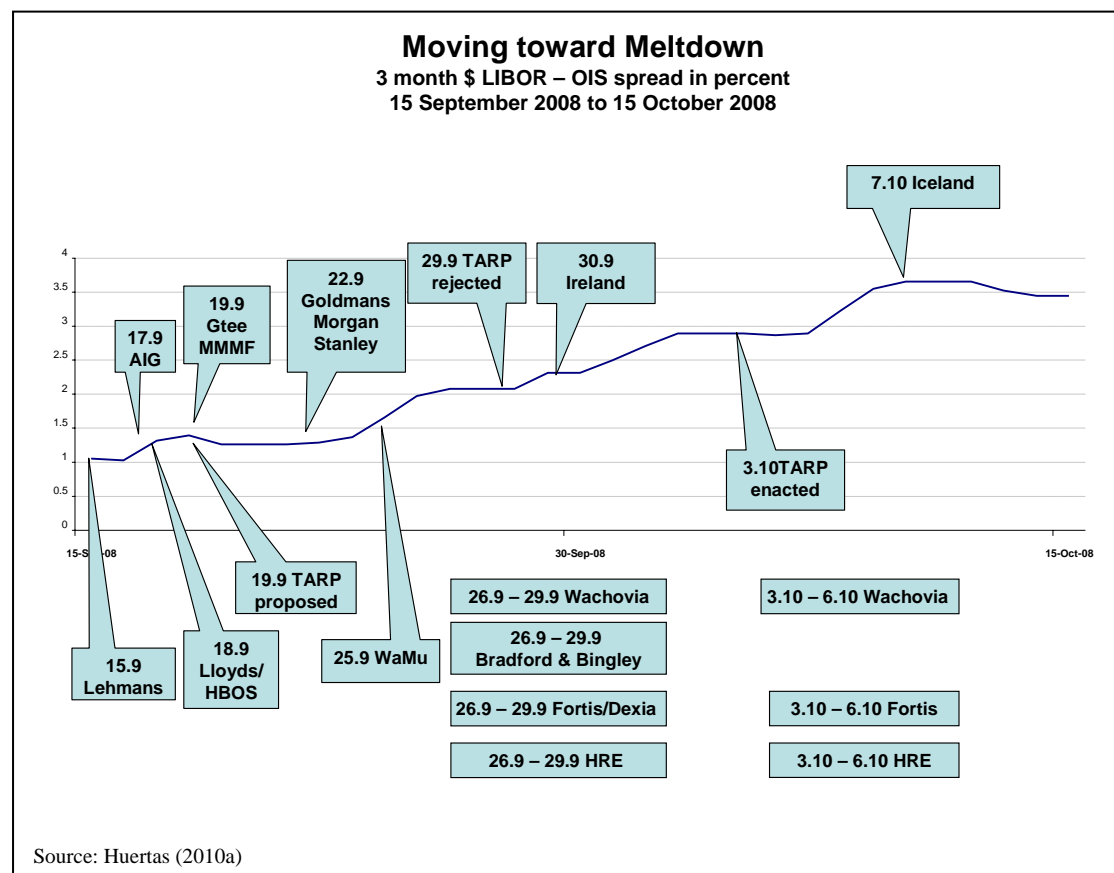
Impact of sudden changes in the market's estimate of the probability of bail-outs

Unexpected and sudden reductions in the market's estimate of the probability of bail-outs can have severe and immediate adverse consequences. As our simple example shows, a sudden shift in the estimated probability of bail out from 95% to 5% would dramatically raise the expected loss (and therefore the risk premium) on credits extended to the firm. This would raise the cost of funding to the firm and reduce availability of funds to the firm.

³ If market participants do in fact extrapolate past behaviour by the authorities, is exceedingly difficult for the authorities to pursue a policy of constructive ambiguity. Such a policy assumes that the market is genuinely in doubt as to whether or not the authority would or would not execute a bail out.

Such an abrupt reversal is exactly what happened in September 2008. On 14 September the US authorities ordered the parent holding company of Lehmans to file for bankruptcy (Paulson 2010: 220). This abruptly reversed the pattern of protecting large systemically important firms that had been established first through the rescue of Bear Stearns (March 2008) and then through the conservatorship of Fannie Mae and Freddie Mac (September 2008).

The resolution of Washington Mutual (WaMu) on 25 September further compounded the situation. Although the FDIC followed US law in applying the least cost resolution method to resolve WaMu, the resulting losses to unsecured creditors of the bank surprised many market participants,⁴ and made investors nervous about placing



funds in troubled banks, even on an overnight basis.

Further pressures on funding arose from the introduction of TARP. In seeking the funds from Congress, the US administration highlighted that it had exhausted its budgetary authority to save troubled institutions and outlined the dire consequences

⁴ Although WaMu was a very large bank – with over \$300 billion in assets, nearly \$200 billion in deposits and 2,200 branches in 15 different states – the FDIC did not invoke the systemic risk exemption allowable under US legislation (FDICIA) but resolved WaMu under the least-cost resolution method as prescribed by FDICIA. JPMorgan Chase bought the insured deposits as well as certain assets and liabilities of the insured bank subsidiaries of WaMu in an auction conducted by the FDIC. The premium paid was \$1.9 billion. Left behind were the assets and liabilities of the parent holding company as well as the unsecured debt of the operating bank subsidiaries, including uninsured deposits over the coverage limit of \$100,000. These creditors were exposed to serious loss.

that would arise, if Congress failed to enact the proposal. Yet Congress did initially reject TARP on 29 September, creating the spectre that even the United States would be too small to save its financial institutions. Congress did finally enact TARP on 3 October, but it then became apparent that the administration did not have a plan in place to implement TARP quickly.

