

Can You Stop the Fire Before it Burns Down the Block? Central banks and the fiscal costs of financial crises

Christopher Gandrud

Mark Hallerberg

City, University of London

Hertie School of Governance

*Hertie School of Governance**

November 8, 2016

Early working draft prepared for the 2016 International Political Economy Society Conference.

Please do not cite without permission.

Comments welcome.

Abstract

Emergency liquidity assistance (ELA) can play an important role in reducing the severity of a bank failure and even a financial crisis. A domestic central bank provides it, though an international actor, such as the IMF and European Central Bank, may be able to provide it (or in the latter's case block it). We develop a framework for understanding the political economy of how ELA decisions are taken and with what effect on the following bank restructuring process. We argue that "government accounting regimes" strongly mediate the effect of a broad set of factors, including central bank mandates, international currency regimes, and political incentives, shaped by removal pressures on decisions to offer banks ELA as opposed to alternative support, such as guarantees. Our approach has important implications for understanding policy responses to financial crises. Contrary to established approaches, we argue that choosing ELA, even for insolvent banks, can speed up the process of cleaning up insolvent banks, conditional on how the government accounting rules incentivise public authorities. We find initial evidence

*Christopher Gandrud is Lecturer in Quantitative International Political Economy at City, University of London and Post-doctoral fellow at the Hertie School of Governance. Please contact him at Rhind Building, City, University of London, EC1V 0HB, London, United Kingdom (christopher.gandrud@city.ac.uk). Mark Hallerberg is Professor of Public Management and Political Economy at the Hertie School of Governance, Friedrichstrasse 180, Berlin 10117, Germany (hallerberg@hertie-school.org). This work was supported by the Deutsche Forschungsgemeinschaft by grant number HA5996/2-1. Replication material can be found at: https://github.com/christophergandrud/ela_fiscal_costs.

for this process with case studies using interviews with policymakers and newly released documents from the United Kingdom and South Africa.

1 Introduction

Emergency liquidity assistance (ELA)—the discretionary provision of liquidity, typically against collateral, to financial institutions in response to an acute need (see Dobler et al., 2016, 6)—is often an early tool employed by public institutions in response to severe bank stress. This tool has been around for centuries—Bagehot (1873), building on Thornton (1802), famously argued that central banks should provide emergency assistance, but limit it by lending against good collateral and at a penalty interest rate.

ELA is most typically provided by the central bank, as the Bank of England did in 2008-2009, though a public fiscal authority can in theory provide it as well. In practice, ELA decisions can involve some combination of fiscal and monetary authorities assuming private sector risks as they are often accompanied by some form of public guarantees. Called guarantees mean transfers of public money to cover the guarantee. The effect on a finance ministry or central bank that had extended such a decree is clear, but even if central banks are the providers of both support measures, a large loss may require the government to recapitalize the central bank (Goodhart, 2009, 237).¹

What explains when, and how much, liquidity assistance central banks and governments provide during financial market stress? Why do they select specific policy tools, that is, ELA and/or guarantees? What are the consequences of these choices for the course of the resulting bank restructuring process relative to alternative policies? The quantity of ELA is partially a function of the terms under which it is lent, not just the amount, but there has been little discussion of the political economy behind ELA.

Despite the close link between political-fiscal authorities and ELA, the previous literature on emergency liquidity assistance has focused on the economic and technical aspects of implementing it (see Dobler et al., 2016). Rare work in political economy, including Rosas (2006) and Gavin (2016), has tended to take a narrow view of government and central bank interests, limiting the scope of our understanding of ELA decisions-making to comparing democracies and non-democracies.

While this may certainly be an important source of policy variation, emergency liquidity provision across democracies also varies considerably. Figure 1 plots a proxy for central bank liquidity provision—central bank claims on deposit corporations as a percentage of transferable deposits (see Gavin, 2016, for details on this

¹In some cases, such as the Bank of Canada, the government is required by legislation to recapitalize the bank (Johnson and Zelmer, 2007, 6-7)

proxy). We can see that there is considerable variation in ELA timing and intensity among democracies facing broadly similar financial market stress. For example, Australia, Austria, Belgium, Denmark, Iceland, and the United States, among others, have dramatic and yet short spikes in liquidity provision at the time of the 2008 crisis. Other countries—such as Ireland, Italy, and Portugal—provide substantial assistance at this time as well, but the assistance continues for prolonged periods of time.

