

UACES 44th Annual Conference

Cork, 1-3 September 2014

Conference papers are works-in-progress - they should not be cited without the author's permission. The views and opinions expressed in this paper are those of the author(s).

www.uaces.org

THE FUNDING OF BANK RESOLUTION

David G Mayes¹
University of Auckland

Abstract

The Bank Recovery and Resolution Directive and the associated Single Resolution Regulation put emphasis on the financing of a resolution coming from the private sector and those that have knowingly taken on the risks rather than on the taxpayer through a bail out, which has been the recent experience. This chapter appraises the likely sources of financing should a large cross-border bank fail, particularly those that might be bailed in. It suggests that if the intention is to achieve a balance between the ‘fairness’ of the incidence and the minimizing of the impact on the real economy then a careful appraisal of the way the resolution tools are applied will be needed.

In a bank recovery or resolution the losses that have been made need to be offset by new equity capital in order to restore adequate capitalization if the bank is to be allowed to continue in business. The routes to doing this are well known:

- Raising new capital either from the existing shareholders or by a new issue on the market;
- Writing down the liabilities (bailing in);
- Performing a debt for equity swap – bailing in with recapitalisation;
- Getting a capital injection from the government or some other outside agency – bailing out;

¹ I am grateful to Giannoula Karamichailidou for comments on earlier drafts.

- Restructuring the organization so that the banking part that needs to be saved remains solvent while keeping the losses in a part that goes into insolvency;
- Finding a buyer who takes over the functions that need to be continued;
- Obtaining guarantees that will stand in lieu of actual capital.

These are not exclusive and in practice are usually used in some combination. The EU's Bank Recovery and Resolution Directive (BRRD)² and the associated Single Resolution Regulation (SRR)³ seek to make all of these possible.⁴ The BRRD also makes it clear that a bailout by the taxpayer which was the route most widely used in the global financial crisis (GFC) should, if possible, be avoided.⁵

The point of the BRRD is to try to make sure that bank problems and failures have a minimum impact on the wider economy and on the living conditions and standards of ordinary people.⁶ Both allowing large banks to fail and using public money to bail them out causes major disruption and costs to the real economy, as the cases of Lehman Brothers and the Icelandic banks on the one hand and the Irish banks among

² Directive 2014/59/EU, 15 May 2014.

³ Regulation (EU) No 806/2014, 15 July 2014.

⁴ The BRRD applies to whole of the EU (and indeed to the whole of the European Economic Area) but the SRR only covers those countries that are members of the Single Supervisory Mechanism (SSM), which is the euro area countries plus any non-euro area countries that have decided to join. How the financing of cross-border banks that are to be resolved is much clearer if all the systemic parts of them are in the SSM countries.

⁵ Art. 31 sect. 2 (c) 'protect public funds by minimising reliance on extraordinary public financial support'. (Many of the Articles in the BRRD and the SRR are identical. Article 14 in the SRR is the same as Article 31 in the BRRD.)

⁶ It is not actually phrased this way. Art. 31 sect. 1 (b) reads 'to avoid significant adverse effects on financial stability, in particular in preventing contagion ...'. One needs in turn to consider what the point of maintaining financial stability is.

others on the other demonstrate. The expectation is that by applying the BRRD these costs will be reduced.⁷ However, the European Commission's (2012) impact study is mainly qualitative. It suggests a net benefit from bail in of between 0.34% and 0.62% of GDP per year and estimates that bank funding costs would rise by between 4.7 and 15 basis points but it does not assess how the costs will impinge on the economy. New Zealand's assessment of its equivalent of the BRRD, Open Bank Resolution (OBR) (Hoskin and Woolford, 2011, RBNZ, 2013), by the Reserve Bank (RBNZ, 2012) provides a much clearer insight. The notable feature of this assessment is that the main benefits from the regulation are expected to come, not from less costly resolutions per se, but from a reduced chance of bank failures and bank problems in the first place and from the greater use of the methods of recovery and resolution that are less costly should any such problems or failures occur.

Very specifically, it does not assume that bailing in is a cheaper route to resolution than bailing out. Indeed there are obvious circumstances where bailing out is to be preferred. It is the incentive effects from the nature of the regulation which are expected to have the major impact. The assessment looks purely at this aspect of resolution. Many of the other steps, such as structuring the cross-border banks so they are legally easy to resolve in a crisis without the cross-border jurisdictional problems that the BRRD/SRR also seek to address, are already in place. Furthermore, it does

⁷ The degree of loss reduction could be enormous. The FDIC (2011) estimates that had an orderly resolution been performed on Lehman Brothers, the loss to general unsecured creditors could have been just \$5bn, once equity and subordinated debt holders had been wiped out, i.e. 3% of the value of their debt. As it is the losses are expected to range between 88.8% and 78.6% depending on the class of unsecured debt – more than 250 times larger. All this of course is without any consideration of the hugely costly knock on effects round the world. To use the FDIC's words it would have been able to 'preserve financial stability'.

not include all the measures that have been taken to improve capitalization, liquidity and stable funding that have been taken in advance of and as part of Basel 3, which are included in European Commission (2012).

This clearly poses a problem for the BRRD as the legislation does not give a clear view of what measures are going to be taken nor of the priorities that will be applied in any particular case. However, Art. 34, Sect. 1 does say

- ‘(a) the shareholders of the institution should bear first losses,
- (b) creditors of the institution under resolution bear losses after the shareholders in accordance with the order of priority of their claims under normal insolvency proceedings ...
- (c) management body and senior management of the institution under resolution are replaced’,

although there are some provisos to this last.⁸ This means that the incentive side of the Directive may be limited and hence the hoped for gains in reducing the impact of banking problems and failures on the real economy and society at large may be smaller than anticipated.

The SRR sets out in effect how the BRRD is to be applied for the countries participating in the SSM (euro plus non-euro volunteers). Its key feature is that for these countries there is a fund available (the Single Resolution Fund (SRF)) that can be used to meet costs to creditors that would not have applied if the banking institution had simply been allowed to fail and no attention had been paid to contagion

⁸ This is reproduced in Article 15 of the SRR.

or the consequences for financial stability as a whole.⁹ As this fund runs across the participating countries it needs to be centrally administered.

This chapter therefore begins by exploring the problems of assessing the costs of resolving failing banks and explaining the New Zealand scheme and the authorities' assessment of the impact the various resolution and recovery measures is likely to have on the economy. It then assesses the proposals in the BRRD/SRR in this light and finally draws conclusions for the ways in which the BRRD/SRR might be implemented in order to keep the risks to society at large to a minimum. In particular, it argues that the strong preference for bailing in rather than bailing out will only work if the scheme can offer certainty that bailing in will be applied. With the continuing complexity of cross-border institutions that is not a foregone conclusion.