The reversal in the market's assessment of US intervention/resolution policy was not contagion. The failure of Lehmans did not cause payments, clearing and settlement infrastructures to fail. In fact, they held up rather well.⁵ Nor did the failure of Lehmans or Washington Mutual cause losses to other market participants which were in themselves so grave as to deplete the capital and/or liquidity of the counterparty in question. What the failure of Lehmans did do was to underline to market participants that the US government would not necessarily stand behind other broker dealers. What the resolution of WaMu did do was to underline that the US government would set a very high bar indeed for invocation of the systemic risk exemption in the FDICIA legislation, and that the US authorities would seek to resolve even very large institutions by reference to the cost to the deposit guarantee fund rather than cost to society as a whole.⁶

Instead of contagion, the failure of Lehmans and the decision to employ the least-cost method to resolve WaMu were more akin to an undersea earthquake that set off a massive tsunami in financial markets. This tsunami had severe knock-on effects on specific institutions, on financial markets as a whole and on the economy at large. The most immediate effect of the Lehmans failure was to underline that the stand-alone investment bank was not viable. If the government let Lehmans fail, it dramatically increased the probability that it would allow other stand-alone investment banks to fail as well. Consequently, it made sense for investors to move their free cash balances and securities portfolios away from such entities toward entities associated with commercial banks (which were reckoned to have a higher degree of government support).

This started as soon as the markets opened on 15 September and continued throughout the week. The pressure was particularly intense on Morgan Stanley (whose credit default swap spread soared from 245 bp on 12 September to 883 bp on 18 September)

⁵ In part, this statement depends on the decision to prop up the US broker dealer subsidiary for a few extra days through emergency liquidity assistance from the Federal Reserve. This allowed Barclays to conduct accelerated due diligence on the assets and liabilities of the US broker dealer and to buy selected assets and liabilities of Lehmans. However, even in the UK, where the subsidiaries went immediately into administration, the infrastructures held up well. LCH Clearnet, for example, was able to use margin posted by Lehmans to liquidate its positions without having to have recourse to the default fund.

⁶ The FDICIA legislation did contain a so-called systemic risk exemption that allowed the FDIC to provide open bank assistance to a failing bank provided this was judged necessary by the FDIC, approved by a supermajority of the Board of Governors of the Federal Reserve System and as well as approved by the Secretary of the Treasury "in consultation with the President". The first time this systemic risk exemption was invoked was on the weekend of 26 September in connection with the proposed acquisition of Wachovia by Citigroup. However, this deal was never completed, as Wells Fargo made a superior offer that allowed Wachovia to be resolved without cost to the FDIC. The net result was a lack of clarity as to when the US government would invoke the systemic risk exemption and a lack of clarity as to whether the US authorities would or could stick by deals that were initially struck in a crisis situation.

and Goldman Sachs (whose credit default swap spread rose from 183 bp on 12 September to 548 bp on 18 September). The pressure on Morgan Stanley and Goldman Sachs began to abate only after each had announced new equity infusions from third party investors and their conversion into bank holding companies subject to oversight and supervision by the Federal Reserve with access to liquidity facilities from the Federal Reserve.

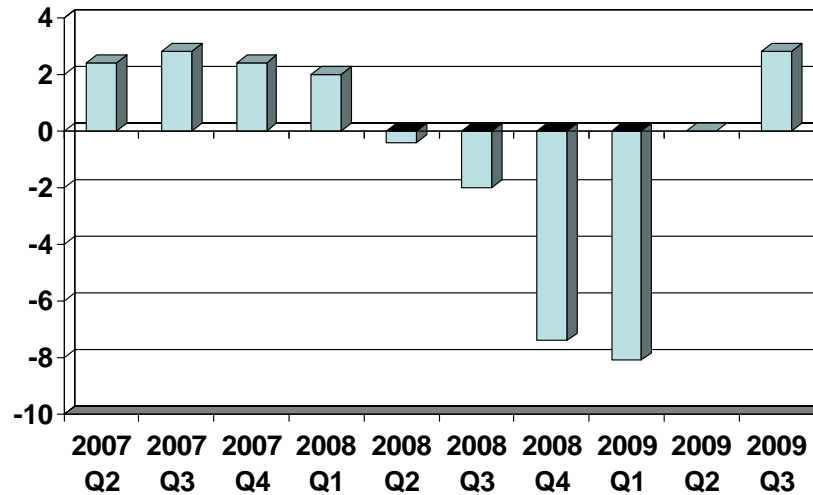
In contrast, the pressure on Merrill Lynch in the wake of Lehmans was not as great, despite much greater problems at the firm itself than at either Morgan Stanley or Goldman Sachs. The credit default swap rate on Merrills actually fell (from 455 bp to 398 bp) – evidence consistent with the hypothesis that the market expected Bank of America to support Merrills (in line with the merger agreement announced on 14 September) and the Fed, if need be, to support Bank of America.

Although stand-alone investment banks were the institutions most directly affected, the tsunami unleashed by the decision to force Lehmans into bankruptcy caused havoc in financial markets generally. It led to an immediate re-pricing of risk, to a flight to quality and to a run away from institutions judged most likely to require intervention. These runs accelerated the point at which various institutions ran out of liquidity and accelerated the requirement for the authorities to intervene. Immediately after the failure of Lehmans, the LIBOR – OIS spread began to climb into the stratosphere, rising from an already elevated level of 75 basis points on 12 September to 116 bp on 18 September. In this environment, institutions such as HBOS and WaMu with challenged credit portfolios and a high degree of reliance on short-term wholesale funding were particularly vulnerable, and they required, one after the other, some type of intervention.