There is also a potentially important connection between central bank support and the ultimate fiscal costs of responding to crises that has been under explored in previous political economy work. Figure 2 plots the estimated fiscal costs of resolving a financial crisis from Laeven and Valencia (2013) against the lagged three-year discount rate moving averages. Assuming that a central bank cares about financial and monetary policy stability and so would not want to provide assistance that would destabilise the currency, the discount rate is a proxy for how much policy space a central bank has for providing assistance to the banking sector. A lower discount rate would suggest that a central bank has more space to assist banks and that less fiscal support will be needed.² Figure 2 shows that at a descriptive level there is indeed a positive relationship between fiscal costs and the discount rate in this sample of crises.

These broad descriptive piece of evidence motivate us to look more closely at how central banks affect banking crises and their connection with fiscal authorities. In this paper we specifically aim to deepen our understanding of ELA by examining in detail how fiscal and statistical bureaucratic institutions shape the varied interests of, and interact with, elected politicians to produce ELA policies and with what effect for bank restructuring. As we show, ELA decisions can have an important impact on the course of the rest of a crisis.

An important feature of ELA is that it is usually backed by collateral. While prescriptions for the terms of this collateral have been central to considerations of ELA since at least Bagehot (1873), previous work has not fully considered how this could effect the subsequent bank restructuring process. In the Bagehot model, the goal is to have ELA be made only to fundamentally solvent banks, so it is paid back. The collateral is then not seized. But what if ELA is not paid back and the collateral is seized? In this case the central bank or government has automatically begins some form of bank balance sheet restructuring and, conditional on government accounting structures which could make holding these assets costly, may have strong political incentives to quickly conclude this process. Conversely, guarantees typically do not automatically engage public authorities in balance sheet restructuring and may in fact incentivize politicians to delay this process. This could lead to “zombie banks” that tie up scarce credit with insolvent borrowers and thus perpetuate a

²A central bank with a high discount rate is likely already trying to control high inflation. If it provided liquidity to troubled banks, this would stress its balance sheet, making it less able to use these resources to stabilize the currency.

slower recovery of the economy after the acute crisis stage (see Caballero, Hoshi and Kashyap, 2008).