1 Minimising the costs of failure resolution

In a normal insolvency the objective is to keep the costs to the creditors as small as possible. The outside concerns of the impact on society are largely neglected. It would be up to the government to act if it felt that the burden of a large factory closure on the local region were unacceptably harsh but this would be conducted outside the insolvency proceedings, except in so far as this involved support for a rescue. In the case of the BRRD, the authorities are on the inside of the resolution process and it is the spillovers or externalities for the rest of the economy which justify that intervention and the use of methods that curtail the rights of shareholders and creditors more than in the case of non-financial firms outside the Directive.

However, a recovery and particularly a resolution normally need to be executed in hurry. Not all of the actions can be performed overnight and hence, even in the

⁹ The implication is that creditors should only be liable for losses incurred by the institution itself and should not pay for any wider concerns for costs to others – including the taxpayer.

narrowly defined context of cost minimization, actions may have to be taken to keep the bank alive that would not be needed if only the immediate creditors would have to be considered.

This chapter, therefore, focuses on systemic problems. In other words, on cases where the consequences of failure would result in significant costs to society at large and not just to the immediate creditors and other stakeholders of the troubled institution itself.¹⁰ Significance is a subjective concept and purely reflects the passing of the point where the authorities feel that they need to consider alternative courses of action than just letting ordinary proceedings take place. These ‘ordinary proceedings’ themselves may involve substantial intervention by the authorities as since the GFC many authorities now have a *lex specialis* in place to handle banks pre-emptively and limit losses particularly to deposit insurers. Some of the issues raised in the present chapter apply even in those cases if such intervention were to make any of the parties worse off than they would be under the insolvency procedures that would apply to other companies. The BRRD suggests that creditors should not be worse off than under an insolvency but if they were to be they would need to be compensated and that implies either a transfer by those who are advantaged, the deposit insurer acting on behalf of the insured depositors for example, or by the ‘resolution fund’ or the taxpayer.

There are three sorts of categories of problems for banks that we can distinguish:

¹⁰ The SSR (59) makes it clear that ‘the winding up of an insolvent entity through normal insolvency proceedings should always be considered before a decision is taken to maintain the entity as a going concern’.

- Those that can be dealt with by the bank itself without the intervention of the authorities – largely because it does not breach the regulatory rules;
- Those where the bank does breach the regulatory limits but can recover without becoming insolvent or subject to resolution procedures;
- Those where resolution procedures are needed.

Even the first case can be an example of a ‘recovery’ in the sense that a voluntary bail in may be triggered through Contingent Convertibles (CoCos) or similar market instruments because the bank has got too close to the regulatory limits and has hence triggered either a writedown of the claim or more normally a debt for equity swap which helps the bank recapitalize immediately.

It is a non-trivial problem to estimate the costs of bank resolution, even if one focuses on the direct costs, as simply trying to assess what the losses are to a bank depends on the actions taken. Thus, for example, if a bank makes losses and decides to recapitalize successfully through the market, one can see the estimated impact on the balance sheet. However, we cannot see what the impaired assets would have been sold for had the bank been divided and they had been placed in an asset management company. Indeed, it will be difficult to assess what the actual losses were on the impaired assets if the bank continues, let alone to guess with any accuracy what bailing in or bailing out would have cost.

To an extent, this difficulty reflects the valuing of the bank as a going concern rather one which passes into resolution but it also reflects the fact that working through the bank’s assets and selling them off is likely to cost considerably more than allowing the bank itself to continue to manage its assets. This simple quantum increase in costs is one of the factors which encourages forbearance. If a bank can be sold as a going

concern or simply recapitalized, the resolution is likely to be much cheaper than any other option. The reason that such a sale is often not possible is that neither the actual losses nor the potential may be readily quantifiable, certainly not in the time available for making a decision, and potential buyers may be unwilling to take the gamble. This is one of the reasons why the deposit insurer may be prepared to step in and offer a guarantee against further losses if the information to them suggests that the risk is lower than the extra cost of an insolvency or other plausible resolution technique.¹¹

2 Where do the costs of a bank failure fall?

It is conventional (Hoggarth et al., 2001) to distinguish three main types of cost when assessing the impact of a resolution:

- Economic costs – usually assessed in terms of GDP;
- Fiscal costs to the government;
- Direct costs to the creditors;

and

- Costs to bank stakeholders through deposit insurance and resolution funds

need to be added to this.

However, this is too narrow an approach. There are other indirect costs which may not be so immediately apparent. Two obvious examples are:

- Bank costs;
- Moral hazard.

Banks may need to put in place new procedures which allow them to be resolvable in the manner required by the authorities. These may be simply new computer systems,

¹¹ Art 20 in the SRR covers valuation and appears to assume that an independent and objective valuation can be achieved. It is notable that this valuation cannot be challenged through the courts on its own but only as a part of a challenge to the authorities' (Board's) decision on resolution.

but they may also be more fundamental changes to the structure of the bank, which enables the ready separation of vital functions that must be continued without interruption from the other activities of the banking group. They may also affect the cost of the bank's funds. For example, if it becomes more likely that a bank will not be bailed out, then there will be a greater risk of losses to the shareholders and creditors, which will push the price of funding up.¹²

Similarly, the choice of resolution method may affect the risk-taking behaviour of both the bank in question and other banks in anticipation of what will happen to them. Thus, one bail out will lead other banks to expect similar treatment. Bailing out Bear Stearns is likely to have led those running Lehman Brothers and its creditors and counterparties to believe that it too would be bailed out. This moral hazard therefore needs to be added to the assessment.

In the case of bank costs, the effect can be reasonably easily quantifiable. In the case of moral hazard and other contingent events this is much more difficult. It is not possible to argue from what the stated rules are for who will bear the costs. It is what those who take the decisions believe will be the case which will affect the risks that are actually taken. Thus, for example, in the New Zealand case one might well believe that, if a crisis were to strike, the authorities would still introduce temporary creditor guarantees, whatever they have said beforehand, as that may be their judgement at the time of how to minimize the costs to society at large.

3 Open Bank Resolution in New Zealand

¹² It is arguable that simply requiring banks to hold more capital and liquidity will have little cost. Indeed, it might lower the costs of funding because failure becomes less likely (Admati and Hellwig, 2013) and hence the risk to those investing in or lending to the bank falls.