The manner in which the US authorities resolved WaMu (although consistent with FDICIA) surprised the market and further aggravated the situation. The decision to impose losses on unsecured senior creditors and uninsured depositors was akin to a severe aftershock that unleashed a new tsunami. There was a renewed scramble for liquidity, with a flight to quality and away from institutions that had problematic asset and/or funding positions, such as Wachovia in the US, Bradford and Bingley in the UK and Fortis, Dexia, HRE and the Icelandic banks in the EEA. In the days following the resolution of WaMu, the LIBOR-OIS spread raced further toward the sky, rising from 152 bp on 26 September to 201 bp on 8 October. Together the resolutions of Lehmans and WaMu had substantially reduced the market's estimate of the probability that the authorities would bail out a firm requiring resolution. This created a vast scramble in financial markets for liquidity.

This scramble for liquidity set off a vicious debt-deflation cycle in the economy as a whole. To raise liquidity, banks began to sell off good assets and to contract the amount of credit that they extended. Firms began to run down inventories, slash investment expenditures, curtail production and cut jobs. Consumers stopped spending on durables such as cars, furniture and appliances and cancelled or curtailed vacations, entertainment and dining out. As a result, the world economy went into free fall. Output declined in the fourth quarter of 2008 and the first quarter of 2009 at a rate that was even faster than the rate of deterioration in the economy at the start of the Great Depression.

The world economy goes into free fall
*Real GDP growth, advanced (OECD) economies
quarter over quarter, annualised, in percent, 2007 - 2009*



Source: OECD 2009

The need for an 'exit strategy'

There is ample recognition that it is unsustainable to continue fiscal and monetary stimulus on the scale implemented in the fourth quarter of 2008 and throughout 2009. Finance ministries and central banks need to develop an 'exit strategy,' and the first signs of this are already apparent (Bernanke 2010).

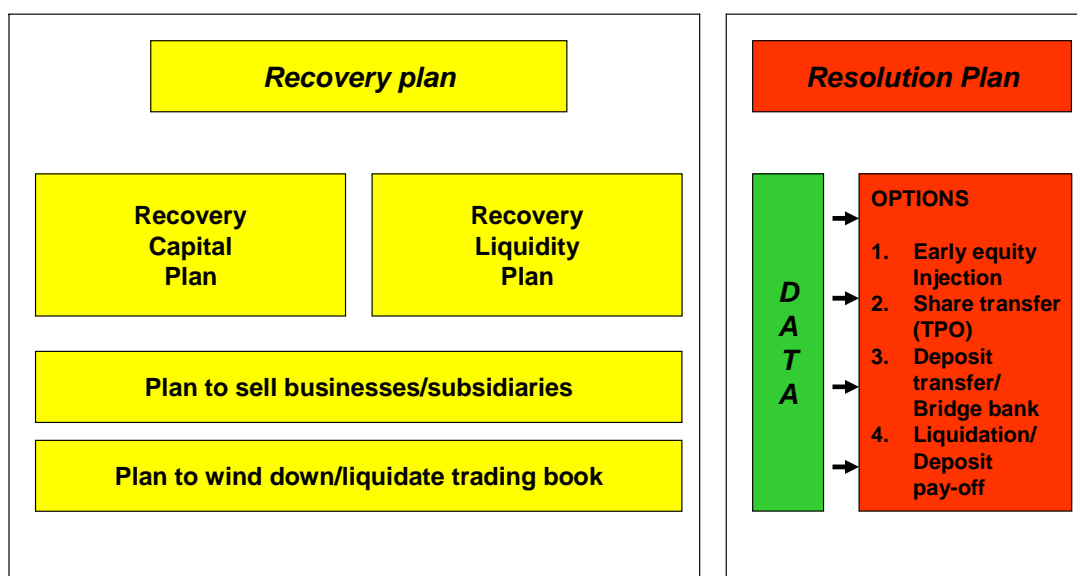
But this 'exit strategy' must encompass resolution as well. It is unsustainable for governments to continue to promise that no systemically important institution will be allowed to fail. Such a promise is unsustainable for two reasons. First, it removes market discipline from such institutions. That increases the probability that systemically important institutions will require intervention and that governments will be required to perform on the guarantee that they have given to such institutions. Second, the promise is unsustainable simply because of the potential expense involved. In many countries, the total balance sheet of the largest financial institutions is a multiple of the GDP of the country in which they are headquartered. Even if countries were willing to shoulder the responsibility of standing behind the liabilities of financial institutions headquartered in their country, they may not have the means to do so and/or they may not secure the political authorisation for the spending that would be required in order to meet such commitments of support.

We must move away from a policy of full support for systemically important financial institutions in a measured, considered way, lest we be forced to do so abruptly and repeat the mistakes made in the case of Lehmans and WaMu. We need to map out what our long term resolution policy should be, and consider how we will take steps to move from where we are today to where we need to be.

What should our resolution policy be?

Ideally, we want a resolution policy that allows governments to resolve institutions promptly without recourse to taxpayer funds, but at the same time minimises the social disruption that could occur from widespread interruption to deposit, insurance and/or securities accounts. This would allow for maximum continuity in customer-related activities whilst assuring that capital providers remain exposed to loss and avoiding the need to give widespread or long lasting guarantees of the bank's liabilities. Such a solution would also avoid the problems that arise from abruptly unplugging a bank from payments, clearing and settlement infrastructures. It would also allow for deposit accounts to be maintained, and revolving credit arrangements to continue functioning. In effect, such a solution would amount to an accelerated, but solvent wind down of the bank through rapid sales of certain aspects of the bank's activities to third parties and through a rapid reduction in certain activities. That would leave customers largely unaffected, but impose losses on investors/capital providers.⁷

Recovery and resolution plans ('living wills')



To ascertain how we can approach this ideal, the authorities have asked a number of large banks to prepare so-called 'living wills,' or recovery and resolution plans.⁸ With respect to resolution what living wills ask banks to do in advance is to make preparations so that the bank would be able to furnish at short notice the information that the authorities would need in order to make a choice among the resolution methods open to the authorities to use, should the condition of the bank deteriorate to the point where the authorities have to intervene. The actual resolution plan (choice among resolution methods) is for the authorities to develop.