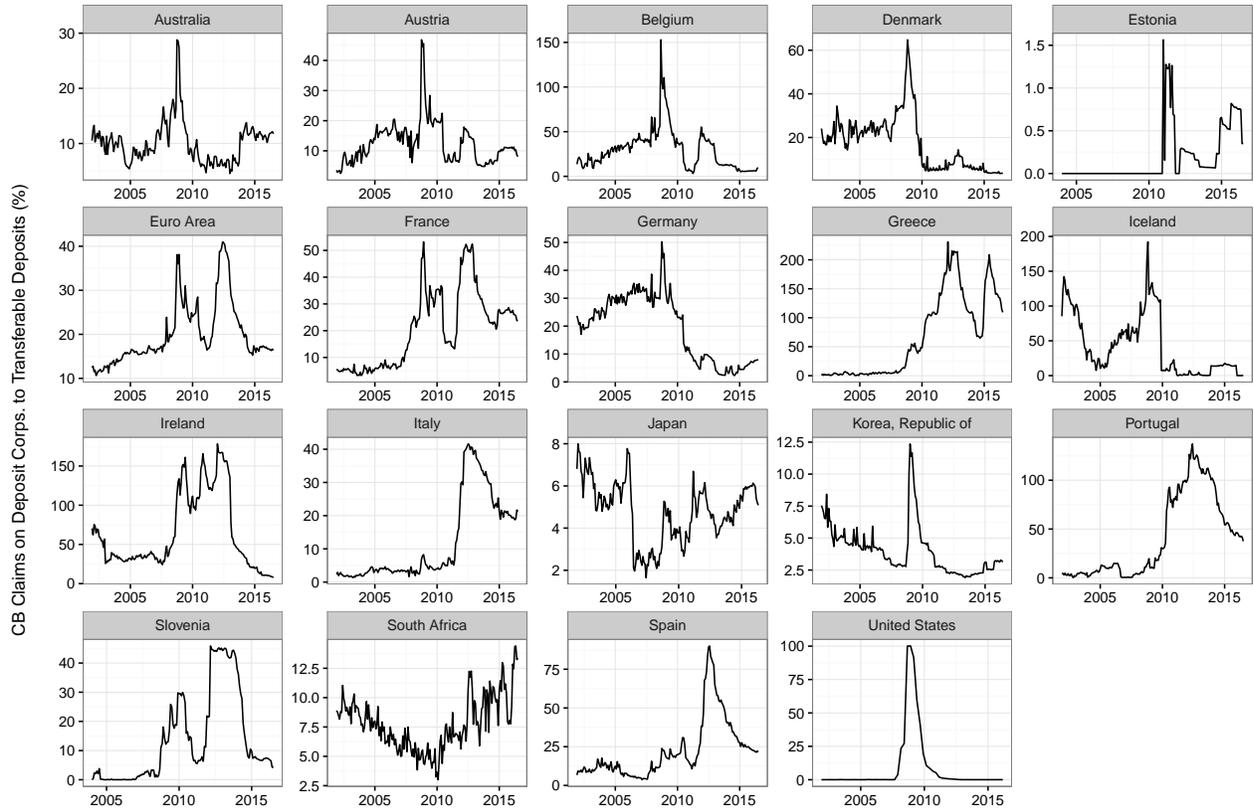
To understand the ELA decision-making process, we argue that politicians and central banks can have conflicting preferences about the size and timing of ELA provision, despite sharing a common desire for financial stability. This tension arises from concerns about who will “bear the costs” of ELA. While being an important part of a central bank’s financial stability toolkit, it poses risks to a central bank’s balance sheet and, by implication, the bank’s ability to maintain price stability. Politicians could view ELA as an attractive tool for responding to crises that has minimal immediate fiscal costs. Moreover, ELA is not the only policy tool to provide liquidity to the banking sector. In our model and in the case studies, we explicitly consider the choice of guarantees as another option. An extension would also include other policies such as recapitalisations.

We argue that what we call the *government finance accounting regime* plays an important role in shaping politicians’ incentives to provide ELA directly or push central banks to implement it. By government finance accounting regime we mean the rules for determining and reporting the value/costs of government activities and the institutions that make and implement these rules. This regime shapes both the attractiveness of ELA to politicians, as well as the attractiveness of policy alternatives, such as bank guarantees. In the case of central bank balance sheets, there may be legal mandates for the government to recapitalise the central bank.

The accounting of central bank actions affects politicians’ choices. As we explain below, central bank-provided emergency liquidity assistance is generally treated as off of the government’s balance sheet. The reason is that lenders are expected to provide collateral to cover the loan. There should therefore not be any net effect on the government debt from these loans. These implications for the overall government debt level make this tool attractive relative to other actions that would affect either the government’s deficit or debt directly. The extent to which the accounting regime recognizes such operations affects politicians’ incentives to push the central bank to extend such assistance. Independent central banks with mandates for price stability may push back against politicians. Lending to troubled institutions could threaten their balance sheets, and thus their ability to maintain price stability.

In this initial version of the paper we model this interaction and explore it empirically using interviews and using newly released documents from the United Kingdom and South Africa.