The New Zealand authorities have firmly grasped the problems of resolving large cross-border banks and feel they have a solution that will address all of the issues in a satisfactory manner (Hoskin and Woolford, 2011). It is particularly important in an assessment of the BRRD because its key ingredient is a compulsory bail in. The New Zealand banking system is dominated by four large Australian owned banks, ANZ, ASB, BNZ and Westpac, that hold over 85% of deposits between them. Individually, they are all of systemic importance and hence need special resolution arrangements that will allow their vital functions to keep operating in the event of a failure. The only remaining bank of any size, Kiwibank, is a subsidiary of NZ Post, which is itself a state-owned enterprise. The other banks are all small and, whether domestically owned or not, the Reserve Bank, as the supervisor and resolution authority, judges that they can all be simply placed in insolvency should they fail. The receiver would have the normal range of options open in terms of keeping the institution trading, the sale of all or part to another provider, creation of an asset management company etc. Kiwibank will presumably be recapitalized by its owner.

The four large banks, on the other hand, are now going to be subject to a scheme called Open Bank Resolution (OBR), which is currently being implemented.¹³ The key features of OBR are that each bank must be domestically incorporated and must be capable of operating independent of its parent or any other key supplier within the normal value day.¹⁴ In other words, that it could reopen on its own by the start of business on the following day, although of course the hope would be that it would have from Friday evening to Monday morning to implement the necessary change.

¹³ Other banks with more than \$1bn in deposits can opt in to the OBR system.

¹⁴ This 'Outsourcing Policy' has been in place since 2010 and the banks are all now subsidiaries (RBNZ, 2006).

The New Zealand authorities have thus cut through the problems of coordination among the various countries' authorities of a cross-border bank by making sure they can isolate and control their own systemic problems irrespective of what the home country decides. It may not be a lesser cost than effective coordination but it removes the uncertainty where there can be no legal compulsion for the Australian authorities to act in New Zealand's best interests if it prejudices their own.¹⁵

Under the Reserve Bank Act 1989, the Reserve Bank of New Zealand will apply to have a statutory manager (the equivalent of a receiver but under the direction of the Reserve Bank and with greater powers) appointed if the bank is either thought insolvent or incapable of avoiding insolvency.¹⁶ The statutory manager will then freeze transactions at the end of the business day and, before the start of the next business day, will make a summary but conservative valuation of the losses and then write down claims in order of priority until the bank is back to solvency on that conservative valuation. Thus, the shareholders will be written down first, probably to zero, then the subordinated debt holders and then the junior unsecured creditors and so on until the loss is covered. Since depositors are junior unsecured creditors and deposits are typically around 50% of the funding of the banks, it is unlikely that they will need to be written down to zero and the claims of more senior creditors will remain whole. Most claims will not be due for immediate payment and hence do not need to be released from the freeze immediately. Deposits do however, and so each

¹⁵ Indeed there is a *prima facie* expectation that the Australian authorities will discriminate against New Zealanders as they have domestic depositor preference in a resolution.

¹⁶ To be precise the Reserve Bank recommends to the Minister of Finance that he ask the Governor-General to appoint a statutory manager. This possible over-riding of property rights thus has to be agreed at the highest possible level in the country, although it is unthinkable that the Governor-General would refuse in any normal circumstance.

deposit will be divided into a frozen and an unfrozen part. When the bank reopens at the beginning of the next business day all the transactions in progress will be unfrozen and completed and depositors will have access to the unfrozen portion of their accounts. No netting will be applied although there is a *de minimis* option of excluding small accounts and the illustration of this (RBNZ, 2013) is shown for \$500 (around 300 euro at present exchange rates).¹⁷

Thus, vital functions are kept operating and close out clauses will not be generated.¹⁸ Since the bank is now being operated by the statutory manager backed by the Reserve Bank, there should be no ratings downgrades and counterparties will have confidence in dealing with the bank in the future, quite possibly with the benefit of a government guarantee against further loss. The taxpayer is only exposed if the conservative write down proves insufficient or if the bank makes new losses while under statutory management. The statutory manager now has time to organize the disposal of the bank while keeping it trading. Note that the creditors do not recapitalize the bank, that will be done by the acquirer, or will not need to be done if the operations are wound down. So this is not a debt for equity swap as was discussed in earlier versions of the proposals (Harrison et al., 2007).¹⁹ As the statutory manager manages to value the various impaired assets more accurately and resolves non-performing loans or indeed organizes the sale to others, it may well be that a higher valuation of the assets can be applied, in which case additional portions of the claims can be unfrozen.

¹⁷ While this could exclude a large number of trivial and dormant accounts it means that the large majority of depositors would need to be written down.

¹⁸ Assuming that is, that there are no problems with constraints in foreign jurisdictions (IIF, 2014).

¹⁹ See Mayes *et al.* (2001) for a discussion of the range of techniques that could be applied in restoring the balance sheet.

There are extensive repositioning requirements to make this rapid reorganization practicable. The bank must be able to identify all of the claims overnight and must be capable of performing the division into frozen and unfrozen parts for all depositors in that time period.

There seems to be little reason to doubt that this could be implemented in practical terms but there are two important obstacles to this happening. The first is the treatment of depositors. There is no deposit insurance in New Zealand. First of all, it is open to question whether a government would be prepared to allow a substantial up front loss to ordinary people who are also electors and likely to be very aggrieved. Secondly, if depositors know they are likely to be written down they will have every incentive to withdraw all of their funds from a bank with potential trouble as soon as they hear about it. Thus OBR will tend to provoke a bank run in these circumstances, probably on all banks, as people fear contagion.²⁰ Hence, to my mind, OBR is only a workable system with deposit insurance in place. The second obstacle is that this arrangement ignores what the Australian authorities do or wish to do.

Since the New Zealand operations are around at least 15% of the total operations of the bank, a problem in New Zealand will be a problem in Australia and vice-versa. The Australian authorities have made it clear (Mortlock, 2011) that they will follow a different route, not least because they do have a deposit guarantee scheme and domestic depositor preference in insolvency. The same four banks are the main banks in Australia. None of these will be allowed to fail nor will they be allowed to merge. A similar scheme of statutory management will be applied but the capital support will

²⁰ This in itself will increase financial instability as it will bring forward the date at which the authorities have to intervene and will reduce the time they have for preparation. That is the time between when they recognise that there is a problem and when they have to act.

come directly from the government in the short run, as the deposit guarantee scheme is not funded, and this will be recovered from the creditors as the insolvency is worked through.²¹ Since the Australian banks are the owners of the New Zealand subsidiaries, the New Zealand resolution imposes the first losses on the Australian banks thereby increasing the problem in Australia and freezing some of the potential cash flow. It could well be that a joint resolution or even a resolution applied to the banking group as a whole would be a less costly outcome. OBR is only an option. It does not have to be applied, so the outcomes in New Zealand are rather more open than might initially be thought.