⁷ For a fuller discussion of the difference between customer and investor capital see Merton and Perold 1993 and Huertas 2010c.

⁸ For a fuller discussion of living wills see Huertas 2010b.

Although the pilots are not yet complete, it is perhaps not too early to draw some tentative hypotheses about what should be concluded.

1. The task remains important

As outlined above, it is unsustainable to continue too big to fail. We need to move away from the notion that large systemically important firms will always be rescued. The market must come to expect that resolution, not rescue, is the probable outcome, if a bank's condition deteriorates to the point where intervention is required.

Such a change in the market's view must be well prepared. Simply switching over a weekend from "bail out" to "no bail out" will not work. The US tried that with Lehmans, and it brought the world economy to the brink of meltdown. We have to develop a method of resolving large, complex financial institutions that will not involve either significant taxpayer support or massive social costs, and it has to be accepted in advance that the authorities will employ this method to resolve such a firm, should the firm no longer meet threshold conditions (minimum regulatory requirements).

If resolution is not a realistic option for large systemically important firms, then it must be questioned as to whether firms should be allowed to become so large or so complex that they become systemic. That would point toward measures (surcharges on capital and liquidity requirements, taxes, limits on size and/or activity, etc.) that would force firms to become smaller and/or simpler. Conversely, if resolution is a realistic option, the need for structural reform would diminish and possibly disappear.

2. A special resolution regime is essential

Banks are not well suited to be resolved under normal corporate bankruptcy or insolvency procedures. Unlike non-financial corporations there is no ready way for a bank to continue to operate whilst in bankruptcy. This means that normal bankruptcy procedures in the case of a bank effectively amount to the liquidation of the bank – a process that almost always implies significantly higher costs than a resolution process that allows the firm to continue to operate.

For this reason it makes sense to impose a special resolution regime for banks. This has two aspects:

- a. Determination of the trigger point. This should be the point at which the supervisor determines that the bank no longer has adequate resources (e.g. capital, liquidity) to meet its obligations.
- b. Choice and implementation of a resolution method. The resolution regime provides the resolution authority with a range of methods that it can use to resolve a bank rapidly, if the supervisor reaches a decision that intervention is required. This allows the resolution authority to act within the time frame required (at most over a weekend, and possibly overnight).

3. Existing resolution options are insufficient to deal with systemically important firms

Broadly speaking, there are three methods of intervention/resolution open to the authorities under special resolution regimes, if they reach a determination that they must intervene. These are liquidation/deposit pay-off, deposit transfer/bridge bank and share transfer (temporary public ownership). Each involves a combination of taxpayer support, immediate impact and long-term market impact. None of the available methods is satisfactory for a large, systemically important bank, and for this reason the authorities opted during the crisis for a fourth method, early equity injection, that lies outside the special resolution regime.

Overview of Resolution Methods

	Taxpayer support	Immediate impact/cost	Long-term impact/cost (moral hazard)	Going/gone concern
Options under SRR				
1. Liquidation/deposit payoff	None	Very high	Eliminates moral hazard	Gone
2. Deposit transfer/bridge bank	Limited	High	Improves market discipline and reduces cost	Gone
3. Share transfer/TPO	TBD	TBD	TBD	Going
Early equity injection	Very high	Limited	High (increases moral hazard)	Going

Liquidation and depositor pay-off is as yet not readily implementable for a large, systemically important bank, particularly for one with millions of retail deposit accounts and/or very large provision of credit to small to medium sized enterprises (SMEs). In addition to the differentially higher losses that would result from allowing the bank to become a gone concern, there would be severe knock-on effects from any delay in depositors' having access to their funds⁹ and from SMEs' having to seek replacement for lines of credit that they had previously obtained from the failed bank. To some extent these immediate costs are reduced, if the authorities can put customer activities into a bridge bank and/or transfer deposits to a healthy bank. This allows for continuity of client business and avoids a good portion of the knock-on effects associated with liquidation and deposit payoff. But such a split of activities is very difficult to carry out quickly, particularly for large, complex, internationally active banks with significant numbers of transaction accounts and/or large derivative books. Such a split implies that some portion of the bank becomes a gone concern and that

⁹ The speed with which depositors receive their money depends to a large extent on the capability of the deposit guarantee scheme to pay out insured depositors promptly. Under the proposed revisions to the EU Deposit Guarantee Schemes Directive deposit guarantee schemes in Member States would have to be able to pay out insured deposits within 21 days of the failure of a bank. This will require streamlining the procedures in the deposit guarantee schemes of many Member States as well as changes to the data management procedures of banks themselves. It will also require assurances that the deposit guarantee scheme has immediate access to adequate funds. For a further discussion see Huertas (2010a: Chapter 8).

some taxpayer and/or central bank support may be required in connection with assuring that the “good bank” remains so.

The third method of resolution, share transfer or temporary public ownership (TPO) preserves the bank as a going concern, but effectively requires the taxpayer to guarantee the obligations of the failed bank and may require the taxpayer to inject new equity into the bank. This avoids the immediate economic repercussions that the failure of the bank would otherwise have caused, but adds to government obligations and weakens the government’s credit standing. This has long term implications as well. Market participants will regard the intervention as confirming the government’s willingness to bail out banks but as weakening its ability to do so, should further banks require assistance in the immediate future.

Early equity injection avoids some of these pitfalls. Under this method the government supports the bank without triggering the special resolution regime, so that the bank does not fail at all. This completely assures the continued operation of the bank and avoids measures such as close out of derivative transactions that can impose large costs on the bank itself and its counterparties. Formally, the equity injection is also voluntary, in the sense that it is approved by the shareholders of the bank and/or its board of directors. In some cases, the government provides the offer of equity as back-up underwriter – the bank is free to obtain equity from private sources if it can do so. The early equity injection may also avoid the government’s having to take full ownership of the bank. This reduces the prospect that the bank’s obligations will be fully regarded as government obligations – a factor that enables the government to retain a higher degree of financial flexibility.