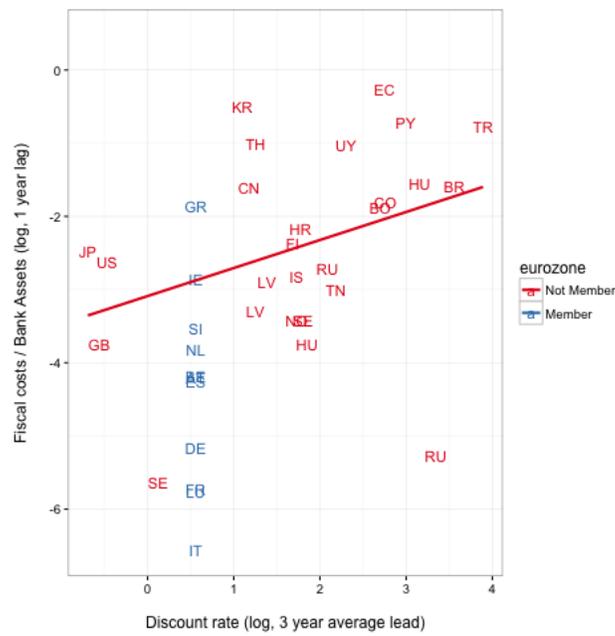
Figure 1: Liquidity Provision Provided by Selected Central Banks (2002-mid-2016)



Data from the IMF's International Financial Statistics using: $\frac{FASAD}{FOST} \cdot 100$. The series *FASAD* and *FOST* are denominated in local currencies.

Note: some measures of liquidity assistance (e.g. Gavin, 2016) also include time, savings, and foreign currency deposits in the denominator. We do not include those here as available IMF data on this quantity would significantly limit the time span of the sample.

Figure 2: Monetary Policy Manoeuvrability and the Costs of Resolving Financial Crises



Countries are identified with their ISO two letter country codes.

Fiscal costs of financial crisis data is from Laeven and Valencia (2013). Discount rate data is from the IMF and a variety of national central bank sources. For details see: https://github.com/christophergandrud/ela_fiscal_costs/blob/master/source/ELA_data_gather.R#L64.

2 The Bagehot rationale for ELA

ELA has been an important tool in the central banking toolkit for responding to financial instability since at least its use by the Bank of England following the 1866 failure of Overend, Gurney, and Company (Goodhart and Illing, 2009, 1). The usual rationale for extending emergency liquidity assistance is that a fundamentally solvent bank may be experiencing a liquidity crisis—they do not have the liquid funds available to meet their liabilities. If an outside actor provides this liquidity, the bank’s liquidity crunch will pass, and the troubled bank will be able to repay the outside funder.

The danger is that the bank’s troubles really concern solvency, not liquidity. The bank may not only have the liquid assets to cover its liabilities, but any sufficient assets.³ If banks’ problems are solvency rather than liquidity, then the troubled bank will not repay the emergency lender in full. Moreover, a bank will only come to the public sector if the private sector will not lend the bank the money at non-prohibitive interest rates. This could be because the entire banking sector is experiencing difficulties. The public sector is then the only domestic actor potentially with the funds to provide the money. It becomes the “lender of last resort” (LoLR). If the crisis really is only about liquidity, then ELA will get the banking sector through the crisis and the public sector will receive its money.

The description so far has implicitly been about a domestic public sector, but the argument is generalizable to an international setting. Chang and Velasco (2001) argue that the Asian financial crisis of the late 1990s was a result of international capital illiquidity. Domestic banks lost access to international capital markets, and, once those markets sensed that their governments would have to bail them out, they also stopped providing loans to sovereigns. This situation provides a rationale for a foreign or international lender like the International Monetary Fund to step in and provide emergency assistance, though they typically lend to sovereigns, not to banks.

Broadly applied to domestic or international actors, the conventional Bagehot inspired argument is that the LoLR should lend when there is a liquidity problem but not when there is a solvency problem. Bagehot, among others, advises the LoLR to only lend when the troubled bank can provide good quality collateral to cover any losses and at a penalty rate. Ideally, a fundamentally solvent bank would be able to meet these conditions, while a fundamentally insolvent one would not. Strict conditions also discourage moral hazard caused when banks know that they can rely on a LoLR if they get into trouble for making risky, but in the short-term profitable loans. It also ensures that the LoLR is repaid. In the IMF’s case, which, it is worth

³Complicating matters significantly, in practice it may not be possible to distinguish between these two states (Goodhart, 2009).

repeating, lends to sovereigns and not directly to banks, it insists that it is the first creditor repaid.