Nevertheless, it provides a suitable backdrop for assessing costs under the BRRD. The only other obvious case to look at is Denmark (Poulsen and Andreasen, 2011), where a compulsory bail in scheme has not merely been implemented but actually used, although only in the case of two small banks. Here the notable feature is how far the junior creditors had to be written down in the initial conservative valuation (41.2% in the case of Amagerbanken, initially). A compulsory bail in on such a scale would not merely be highly controversial but in the case of a large bank would still result in systemically important disruption.

4 The RBNZ Assessment

RBNZ (2012) considers the economic (% of GDP) costs of a large bank failure for four circumstances:

1. The bank succeeds in getting recapitalized through the market;

²¹ On 2 August 2013, shortly before the general election in September, the then government announced a plan to introduce a resolution fund, built up by a levy on the banks over a number of years (<http://ministers.treasury.gov.au/DisplayDocs.aspx?doc=transcripts/2013/022.htm&pageID=004&min=cebb&Year=&DocType=>). Since they lost the election, the issue remains open.

2. The bank is bailed out;
3. The bank is resolved through 'normal' statutory management (receivership);
4. The bank is resolved by Open Bank Resolution (OBR).

(It quotes a range of costs for both method 2 and method 4; the lower cost end being labeled 'good' and the higher cost 'bad'.)

The first point to notice is that they assume that for a large bank to fail in this manner it must be part of 'crisis' even if it is the cause of it. Therefore, there are going to be substantial costs to the economy if only because risk aversion will increase rapidly. Hence even for this baseline, best option, case they estimate a likely cost of 12.5% of GDP. Unfortunately, the model which they use for the calculation is not published but, even if the reader is justifiably sceptical of the exact numbers, the nature of the conclusions and their ranking is likely to be robust.

A bailout is expected to be the next less costly at 17.5-20% of GDP, while the previous statutory management regime is expected to be worst at 25% of GDP because it will probably involve closure. However, OBR is not expected to offer much in the way of a cost improvement, with a range of 20-25% of GDP being quoted. Thus, an OBR style bail in is not being implemented because it has a lower cost if it has to be applied compared with a bail out or the previous regime of compulsory resolution. The gain comes because of the incentives it offers for the management of bank risk.

If a bail out is going to be less costly to the authorities than a standard resolution then the banks will (probably correctly) think that they will be bailed out and hence this will not only increase the chance of a failure but increase the chance of an expensive failure. The costs to the bank's shareholders and directors are likely to be perceived as lower under a bail out rather than a private sector recapitalization, because the new

ownership may well result in a greater dilution of common equity and a more drastic change in the management and structure of the bank. Governments are typically fairly hands-off owners, as illustrated by the experience with Lloyds and RBS since the GFC in the UK and may not provide all of their injection in the form of common equity.

What OBR does then is act as a plausible threat. The authorities now have at their disposal a very effective resolution method, which management and shareholders will not like. Hence, they will put much more effort into trying to ensure both that the problems do not occur and, if they do, that a market solution is found. If we look at the computations in Table 1 drawn from RBNZ (2012), we can see that the reason that OBR is an improvement is that the probability of less costly methods of resolution being applied is now much greater. Table 2, from the same source, shows that the gain is of the order of \$3/4 bn. Furthermore, since the government no longer has to provide so much in bailout funds it too expects to get a net fiscal gain from the use of OBR even though it would only be used if a 'good' bail out were not possible.

It is worth noting that this arithmetic is finely balanced, if a bad bail out were less costly than a good OBR, then the incentives for better risk management would not be present. Banks would still expect a bail out as the less costly method and hence would not strive so hard for market solutions (or crisis avoidance). Since the bail in anticipated in the BRRD is different from OBR we cannot make a decision at this stage as to how the incentives would work out in Europe.

The second thing to notice about OBR in Table 2 is that it imposes a clear cost on the banks. It is essential then that the weight of the relative costs balance out correctly if OBR is to be viable. If there is no economic cost gain between a bad bail out and a

good OBR and yet OBR imposes costs on the banks, it is only the larger fiscal costs to the taxpayer of a bail out which make OBR equitable.

There is another serious downside in these calculations. The costs to the banks are not hypothetical estimates of what might be incurred should a crisis materialise. They are paid whatever happens as they are pre-positioning costs from the very existence of the OBR regime not something which is only paid if an OBR is triggered. Thus, the more effective the regulatory changes from implementing Basel 3 through CRD IV and other crisis avoidance measures are, the larger the costs of having an OBR will be compared to the prospective resolution costs, should a crisis actually occur. This same line of argument applies to any other upfront costs of the resolution regime such as resolution funds, recovery and resolution plans and compulsory division of banking groups such as those suggested in the Liikanen Report (2012) (as it does to any other low cost measures which improve crisis avoidance). Banks have not been slow to point out that costs imposed on them in the short run impede their ability to expand lending and help the European economies out of the crisis.

5 Who Pays Under the BRRD?

Paragraph 5 of the preamble to the BRRD summarises the principles to be applied clearly:

A regime is therefore needed to provide authorities with the tools to intervene sufficiently early and quickly in an unsound or failing institution so as to ensure the continuity of the institution's critical financial and economic functions while minimising the impact of an institution's failure on the financial system. The regime should also ensure that shareholders bear losses first and that creditors bear losses after shareholders provided that no creditor should incur greater losses than it would have incurred if

the institution had been wound up under normal insolvency proceedings in accordance with the no creditor worse off principle as specified in this Directive. New powers should enable authorities, for example, to maintain uninterrupted access to deposits and payment transactions, sell viable portions of the institution where appropriate, and apportion losses in a manner that is fair and predictable. Those objectives should help avoid destabilising financial markets and minimize the costs for taxpayers.

Again in paragraph 31: ‘Recovery and resolution plans should not assume access to extraordinary public financial support or expose taxpayers to the risk of loss.’ Clearly, this ranks high in the thinking as the remark is repeated in (67) ‘An effective resolution regime should minimise the costs of the resolution of a failing institution borne by the taxpayers.’ With the exception of deposit insurance, use of public funds should come after the resolution tools have been applied (55). It is also assumed that action will occur before losses mount too far: ‘The resolution framework should provide for timely entry into resolution before a financial institution is balance sheet insolvent and before all equity has been fully wiped out.’ (41).

We can thus see (Art. 34: 1 (a), (b), (f)) that, in a resolution, the plan is to write down shareholders first and then bail in creditors in order of priority, treating those in each class equally.²² Where this involves insured depositors the deposit insurance fund is to bear their share of the bail in not the depositors themselves. Up to this point then the BRRD is identical to the OBR with the addition of deposit insurance to make the whole scheme plausible. The big difference is that the BRRD sees the resolution tools (sale of business, bridge institution, asset separation and bail in) bringing the bank back not just to solvency but to adequate capitalisation (Art. 43:2 (a)). That is a major

²² And (c) ‘management body and senior management of the institution under resolution are replaced’.

difference as enough of the existing claims also have to be converted into eligible capital, more than half into new equity, according to the terms of CRD IV. This does not imply imposing a greater credit loss on the creditors, indeed it may be smaller as the new equity is likely to rise in value as the bank recovers but it does suggest that there may be a change in the liquidity of the claim in addition to its being reduced to the most junior claim on the bank.