However, early equity injection effectively bails out preferred stock holders, subordinated debt holders and other forms of investor capital such as senior debt that private market participants had provided to banks. The only capital provider to suffer is the common shareholder – s/he suffers death by dilution, and even this may be delayed or avoided, if the government provides new equity in the form of preferred stock or a similar instrument that the bank may subsequently redeem. Under an early equity injection, the taxpayer effectively takes the risk that the bank will not recover, not the private providers of non-equity capital to the bank. This weakens market discipline and creates moral hazard as well as potentially undermining the public finances.

4. Minimising the social cost of resolution depends on preserving customer activity

The social costs associated with the failure of a large, complex financial institution depend critically on whether or not the institution remains able to meet its customer obligations, such as payments on deposits and settlements on FX, securities and derivative transactions.

Such customer liabilities should be distinguished sharply from what might be called “investor capital”. Some investor capital is plainly labelled as capital. Preferred stock and subordinated debt are examples. The motivation for such an investment is the return on the instrument relative to the reward that the instrument provides. There are no services associated with the instrument, and the instrument is not provided the investor with protection against other risks (as derivatives would do). Arguably, long

term senior debt is also “investor capital,” although this is in most cases pari-passu with some or all customer liabilities.

5. Speed counts

In resolving systemically important firms, speed counts. There is a very narrow window between the close of business on one day and the opening of business on the next when business stops and the books of a large, systemically important firm can potentially be closed. At weekends this window may extend to as much as 36 hours – the time between the close of business in North America on Friday and the opening of business in Asia on Monday (Sunday in Europe and North America).

As a practical matter, the authorities have to implement their choice of resolution method within that window. If the resolution method is attempting to assure continuity in customer obligations, this has to be made clear to the market prior to the opening of business on the morning after the authorities have intervened. Once the authorities have made the decision to intervene, delay in announcing the resolution method or lack of clarity in how customers will be treated will begin to impose significant social costs on customers and society at large.

6. Bail-in of investor capital may provide a mechanism to resolve systemically important banks

Given all of the above, bail-in of investor capital may provide the most effective means to resolve a large systemically important bank. By bail-in we mean a process that effectively amounts to a pre-pack recapitalisation of the bank so that it can remain a going concern and continue to service all its customer obligations.

How would a bail-in work?

Bail-in effectively transforms certain non-equity obligations into equity at the point of intervention (but prior to formal declaration of insolvency) so that the bank can absorb the losses that led to the need for intervention and continue to operate as a going concern. This avoids the need to liquidate the bank or to split it into a good bank and bad bank. It also avoids the need for equity support from taxpayers such as would be provided under the option of early equity injection.

Conceptually, bail-in would work as follows. Upon a finding by the supervisor that the bank no longer met threshold conditions (the intervention point), bail-in would be triggered. Bail-in consists of two steps:

- a conversion of “back-up capital” into equity; and
- a write-off of losses.

There are a number of preconditions for success. These include:

1. The result of bail-in should be a bank with a clean balance sheet (i.e. one with no apparent losses remaining to be taken) and a strong balance sheet (i.e. one with an equity capital ratio substantially above minimum requirements). To achieve this, the bank has to have a sufficient amount of back-up capital available to bail-in.

The first and most obvious pre-condition is that there has to be enough back-up capital available to bail in. Unless this is the case, the bank will not have sufficient capital to recapitalise itself and write down or off doubtful assets. At the end of the bail-in process the bank has to have both a clean balance sheet and a strong balance sheet.

“Back-up capital” should consist of all forms of capital that would be eligible to be bailed in upon a finding that the bank no longer met threshold conditions. At a minimum this would include all non-equity forms of capital (non-core Tier 1 capital such as preferred stock, Tier 2 capital such as subordinated debt, etc.). It might also include certain forms of senior debt (see below).

The aggregate amount of back-up capital should be sufficient to completely replace the minimum required common equity of the bank. Anything less than this amount could prove insufficient to absorb the losses that the bank requiring intervention might have incurred. Ideally, the back up capital would also be sufficient to restore the buffer above the minimum to the target level designated by the authorities. This suggests that back-up capital should be at least 5% of risk weighted assets (RWAs) and ideally on the order of 10% of RWAs.

2. Strict seniority should be respected

For bail-in to work, it has to expose back-up capital to the possibility of loss, either through write down or conversion at the point of intervention. These losses have to be imposed in a manner consistent with strict seniority, if bail-in is to reinforce market discipline.

3. The bail-in process must be capable of rapid implementation

For bail-in to work, it must be capable of being implemented quickly and with a high degree of certainty. As outlined above, the relevant time frame for a large systemically important bank will be no longer than 36 hours.

4. Bail-in should preserve the bank as a going concern

For bail-in to work, the bank has to remain a going concern. This implies that bail-in itself should not be permitted to trigger close out on derivative contracts or cross-default on instruments that are not subject to bail-in. In particular, this implies that senior debt subject to bail-in will have to be designated effectively as senior subordinated debt, junior to deposits and other customer obligations that are not subject to bail-in.

5. Bail-in may need to be reinforced through liquidity provision from the central bank

It should be recognised that bail-in will not necessarily immediately restore market confidence in the bank. Bail-in may need to be supplemented by recourse to central bank liquidity facilities. These should be on a super-priority basis with a pledge of the bank’s unencumbered assets as collateral for any lending that the central bank may provide. To this end arrangements should be made in advance to prepare the

logistics (contracts, operations, etc.) that would be required for such a provision of central bank liquidity support. Steps should also be taken to monitor the amount of unencumbered assets that the bank would potentially have available to pledge to the central bank, should a bail-in be required.