There have been a number of criticisms with this approach. Goodhart (2009) argues that the practical existence of moral hazard may be overstated. More importantly for this paper, the ability of policymakers to actually determine if a bank is solvent—thus deserving of ELA—as opposed to insolvent and undeserving of support can in practice be impossible during a liquidity crisis (Goodhart, 2009; Freixas, Parigi and Rochet, 2004). Even if it is possible to determine if an individual bank is insolvent, the effects of not assisting the bank may make other solvent, but connected banks insolvent. Thus the importance of solvency in the ELA decision-making process may be less significant than suggested by the Bagehot ideal. Relatedly, it can be difficult during a crisis situation to determine what bank assets would qualify as ‘good’ collateral. An inability to accurately determine the quality of a bank’s assets is an important reason why it is difficult to determine if the bank is ‘really solvent’.

Given that the likely realities of providing emergency liquidity assistance differ greatly from the conventional ideal, we need a better understanding of why policymakers chose it and with what consequences.

3 A political-fiscal model of assisting and restructuring banks

Work on emergency liquidity assistance has tended to focus on its economic and technical components with central banks as the key actors. Here we present a new political-fiscal model for understanding why public actors choose ELA provision, especially compared to a major policy alternative—bank liability guarantees—, and with what consequences for the subsequent bank restructuring process.

3.1 Players

The model has two policymaking players—an elected politician (*EP*) who controls fiscal policymaking and a central banker (*CB*). Both players share a preference for financial stability and so want at least enough support provided to banks to end a liquidity crisis. See below for a further discussion about their other interests. Both actors are able to provide emergency liquidity assistance and bank liability guarantees. Both tools, in turn, enable liquidity for the banking system.

While the players share a financial stability preference, they differ in their preference for who should pay for this. We consider their conflicting preferences in more detail below.

3.2 Environment

The environment within which the players act is a banking system. For simplicity, and following the assumption in Gandrud and O’Keeffe (2016) that elected policymakers are primarily concerned with the stability of the financial system as a whole, we focus on the combined balance sheet of the banking system. This balance sheet consists of assets A less liabilities L and regulatory capital C .⁴ Note that we could use essentially the same model to describe the process for one bank, rather than the whole banking system.

There are two asset characteristics we are concerned with: whether assets are performing P or non-performing N and whether they are liquid L or illiquid I . Let’s first consider whether assets are performing or non-performing. The value of assets when they are performing—their book value—is denoted A_P . Their value when they are non-performing is denoted A_N . Assets are nonperforming with probability γ and performing with probability $1 - \gamma$. As such, the value of a bank’s assets are given by $\gamma A_N + (1 - \gamma)A_P$. Note that it is often difficult or impossible to know accurately the value of γ for those outside of the bank, such as central bankers and politicians. The net value of the balance sheet is denoted by θ and is found using:

$$\theta = \gamma A_N + (1 - \gamma)A_P - (L + C). \tag{1}$$

A bank is solvent for all scenarios when θ is positive.⁵

This is true over an extended period of time and assumes that all assets are liquid. However, not all assets are liquid and liabilities that are due can vary considerably given depositors’ willingness to keep their deposits with the bank and investors’ willingness to roll over credit they had provided. The proportion of total liabilities due at time t is denoted with ψ . The value of liquid assets at time t is represented by $\lambda_t A$.⁶ A solvent balance sheet at each point in time is therefore one where the value of liquid assets at each point in time $\lambda_t A$ is greater than liabilities due at t ($\psi_t L$) plus regulatory capital:

$$\theta_t = \lambda_t A - (\psi_t L + C). \tag{2}$$

A liquidity crisis is a shock that both increases called liabilities as depositors and lenders pull out, as well as decreases the value and liquidity of assets as there is a fall in demand for bank assets.

⁴For simplicity, we assume constant capital requirements throughout the crisis. An extension of the model could look at variable capital requirements, e.g. due to regulatory forbearance or countercyclical capital requirements.