The point here is that this increases the chance of running out of readily bailable funds or more likely simply increasing the burden on the deposit insurance fund because it will now be holding equity in the recapitalised bank as part of having to meet its share of the losses. Art. 45 requires resolution authorities to ensure that banks hold a minimum amount of bailable funds at all times and section 6 spells out what would determine that minimum. Subsection (c) contains the key phrase:

the institution has sufficient eligible liabilities to ensure that, if the bail-in tool were to be applied, losses could be absorbed and the Common Equity Tier 1 ratio of the institution could be restored to a level necessary to enable it to continue to comply with the conditions for authorisation and to carry on the activities for which it is authorised under Directive 2013/36/EC or Directive 2014/65/EC and to sustain sufficient market confidence in the institution or entity.

Secured liabilities, including covered bonds, instruments with a maturity of less than seven days, as well as liabilities to employees, the tax authorities²³ and trade creditors cannot be bailed in (Art. 44: 2). Clearly, this problem will not apply if the authorities have managed to resolve the bank by sale to a third party or by a good bank/bad bank split. Indeed, this may very well increase the attractiveness of using routes other than

²³ Assuming they are preferred creditors, which is the norm.

a bail in, or at least using them sufficiently in the resolution that the bail in route to recapitalisation is small. Article 41 on bridge institutions does not make it clear whether such an institution has to be adequately capitalised or whether it can operate with a government guarantee against further loss in lieu of capital.²⁴ If that is the case, it will increase the attractiveness of using a bridge institution until such time as a buyer who can apply the recapitalisation appears. This would in effect return the arrangements to similarity with the New Zealand scheme as in that case the statutory manager is effectively running a bridge until the bank can be recapitalised.

Article 45 also draws attention to the difference between contractual bail in instruments and the compulsory bail in under OBR. One of the ways in which a bank can more readily meet the requirements is to have sufficient contractually bailed in instruments. If these are of the form of a debt for equity swap as in many CoCos this would make the achievement of recapitalisation that much easier (Avdjiev et al., 2013). One of the problems about compulsory conversions is that they may result in a large number of unwilling or even unsuitable shareholders, which will make governance of the newly recapitalised bank difficult.

However, there is one further complication to the whole issue of ‘who pays’ created by Title VII on the financing arrangements. OBR assumes, like most insolvency

²⁴ Art. 41 first says : ‘(e) the bridge institution is authorized in accordance with Directive 2013/36/EU or Directive 2014/65/EU ...and has the necessary authorization under the applicable national law to carry out the activities or services it acquires ... (f) the bridge institution complies with the requirements of, and is subject to supervision in accordance with Regulation (EU) No 575/2013 and with Directives 2013/36/EU and 2014/65/EU,. However, it then goes on: ‘Notwithstanding the provision referred to in points (e) and (f) ... and where necessary to meet the resolution objectives, the bridge institution may be established and authorized without complying with Directive 2013/36/EU or Directive 2014/65/EU for a short period of time at the beginning of its operation.’

proceedings, that once shareholdings have been found to be of zero value, it is the creditors who pay for the resolution – in effect the costs of the resolution are added to the loss. Art 100 on the other hand requires all Member States to have financing arrangements in place to cover various of the costs of the resolution.²⁵ These costs are not simply that the administrators need to be paid along with the various fees associated with the transactions that they take but include the instruments themselves, whether purchases, loans or transfers.²⁶ These resolution ‘funds’ are to be built up by a series of levies on the industry until they reach 1% of covered deposits. These funds can be topped up by the taxpayer if necessary. According to the Preamble, paragraphs

²⁵ With the new SRR, the word ‘fund’ has been dropped from Art.100.

²⁶ According to Article 101: 1

‘The financing arrangements established in accordance with Article 91 may be used by the resolution authority when applying the resolution tools, for the following purposes:

- (a) to guarantee the assets or the liabilities of the institution under resolution, its subsidiaries, a bridge institution or an asset management vehicle;
- (b) to make loans to the institution under resolution, its subsidiaries, a bridge institution or an asset management vehicle;
- (c) to purchase assets of the institution under resolution;
- (d) to contribute capital to a bridge institution or an asset management vehicle;
- (e) to pay compensation to shareholders or creditors in accordance with Article 75;
- (f) to make a contribution to the institution under resolution in lieu of the contribution which would have been achieved by the write down of certain creditors, when the bail-in tool is applied and the resolution authority decides to exclude certain creditors from the scope of bail-in in accordance with Article 44(3) to (8);
- (g) to lend to other financing arrangements on a voluntary basis in accordance with Article 106;
- (h) to take any combination of the actions referred to in points (a) to (g).

The financing arrangements may be used to take the actions referred to ... also with respect to the purchaser in the context of the sale of business tool.’

72-75 the point of the funds is to cover costs which would not otherwise be imposed on creditors. Such funds may not be used until:

‘losses totalling not less than 8% of total liabilities including own funds have already been bailed in, and the funding provided by the resolution fund is limited to the lower of 5% of total liabilities including own funds or the means available to the resolution fund and the amount that can be raised through ex post contributions within a period of three years.’ (73)

Thus, resolution funds have two limitations – they are not available for cases where there are only limited losses and they have a maximum use. Consequently, very large failures would continue to be a liability for the creditors once the permissible limits of the fund are reached.

Given that resolution funds are contributed by banks and hence their stakeholders in some proportion, the impact of their use is no different from a contributory deposit insurance scheme. All banks’ stakeholders contribute in advance of the problem to the fund and again afterwards till the fund is built up again to its required strength. If the fund has insufficient resources, then it is topped by the taxpayer until the new contributions repay the shortfall. However, it is by no means clear that these funds are contributed by depositors rather than the other stakeholders as the funds can come from decreased equity returns, increased charges, increased spreads ... the possibilities are large.