Two approaches to bail-in

Broadly speaking there are two approaches to bail-in that might work. The first is a solvent wind-down approach; the second, a conversion approach.

1. Bail-in via write-down/solvent wind-down

Upon a determination by the supervisor that the bank no longer met threshold conditions, the resolution authority would take control of the bank. Under the share transfer/temporary public ownership authority, the resolution authority would acquire at zero up front cost the entire share capital of the bank, all the preferred stock, the subordinated debt and the senior debt subject to bail-in. Contractual payments on such instruments would be suspended, and they would be fully available for loss absorption.

The resolution authority would continue to operate the bank as a going concern. Customer liabilities would continue to be paid, and close-out of derivative contracts would not be triggered. Holders of instruments subject to bail-in would receive certificates entitling them to proceeds from the wind-down/liquidation of the institution. These proceeds would be distributed according to strict seniority, with senior debt being paid first, then subordinated debt, then preferred stock and, if any proceeds remained, common stock.

As an example, take the case where there is a bank with €1000 in assets, €900 of which are good and €100 of which are doubtful. Total risk weighted assets are €500. The bank's liabilities consist of €850 in deposits, €100 in senior debt, €15 in subordinated debt, €5 in preferred stock and €30 in common equity. The €30 in common equity is divided into 30 shares, each with a value of €1.¹⁰ Assume it becomes apparent that the doubtful assets will not be fully repaid. This prompts the market to cease funding the bank and the supervisor to determine that the bank no longer meets threshold conditions.

Under bail-in via write-down/solvent wind down, the resolution authority steps in. It issues notes to the holders of "investor capital" (common stock, preferred stock, subordinated debt and senior debt subject to bail-in) equal in amount to their prior holdings. The balance sheet total of the bank does not change, but the immediate loss absorbing capacity of the bank goes up from 30 (the amount of common stock prior to intervention) to 150 (the total investor capital). At the opening on Monday the bank continues in normal operation as far as its customer obligations are concerned. These continue to be met (although recourse may be needed to central bank liquidity facilities collateralised by the good assets of the bank).

¹⁰ This will consist of the par value of the stock plus the retained earnings of the bank. Note that this discussion is in terms of the accounting values of the instruments. The market values of the instruments may well differ.

Bail-in via write down/solvent wind down

	Prior to Intervention	TPO	Monday Asia opening	Write-down/distribution of losses during solvent wind-down
Assets				
‘Good’ assets	900	900	900	Remain good and are realised at full value
Doubtful	100	100	100	Are liquidated over time with losses amounting to 75
Total	1000	1000	1000	
RWA	500	500	500	
Liabilities				
Deposits	850	850	850	Continue to be paid on time
Senior debt subject to bail-in	100	Senior proceeds note (100)	100	Absorbs 25 in loss from realisation of doubtful assets at below book value, but obtains all remaining residual value
Subordinated debt	15	Subordinated proceeds note (15)	15	Absorbs 15 in loss from realisation of doubtful assets at below book value
Preferred stock	5	Junior subordinated proceeds note (5)	5	Absorbs 5 in loss from realisation of doubtful assets at below book value
Common stock	30	First loss note (30)	30	Absorbs first 30 in loss from realisation of doubtful assets at below book value
Total	1000		1000	
Immediate loss-absorbing capacity	1000		150	

As the wind down proceeds, losses will be realised. These are absorbed first by the first loss note (formerly the common stock), then by the junior subordinated proceed note (formerly the preferred stock), then by the senior subordinated proceed note (formerly the subordinated debt) and finally, by the senior proceed note (formerly the senior debt). In the example, losses on the doubtful assets are assumed to be 75, so the First loss note, the junior subordinated note and the senior subordinated note

receive no payments whatsoever. The senior proceed note effectively winds up with a claim equal to 75.

To keep the example simple, it may be assumed that at the end of the process the senior proceeds note is converted into common equity, so that the bank winds up with a total balance sheet of €925 and equity of €75. In all likelihood, however, the resolution authority might decide to sell some or all of the bank as a going concern to third parties during the solvent wind-down process. This may increase or reduce the proceeds that would ultimately be available to be paid to the holders of the proceed notes.

2. Bail-in via conversion

Bail-in via conversion of back-up capital to common equity

	Prior to Intervention	Conversion	Write-down	Monday Asia opening
Assets				
'Good' assets	900	900	900	900
Doubtful assets	100	100	0	0
Total assets	1000	1000	900	900
RWA	500	500	450	450
Liabilities				
Deposits	850	850	850	850
Senior debt	100	0	0	0
Subordinated debt	15	0	0	0
Preferred stock	5	0	0	0
Common stock	30	150	50	50
Total	1000	1000	900	900
Common/RWAs	6%	30%	11%	11%
Total Reg Cap/RWAs	10%	30%	11%	11%
Shares of common attributable to each class of capital				
		Conversion ratio	Number of Shares post conversion	Percent of total post conversion
Common	30	1	30	0.3%
Preferred	0	5	25	0.2%
Sub debt	0	25	375	3.6%
Senior debt	0	100	10000	95.9%
Total	30		10430	100.0%

It would also be possible to conduct a bail-in via conversion. Under this approach, the elements of back-up capital would be converted (following a determination by the supervisor that the bank no longer met threshold conditions) into common equity such that a euro of preferred stock (par value) received significantly fewer shares of common stock than a euro of subordinated debt (par value) and a euro of subordinated debt received significantly fewer shares of common stock than a euro of senior debt.

Following the conversion of the back-up capital into common equity, the immediately apparent losses that gave rise to the need for intervention would be taken and deducted from the new common equity total.