⁵If thought of as a single bank, a positive θ over the medium-term would be a “solvent” bank in Bagehot’s conceptualization and thus deserving of ELA in a liquidity crisis.

⁶Where $\lambda_t A = \lambda_N \gamma A_N + \lambda_P (1 - \gamma)A_P$, all λ are in $[0, 1]$, and $\lambda_N < \lambda_P$ as performing assets are more likely to remain liquid than non-performing ones.

3.3 Sequence of play

The game has the following sequence of play:

1. In t_0 a liquidity shock decreases γ and increases ψ .
2. In t_1 the central bank and elected government choose ELA support s and guarantees g . They can be functionally equivalent in increasing liquidity. These choices may have an initial effect on public accounts depending on the accounting rules.
3. In t_2 the liquidity crisis ends and public costs from the liquidity crisis support are born.
4. In t_3 asset restructuring occurs.

Note, we discuss each step in detail below.

3.4 Policy responses to a liquidity shock

In order to prevent a banking system insolvency, policymakers (central bankers and elected politicians) can introduce measures that (a) increase funds available to meet called liabilities, (b) decrease called liabilities, or (c) some combination of both.⁷ Emergency liquidity assistance increases liquid assets available to banks at time t to meet their time t liabilities. We denote this support s . We denote the proportion of total liabilities guaranteed as g and is in $[0, 1]$. Liability guarantees, if viewed as credible, decrease called liabilities at time t such that they are $\psi'_t L = f(\psi_t L, gL)$. The true nature of this relationship is unknown to all players during the shock due to heterogeneous investor preferences.

Following a decision to support a banking system in a liquidity crisis the balance sheet is given by:

$$\theta_t = (\lambda_t A + s) - (\psi'_t L + C). \quad (3)$$

We assume that the central bank and elected politician share a preference for financial stability. To formalize their shared preference, they both prefer some mix of policies s and g such that:

$$\lambda_t A + s \geq \psi'_t L + C. \quad (4)$$

⁷Note that at this point we focus on liquidity crises, rather than restructuring, which we consider below.

We could add a further restriction that these public actors do not want to provide more assistance than needed and so most prefer:

$$\lambda_t A + s = \psi'_t L + C. \quad (5)$$

3.5 Public obligations from responding to liquidity shocks

The cost of guarantees—assuming they are made unconditionally—is a function of the guarantee level and asset liquidity during the crisis. The ultimate cost k_g to the public of these guarantees would be:⁸

$$k_g = \begin{cases} \min[\psi'_t L - (\lambda_t A + s), gL], & \text{if } \lambda_t A + s < \psi'_t L \\ 0, & \text{otherwise} \end{cases}. \quad (6)$$

The cost of emergency liquidity assistance is a function of the value of liquid assets at the end of the liquidity crisis, as well as the value of collateral posted on any assistance that banks default on. If liabilities exceed banks' liquid assets after the liquidity crisis subsides⁹ they will default on the ELA they received to the amount s_d , where s_d is:

$$s_d = \begin{cases} \frac{\psi' L - \lambda_{t+1} A}{s} s, & \text{if } \lambda_{t+1} A < \psi' L \text{ and } s > \psi' L - \lambda_{t+1} A \\ s, & \text{if } \lambda_{t+1} A < \psi' L \text{ and } s \leq \psi' L - \lambda_{t+1} A \\ 0, & \text{otherwise} \end{cases}. \quad (7)$$

The cost of ELA over the full course of the game will then be the difference between the amount of ELA defaulted on and the value of the collateral that backed this assistance. Let's assume that collateral was provided based on the assets' book value.¹⁰ We denote the book value of assets offered as collateral with A_s and the real value of these assets after considering non-performing assets as A_{sr} .¹¹ So the final cost k_s of

⁸This conceptualization assumes that ELA will be drawn on before guarantees are utilized.

⁹We assume that ELA is provided for the term of the crisis.

¹⁰This would be a generous form of ELA in the Bagehot framework. It would be trivial to extend the model to assume different collateral obligations.