The importance of this step is that this part of the loss is not in the main being incurred by people who knowingly took a risk by lending to the troubled bank, i.e. only in so far as the depositors in that bank in effect contributed to the insurance and

resolution funds. The others were involved in other banks although they may well have realised they were taking on the risk from any bank failing.²⁷

6 The Impact of the BRRD

The European Commission (2012) impact assessment of the BRRD is a rather different document from RBNZ (2012) and it is more difficult to divine the costs and benefits it expects.²⁸ A large Annex (XIII) sets out the calculations which include the need for greater capital under CRD IV and the other measures as well as the bail-out tool and the deposit guarantee/resolution funds. The way the analysis proceeds is two-fold. The first is to try to estimate, using a model called SYMBOL, what the extent of the losses will be for systemically important banks in the event of a crisis according to a range of scenarios for the severity of the crisis and the likely losses given default.²⁹ Given this expectation, it is then possible to see what the demands will be on the various means of meeting losses: increased capital; deposit guarantee and resolution funds; bailable funds and ultimately the taxpayer. The second step is to estimate the extra costs of raising these funds such that sufficient funding will be available in each category to avoid the use of taxpayer funds with the desired probability. The result is

²⁷ The SRR is much more complicated in this regard as there a mutualised SRF is created. However, even in the BRRD it is recognised that some degree of mutualisation is likely as the separate national resources are used in the resolution of a cross-border institution.

²⁸ The assessment, at 248 pages of which just the first 80 pages are the report itself, is a much broader document than the RBNZ study. It is mainly concerned with arguing through why the options that have been chosen are the most appropriate out of the range of possibilities that could have been adopted for the tools and priorities in the BRRD.

²⁹ In one respect the calculations are extremely detailed as they take into account the balance sheets of all individual systemic banks but then the assumptions used over loss scenarios are necessarily sweeping.

shown in Table 3. However, it is important to note that these are annual costs and benefits. The net present value of the costs of 0.34%-0.62% of GDP per year is roughly 15% to 25% of GDP (which is much higher than the RBNZ calculations).

The macroeconomic benefits set out in Table 3 are similar to those assessed by the RBNZ and are composed of two elements: the reduction in probability of losses and the reduction in the likely impact on public finances. However, there is the same problem that costs are incurred whereas benefits are hypothetical and are based on the assessment of the extra problems that might otherwise have occurred. What this analysis does not do is assess how the burden of any losses that do occur falls on the economy. Capital and bailinable funds are regarded as ‘loss absorbing capacity’, with the implication that somehow this is not a cost if it is realised.

The way in which the BRRD is phrased in terms of minimizing the costs to the taxpayer and making sure that no creditor is worse off than in an insolvency does not amount to a single clear view of where the costs should fall and what should be minimized, given that there is also deposit insurance and the resolution funds. If the value of the bank for the creditors were maximized then this would at least imply that the direct costs of the resolution were being minimized even if there were then some redistribution through insurance and the resolution funds. What the BRRD does admit is that because the resolution method has to keep the vital functions operating irrespective of whether this is the least cost solution for the creditors it is then appropriate to use the resolution funds. This thus treats the resolution funds as a tax on the banking system to support systemic interests without damaging the creditors’ interests.

The RBNZ justification rests on a number of simple propositions:

1. The incentives for the bank to both avoid problems and to deal with them themselves before breaching the regulatory limits are greatly enhanced. All this is achieved without the elaborate requirements for recovery plans in the BRRD. Nevertheless, such plans should help ensure that the chances of recovery are greater.
2. Because this is a comparison between resolution methods the reduction in likely incidence of crisis through improved capital adequacy and liquidity management is not relevant because it applies to any resolution scheme that is being considered. That said, such buffers will indeed reduce the chance of crises causing a failure.
3. Because the authorities can take over the bank relatively early and have ensured all the necessary prepositioning for a resolution to be applied even if it comes largely as a surprise (which is not the normal experience – normally there is quite a long lead time to prepare for a failure) the extent of the losses should be relatively small. Given experience in the GFC this seems a laudable ambition but one which may very well not be performed.
4. All of this leads to fewer resolutions, with smaller losses to allocate and less costly resolution methods.
5. The results should now be fairer without the taxpayer, who is not responsible, having to bear a substantial proportion of the cost.
6. The ongoing costs to the banking system of implementing the necessary procedures for OBR to work and implementing that facility are relatively small. Even on the basis of a very low probability of failure the cost is clearly a lot less than the benefit from having the regime in place.

In the case of the BRRD many of these sources of potential gain are expected but they are not written in to the Directive. There is certainly no implication that when deciding on what should be done that some wide consideration of the overall impact on welfare would be taken into account. However, given the degree of discretion built into the Directive it would be possible to do this and do it in a transparent way. However, transparency in bank resolution has not been the norm as the authorities often try to avoid the full extent of the problems being obvious as this may trigger a panic.

7 Bailing in versus Bailing out

One of the reasons why bailouts have been used in the past, as in the GFC, has been because the alternatives were too difficult or the authorities did not have the powers to intervene and implement them. However, a second reason has been simply that the authorities thought that bailing out would be the least cost solution. (It is interesting in this regard that the Portuguese authorities surprised financial markets by deciding on an €4.9bn bailout of Banco Espirito Santo in August 2014 after the BRRD and SRR had been passed – but were not yet in force.)

The reason is obvious. If a bank is not deeply insolvent, then it will be able to trade its way out of the losses providing somebody provides the necessary capital in the short run. That investor will either get paid back once the bank is able to get back into the market to raise cheaper capital or once the government can sell its holding in the market at a profit.³⁰ Done well, the government can actually make a profit for the taxpayer, even after interest costs and the experience of both Norway and Sweden in

³⁰ It is assumed that as investor of last resort, the authorities will make their investment more expensive than the market price at normal times, partly to cover the risk but also to try to ensure that they are bought out once the bank returns to profitability.

the Nordic crises at the beginning of the 1990s was favourable in that regard (Moe et al., 2004) and apparently Portugal expects the same in the case of Espirito Santo.³¹ The outcome will vary with the form that the investment takes. If it is a simple (preferred) loan then the best the authorities can do is recoup their investment, with interest. However, if it is preferred or ordinary equity, the government will have the chance of participating in the upside and not just in the downside losses.

Even if the government expects to make a loss, bailouts have their attraction. The government can spread the impact by borrowing and then run that borrowing down again only slowly. This means that there is no short-run downward fiscal pressure on the economy which would serve to exacerbate the downturn caused by the crisis. Although there will be borrowing costs along the way and the government may find its borrowing gets downgraded by the rating agencies so it has to pay more for all its other debt as well, these will be relatively small compared with the cost of recognising the loss right away.

The drawback of course is that the government may find on opening the books that the losses are much greater than expected and hence cost of the bailout will be large, perhaps disastrously so, as illustrated by the case of Ireland (Honohan, 2010).³² Even so, the cost of the crisis is then spread over a long period and the impact on the real

³¹ It is not as if this is a new idea. When Barings collapsed in 1891 because of political disturbance in Argentina and Uruguay leading several of their railway construction loans to fail, they were able to trade their way out of difficulty and repay all of the emergency money invested in them by the Bank of England and a consortium of London banks over a period of 10 years. The rest of their business was sound despite their being technically insolvent because of the scale of the losses.