To illustrate, take a bank that has the same starting position prior to intervention as the one used to illustrate how bail-in via solvent wind down might work. The bail-in would work as follows. Each euro of preferred stock would be converted into 5 shares of common; each euro of subordinated debt, into 25 shares of common, and each euro of senior debt into 100 shares of common. Post conversion total equity would be €150 and the capital ratio (equity/RWAs) prior to write downs would swell to 30%. The bank would then write off the €100 in doubtful assets, so that the balance sheet would contract to €900, equity would fall to €50 and the capital ratio (equity/RWAs) would fall to 11% -- a figure more than double the 5% equity ratio assumed to be the minimum requirement. This is the balance sheet that would be presented to the market at the Monday Asia opening.

From this simple example, a few practical conclusions emerge. First, conversion can be economically practically as effective as write-off/solvent wind-down in assuring that common shareholders take first loss. Through conversion shareholders suffer what might be termed “death by dilution”. In the example, this is over 99%. Second, conversion can be accomplished quickly. It merely requires the establishment of ratios for the different categories of back-up capital. There is no need to conduct a valuation of the entire balance sheet. Valuation corrections can focus entirely on the doubtful asset categories that gave rise to the problem at the bank, and it may be possible to give such doubtful assets a very conservative valuation indeed (i.e. take a large write-off) so as to give the bank post conversion a clean balance sheet as well as a strong balance sheet.

There remain the questions of who should establish the conversion ratios and when should they be established. There are two candidates for who should decide the conversion ratios: the resolution authority or the bank itself. And there are two points at which the conversion ratios could be established: prior to intervention or at the point of intervention. This yields a 2 x 2 possibility matrix:

Bail-in via conversion
Timing and decision-maker for conversion ratios

		Point at which conversion ratio is determined	
		Prior to intervention	At intervention
Decision maker for conversion ratios	Resolution authority	Possible via statute or regulation but could not be institution-specific and may not be comprehensive	Possible, but would be subject to review/revision
	Bank itself	Possible via contract as part of new issues and/or amendment of old	Not feasible within required time frame

If the conversion ratio is established prior to intervention, this can be done either on a statutory/regulatory basis or on a contractual basis as part of the negotiation of the bank with the providers of capital and senior debt. If the statutory/regulatory approach is adopted, there is a question as to whether this would apply to newly issued instruments only, or to the stock of existing instruments – a factor that has a

bearing on how quickly a transition to a bail-in regime might be accomplished (see below).

If the conversion ratios are to be established at the point of intervention, it is really only feasible for the resolution authority to do this, and the resolution authority must have the requisite power to do so under the relevant special resolution regime(s). The bank itself will not be able to negotiate a conversion with the relevant parties within the required time frame. If the resolution authority is given the mandate to establish the conversion ratios, some provision would in my view need to be made to allow a period of time for the junior classes of securities to buy out the senior classes at a price that would be equivalent to redeeming their unconverted securities at par (possibly plus a premium).¹¹

From bail-out to bail-in

Much remains to be done before one can say with assurance that bail-in is a reliable method of resolving large, systemically important banks. The key elements in this process are:

1. Assuring that the authorities have the power under special resolution regimes to implement a bail-in.

In some jurisdictions, special resolution regimes for banks will need to be established. In those jurisdictions where special resolution regimes exist, they will need to be reviewed and possibly amended to assure that the resolution authority has the power to implement a bail-in. Where such powers already exist under current law, it should be made clear to market participants how the authorities would use such powers.

Arguably, the United States is already taking steps in this direction. The FDIC has issued a notice of proposed rule making (NPR) to implement the orderly liquidation provisions of the Dodd Frank Act that may be consistent with a bail-in via write-down approach.¹²

2. Assuring clear division of responsibilities in advance among home and host country authorities in the implementation of bail-in

Systemically important banks are generally large, complex, cross-border institutions. They are headquartered in a single jurisdiction, but may have branches, subsidiaries and affiliates in scores of different jurisdictions around the world. For bail-in to be

¹¹ In the example given, if the resolution authority had set the ratios at the point of intervention, the old common stockholders would be given the right to buy out the bailed-in shareholders for a total of €125 (plus accrued interest and a possible premium) for a period of time following the bail-in (say one month). If the common shareholders did not exercise this option, the preferred shareholders would have a similar option to buy out the common stock converted from the subordinated debt and senior debt. If the preferred stock holders did not exercise this option, the subordinated debt holders would have a similar option to buy out the common stock converted from the senior debt.

¹² **Federal Deposit Insurance Corporation 12 CFR Part 380 Notice of Proposed Rulemaking Implementing Certain Orderly Liquidation Authority Provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act** (available at <http://www.fdic.gov/regulations/laws/federal/2010/10propose1019.pdf>).

implemented at such an institution, the cross-border aspects need to be clarified and agreed in advance among the relevant authorities.¹³

3. Assuring that banks have sufficient back-up capital available for bail-in, should intervention be required

The Basel Committee (BCBS 2010) has already taken a step in this direction by proposing that all non-core Tier 1 and Tier 2 capital instruments be convertible into common equity or subject to write down at the point of intervention. Instruments could meet this test either by virtue of statutory provisions affecting such instruments or by contract.

Under the statutory approach the special resolution regime would mandate that non-core Tier 1 and Tier 2 instruments would be subject to convertibility or write down. Arguably the Dodd Frank Act, together with proposed rule making by the authorities to implement the Act, already accomplishes this in the US.

Under a contractual approach the documentation for all new issues of non-core Tier 1 and Tier 2 instruments would require legally binding measures to allow for convertibility or write-down at the point of non-viability/intervention (otherwise the new issues will not qualify as capital). Although this contractual approach may create a flow of instruments that are subject to bail-in, it does nothing to affect the stock of non-core Tier 1 and Tier 2 instruments that do not accord the resolution authority the capability of converting or writing down the instrument at the point of intervention (but prior to a formal declaration of insolvency). To accelerate the possibility of bail-in, it may be necessary to limit or phase out the grandfathering period of existing non-core Tier 1 and Tier 2 instruments. This would increase the flow of new instruments capable of being bailed-in, should intervention be required.