³² The Portuguese authorities found the losses in Espirito Santo were larger than they thought and this encouraged them to bail out in order to restore confidence which a large bail in might have dented.

economy is less than it would have been if the banks had simply failed.³³ By making the taxpayer pay, at least in the short run (before the credit position is sold, hopefully at a profit) the loss is also spread widely over a large proportion of society so the individual impact will be more limited. Those on low incomes will not have to pay directly – only indirectly as the economy turns down.

This is the opposite of what happens with a simple bail in along the lines of New Zealand's OBR. First of all not only are the losses incurred up front but they are likely to be exaggerated as the assets are subject to a conservative valuation. What the impact of that assignment of losses is on the economy, particularly in the short term, depends on who the written down creditors are. If they were to be other banks, then this would simply serve to widen the crisis. Hence, there are normally restraints on banks being shareholders or subordinated creditors. The position would also be drastic if there is no deposit insurance as then the loss would have to be borne up front by a large number of ordinary people. Where there is deposit insurance, the incidence will be different, especially if it financed ex post by the state.

In the case of unfunded or inadequately funded insurance, the burden still stays with the taxpayer. With a levy on the industry the timing can be altered considerably. If the insurer is funded in advance then the stakeholders in the bank have already paid some

³³ One important feature which affects the Irish case is that the government guarantee applied to foreign as well as domestic creditors. Ireland was thus taking on losses that would in the event of an insolvency have fallen primarily on other countries. The example of Iceland is perhaps more relevant where in the resolution of their banks it was the domestic depositors and the domestic business of the banks that were saved and the foreign depositors and bondholders placed in the insolvency. (Given depositor preference, the depositors or rather their insurers should eventually get their money back but the bondholders will see almost nothing.) This illustrates that with heavily cross-border institutions the whole process of the equitable handling of the losses is greatly complicated.

of the cost in good times, when they could afford it without having a knock on effect to the real economy. Even after the event, repayment can be timed to when the economy can afford it without killing the economy's recovery from the crisis.³⁴ It is normally assumed that among the bank's various stakeholders the cost of paying the insurance falls on the depositors. However, in practice the result is likely to be spread more broadly, as interest rate spreads can be widened, earnings retained, and performance-based remuneration reduced.

The 'best' outcome for a private sector solution from the point of view of macro-economic impact would be for those most affected to be those who can best absorb the loss. Hedge funds and pension funds are good examples. In the first case, the losers are likely to be among the wealthiest in the country and can hence absorb the loss. In the case of the latter, pension funds will have quite some time to recapitalize before they payout. They can therefore take a longer view and not simply replenish their losses in the short run. The more the losses fall on people who will reduce their spending in the short run, the greater will be the impact on the real economy.

It is thus crucial to identify who the creditors are who will be bailed in. One consequence of the potential for bailing in is that people will attempt to move themselves up the priority of creditors and to ensure that what they have lent is explicitly collateralized. Thus, those who can will alter their seniority and the burden on the ordinary depositor may be increased. With deposit insurance that may still

³⁴ One of the main objections to the substantial programme of bank recapitalisation that is currently underway and to the progressive funding of resolution funds over an eight year period is that they will inhibit the recovery of the EU economy from the recession for a decade. Others would argue that without the funds people will still fear further bank collapses and hence be more cautious, thereby still inhibiting the recovery.

mean that the loss can be readily absorbed, especially with the use of the resolution funds. It is taken for granted that the rest of the financial system is not bailed in as that will increase contagion substantially.

The crucial difference between the bail in and bail out options from the point of view of their impact on the wider economy therefore hinges on the impact on moral hazard. If RBNZ (2012) is correct then the credible expectation of a bail in will substantially reduce the costs to society. The question is therefore whether the BRRD does indeed make the probability of a bail out fall in the eyes of those running banks and those lending money to them. If that is the case then promoting the bail in route is the sensible way to go, even if its impact is little different for the wider economy. Those running the bank, the shareholders and the creditors (other than insured depositors) have more to lose under a bail in and therefore have the incentive to work harder to avoid the failure in the first place and to seek a private sector solution vigorously should they nevertheless get into difficulty.

The drawback is that it will still be clear that a small scale bailout is also better for the taxpayer than a more substantial bail in. There is thus a time consistency problem and it would take the exercise of the bail in tool in the BRRD in a number of circumstances before banks really believe that, unlike the past, a bailout will not be used.³⁵ However, since we are discussing systemically important banks, this is just the circumstance that nobody wants to see. There is thus some reason for treating the RBNZ (2012) figures shown in Tables 1 and 2 with care even ignoring the lack of deposit insurance, which I have argued makes the scheme not credible and hence unpersuasive.

³⁵ The Espirito Santo example will no doubt have made the attaining of such credibility more difficult.

Thus, while bailing in is clearly fairer than bailing out, in that those who knowingly run the risks bear the direct costs in the same order of priority as in an insolvency, the impact on the wider economy and society at large is not necessarily lower. There can hence be a trade-off between impact and fairness in that a bailout may enable some creditors to avoid or reduce their losses.

8 Concluding remark

The BRRD is ambiguous about what it is trying to minimize and while it talks about minimizing the impact on the taxpayer, this is a narrow view of direct costs and takes no account of the impact on GDP, unemployment and hence tax revenues and welfare expenditures in the economic downturn that a crisis or failure in a systemic bank will cause. Simply being able to resolve a bank without a taxpayer bailout does not reduce the economic cost of the resolution.

There is little evidence that a bail in has a lesser impact on GDP than a bailout. Indeed by bringing the impact into the present rather than spreading it over a long period, the impact may be harsher. This might be mitigated if those who are bailed in are able to withstand shocks and only need to adjust their subsequent behaviour slowly. Pension funds and hedge funds are cases in point. Where uninsured depositors are bailed in the costs will be clearly higher than in a bailout as the same loss is much more concentrated both over people and over time.

The principal argument in favour of encouraging the bail in route to resolution is that it is much more unattractive to banks than either a bailout or a market based rescue. They will therefore tend to run themselves so that a failure is less likely, providing an immediate benefit to financial stability, and the probability of loss is reduced. Furthermore, should the banks nevertheless get into difficulty they will have a strong incentive to find a market solution, assisted by the emphasis in the BRRD on recovery

plans prior to the slide into failure. Since market rescues tend to be the least costly of all the resolution methods both in their direct costs and indirect costs to the wider economy, ruling out bailouts and providing a credible means of bailing in will have a noticeable downward effect on the expected cost of future banking problems. Thus the BRRD will tend to be successful not because the new tools provide a less costly means to resolution, although that will be true if resolution starts earlier before losses mount, but because they encourage banks to avoid problems and if they cannot be avoided to choose cheaper market solutions at the recovery phase rather than drifting into insolvency.