Additional factors need to be taken into account, if a decision is made to include senior debt as an instrument that would be subject to bail-in. Currently, such debt is in many regimes *pari passu* with deposits and other senior obligations. If senior debt is to be subject to bail-in, this will effectively transform senior debt into “senior subordinated” debt, senior to Tier 2 capital, but junior to deposits and other customer liabilities that will not be subject to bail-in. Although banks may be able to accomplish this solely through contractual arrangements, it may be necessary to supplement this with changes to regulation and/or statute.

¹³ For example, for a bank headquartered in the home country with branches in one or more host countries, it would seem necessary that the home country authority decide the point of intervention and activate the bail-in. The host countries would have to refrain from using the intervention by the home country as a cause to put the branch into insolvency or administration proceedings (as might be the case where the host country operated under the territorial principle). For a bank that has subsidiaries in host countries, the question arises as to whether the host country can implement a bail-in of the subsidiary or whether bail-in should be conducted at the group level only and organised by the home country supervisor. For a banking group organised with a non-bank holding company as parent, the authority of the home country supervisor would have to extend to the group as a whole. And, for banking groups that issue capital instruments that are governed by laws foreign to the home country jurisdiction (e.g. a non UK institution issuing capital instruments under English law), possible conflicts of law would have to be resolved.

Finally, consideration needs to be given as to whether systemically important banks should be required to hold a minimum amount of back-up capital (i.e. non-equity capital eligible for bail in), should intervention be required. As indicated above, this minimum should be sufficient to recapitalise the bank (replace the entire amount of the minimum regulatory requirement plus establish a buffer over that minimum).

4. Assuring consistency between bail-in and pre-intervention capital regimes

For bail-in to be effective it has to reinforce the capital regime applicable to banks prior to intervention. This will be the case, if the pre-intervention capital regime is phrased predominantly in terms of core Tier 1 capital – capital that is fully able to absorb loss whilst the bank is a going concern prior to any intervention by the authorities. This is exactly the direction in which the Basel Committee's recommendations are headed.

However, further discussion needs to take place with respect to the role of non-core Tier 1 and Tier 2 capital prior to intervention. It is acknowledged that such capital rarely absorbs loss whilst the bank is a going concern. It is further acknowledged that introducing loss absorbency could improve the quality of such capital. Many point to contingent capital as a means of doing so and urge that banks be able to, or be required to, issue such capital as a means of reducing the probability that the bank will fail and intervention be required (Huertas 2010a, Herring et al. (2010), Squam Lake (2010)).

What exact form contingent capital should take is still open to considerable debate. Some contend that a market-based trigger is appropriate; others see a regulatory ratio as the best choice for the trigger. There are also differences in how the capital is generated. Some issues convert into common equity; others are written off in part, with the amount of write-off accruing to the bank as earnings and an addition to capital. There are also differences in the “host” instrument (the instrument that is issued to investors prior to conversion or write-down). In some cases this is preferred stock; in others subordinated debt; and in one case senior debt.¹⁴

Such “going-concern” contingent capital (with conversion or write down prior to the point of intervention) holds considerable promise as a means of reducing the probability that intervention will be required. However, it seems premature at this stage to conclude that a particular form of contingent capital is the right form to the exclusion of all other forms. What is called for at this point is an indication of how regulators will treat such “going concern” contingent capital. At this stage, a few principles would seem to suffice:

- there would be no compulsion but also no prohibition on issuing “going concern” contingent capital;

¹⁴ Rabobank has issued senior debt that is subject to a write-down of 25% if the bank's core Tier 1 ratio falls below 7%. This write down accrues to Rabobank as earnings and adds to capital. The remaining 75% of the note is immediately due and payable to the noteholders.

- all issues of “going concern” contingent capital would be subject to prior regulatory approval to assure that the conversion or write-down feature would be effective;
- until such point as the instrument is converted or written down, the instrument will be treated for capital purposes according to the characteristics of the host instrument (e.g. if it is subordinated debt as Tier 2 capital);
- if the instrument sets a conversion ratio, the resolution authority will use that conversion ratio for that instrument if the conversion takes place in connection with a bail-in rather than prior to the intervention point.¹⁵

5. Improving transparency and accuracy of valuation

Instruments subject to bail-in will potentially be more marketable to investors, the greater the confidence investors have that the authorities will trigger the bail-in in a timely manner, i.e. at the point where the bank has breached minimum requirements but still has positive net worth. This will minimise the loss given bail-in for bail in via write down and increase the likelihood that a solvent wind down would be successful. For bail-in via conversion, such timely intervention would help assure the value of the common stock that the bailed-in investor would receive.

To create such investor confidence, banks may wish to take steps to value their portfolios more accurately and become more transparent with both supervisors and investors.

Conclusion

Many of the above steps can be taken over the coming months. In particular, it is key that the Basel Committee confirm that non-core Tier 1 and Tier 2 capital is subject to conversion or write down at the point of intervention. This should be supplemented by a requirement that banks (or at least systemically important banks) maintain a minimum amount of back-up capital. With such a framework in place, it can be anticipated that banks will seek to issue large amounts of going concern contingent capital on conversion or write down terms that would be more favourable to shareholders that would be the case if conversion or write down were delayed to the point of intervention. Effectively, much of the road to bail-in would be on a contractual basis and much of that road could be travelled fairly quickly. If so, this would significantly reduce the threat that “too big to fail” poses to financial stability and government finances.

¹⁵ It is possible that the situation of the bank may deteriorate so rapidly (e.g. as a result of suddenly uncovering a massive fraud) that the bank jumps immediately from a position of robust health to the point where it no longer meets threshold conditions and intervention is required.

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