However, this chapter does not deal with the complexities of cross-border resolution. Unless some of the missing parts of the scheme, such as who should be the resolution authority and how some of the conflicts of interest will be resolved, become clear the scheme may lack credibility and banks may still expect a bailout. In which case, many of the gains from the improved incentive structure may not exist for the largest cross-border banks, which dominate the market in terms of assets. Particularly, in the transition period before both the SSM/SRR and the BRRD come into full operation there may be a lot to say for a cruder approach where either the parent group is dealt with by the home country authorities or the group is divided up much more explicitly and each country deals with its own systemic problems. New Zealand has illustrated with its Open Bank Resolution framework how the latter can be applied while the FDIC and the Bank of England (2012) have suggested how the single point of entry with the home country taking responsibility might work if the bank is not 'Too Big to Save'. Allowing the system to develop in a non-credible form will not reduce risks nor will it result in savings for the taxpayer or smaller losses in GDP and smaller increases in unemployment.

References

Admati, A. and Hellwig, M., 2013. *The Bankers' New Clothes*, Princeton NJ: Princeton University Press.

Avdjiev, S., Kartasheva, A. and Bogdanova, B., 2013. 'CoCos: a Primer', *BIS Quarterly Review*, September, pp.43-56.

European Commission , 2012. 'Impact Assessment' (on establishing a framework for the recovery and resolution of credit institutions and investment firms), Commission Staff Working Document SWD(2012) 166/3, available at http://ec.europa.eu/internal_market/bank/docs/crisis-management/2012_eu_framework/impact_ass_en.pdf.

FDIC, 2011. 'The Orderly Liquidation of Lehman Brothers Holdings Inc. under the Dodd-Frank Act', *FDIC Quarterly*, vol.5(2), pp.1-19.

Federal Deposit Insurance Corporation and the Bank of England, 2012. 'Resolving globally active, systemically important, financial institutions', (December) available at <http://www.bankofengland.co.uk/publications/Documents/news/2012/nr156.pdf>.

Harrison, I., Anderson, S. and Twaddle, J., 2007. 'Pre-positioning for Effective Resolution of Bank Failures', *Journal of Financial Stability*, vol.3(4), December, pp. 324-341.

Hoggarth, G., Reis, R. and Saporta, V., 2001. 'Costs of banking system instability: some empirical evidence', Bank of England Working Paper (available at <http://www.bankofengland.co.uk/publications/Documents/events/conf0105/paper2may01.pdf>).

Honohan, P., 2010. *The Irish Banking Crisis: Regulatory and Financial Stability Policy 2003-2008*, A report for the Minister of Finance by the Governor of the Central Bank, 31 May, available at http://www.bankinginquiry.gov.ie/The_Irish_Banking_Crisis_Regulatory_and_Financial_Stability_Policy_2003-2008.pdf.

Hoskin, K. and Woolford, I., 2011. 'A Primer on Open Bank Resolution', *Reserve Bank of New Zealand Bulletin*, vol. 74(3), pp.5-10.

Institute of International Finance , 2012. 'Making Resolution Robust – Completing the legal and institutional frameworks for effective cross-border resolution of financial institutions', Washington DC: IIF, available at file:///C:/Users/-User-/Downloads/Making_Resolution_Robust_20120607.pdf.

Mayes, D.G., Halme, L. and Liuksila, A., 2001. *Improving Banking Supervision*, Basingstoke: Palgrave.

Moe, T.G., Solheim, A. and Vale, B., 2004. *The Norwegian Banking Crisis*, Oslo: Norges Bank.

Mortlock, G., 2011. 'Comments' in (D.G. Mayes and G.Wood, eds) *Reforming the Governance of the Financial Sector*, pp.153-165, Abingdon: Routledge.

Reserve Bank of New Zealand, 2006. 'Outsourcing Policy', Financial Stability Department Document BS11, available at http://www.rbnz.govt.nz/regulation_and_supervision/banks/banking_supervision_han_dbook/bs11.pdf.

Reserve Bank of New Zealand, 2012. 'Regulatory Impact Assessment of Pre-positioning for Open Bank Resolution', available at http://www.rbnz.govt.nz/regulation_and_supervision/banks/policy/5014272.pdf.

Reserve Bank of New Zealand, 2013. 'Consultation Paper: Open Bank Resolution (OBR) Pre-positioning Requirements Policy', available at http://www.rbnz.govt.nz/regulation_and_supervision/banks/policy/5175857.pdf.

Table 1: Crisis resolution options

| <i>Outcome</i> | <i>Probability</i> | <i>GDP impact (%)</i> |
|-------------------------|--------------------|-----------------------|
| No OBR | | |
| Market recapitalization | 0.30 | 12.5 |
| Bailout (Good) | 0.20 | 17.5 |
| Bailout (Bad) | 0.40 | 20 |
| Statutory management | 0.10 | 25 |
| With OBR | | |
| Market recapitalization | 0.40 | 12.5 |
| Bailout (Good) | 0.15 | 17.5 |
| Bailout (Bad) | 0.10 | 20 |
| OBR (Good) | 0.275 | 20 |
| OBR (Bad) | 0.075 | 25 |

Source RBNZ (2012)

Table 2: Impact of Implementing OBR (\$mn)

| <i>Factor</i> | <i>Status Quo</i> | <i>OBR available</i> | <i>Difference</i> |
|--------------------|-------------------|----------------------|-------------------|
| Economic cost | 5492 | 4764 | 728 |
| Bailout cost | 1703 | 693 | 1010 |
| Government debt | 413 | 172 | 241 |
| service cost | | | |
| Bank funding cost | 282 | 936 | -653 |
| Maintenance cost | 0 | 10 | -10 |
| Build cost | 0 | 20 | -20 |
| <i>Overall NPV</i> | | | <i>1295*</i> |

* Does not sum due to rounding error

Source RBNZ(2012)

Table 3 Cumulative impact of Basel III, RF/DGS and Debt Write Down tool (bail-in)

(costs and benefits as % of annual GDP.)

| | Basel III | DGS/RF | Bail-in | Sum |
|--|------------------|---------------|----------------|----------------------|
| Costs (% of EU GDP annually) | 0.16% | 0.04% | 0.14% - 0.42% | 0.34% - 0.62% |
| Benefits (% of EU GDP annually) | 0.30% | 0.32% | 0.76% | 1.38% |
| Net Benefits (% of EU GDP annually) | 0.14% | 0.28% | 0.34% - 0.62% | 0.76% - 1.04% |

Source: European Commission (2012).

Note: DGS – deposit guarantee schemes, RF – resolution funds.