¹¹Where $A_{sr} \leq A_s$ and $A_{sr} = \gamma A_N + (1 - \gamma) A_P$.

the ELA is:

$$k_s = \begin{cases} s_d - \frac{\psi' L - \lambda_{t+1} A}{A_s} A_{sr}, & \text{if } \lambda_{t+1} A < \psi' L \text{ and } s > \psi' L - \lambda_{t+1} A \\ s_d - A_{sr}, & \text{if } \lambda_{t+1} A < \psi' L \text{ and } s \leq \psi' L - \lambda_{t+1} A \cdot \\ 0, & \text{otherwise} \end{cases} \quad (8)$$

3.6 Automatic impact on banks' balance sheets from policy support

ELA and guarantees have distinct automatic effects on bank balance sheets. The effects are “automatic” in that they are an immediate consequence of the initial policy response to the liquidity crisis and do not require a further decision from policymakers.

Liability guarantees (to the extent that they are credible) decrease called liabilities at time $t + 1$ and (to the extent that guarantees are called) decrease banks' total liabilities. Following the liquidity crisis with a guarantee-only support policy package the bank balance sheet will change only in terms of L , with L decreasing by k_g .

Emergency liquidity assistance affects total bank liabilities, decreasing them by s_d .¹² If any bank is forced to transfer collateral to the public sector as part of its repayment of the ELA, this will affect total bank assets. The latter decrease by the amount of collateral that was transferred to the public as a result of an ELA default. We denote this amount A_d .¹³

Immediately following a liquidity crisis in which public support was provided¹⁴ the total bank balance sheet is:

$$\theta = (A - A_d) - \{[L - (k_g + s_d)] + C\}. \quad (10)$$

Note that so far we have assumed that ELA collateral is randomly chosen from total assets. As such, the proportion of non-performing assets among those used for collateral will be the same as the proportion of non-performing assets on the overall balance sheet. However, this is unlikely in reality and so we extend

¹²Note that we are describing total bank liabilities, not the liabilities of a specific bank. If this were normal inter-bank lending for liquidity purposes, and assuming the lending is in one banking system, then total liabilities would remain the same.

¹³Formally:

$$A_d = \begin{cases} \frac{\psi' L - \lambda_{t+1} A}{A_s} A_s, & \text{if } \lambda_{t+1} A < \psi' L \text{ and } s > \psi' L - \lambda_{t+1} A \\ A_s, & \text{if } \lambda_{t+1} A < \psi' L \text{ and } s \leq \psi' L - \lambda_{t+1} A \cdot \\ 0, & \text{otherwise} \end{cases} \quad (9)$$

¹⁴We also assume that no new liabilities were incurred/old liabilities removed or assets acquired/sold off apart from those involved in the policy-response. This is a reasonable assumption during a liquidity crisis.

the model to account for disproportional NPLs in the collateral asset pool.

Banks have an incentive to retain higher quality assets and shed lower quality assets. Doing so will improve their balance sheet. They also have more information about the quality of their assets than governments do. While this information asymmetry may be partially alleviated by stronger regulatory oversight, it is unlikely that it will be ameliorated entirely. This is especially true during a liquidity shock when the value of the assets can change rapidly. So, banks will strategically choose the assets governments receive when ELA is defaulted on (A_d) such that they contain a disproportionately large quantity of non-performing loans.¹⁵ Formally, the amount that the proportion of non-performing assets in A_d exceeds the proportion in the original asset pool γ is denoted η , where $1 \leq \eta \leq (\eta\gamma = 1)$. So the real value of the collateral is $A_{dr} = \eta\gamma A_d + (1 - \eta\gamma)A_d$.

When the public takes ownership of disproportionately bad assets, the health of the bank asset portfolio—measured in terms of the proportion of non-performing assets—improves. The new bank asset profile after ELA collateral has been seized is:

$$A_\delta = (\gamma A - \eta\gamma A_d) + [(1 - \gamma)A - (1 - \eta\gamma)A_d]. \quad (11)$$

How much the bank's proportion of non-performing loans decreases as a result of the public taking ownership of the collateral is found in simplified form with:

$$\Delta\gamma = \gamma - \frac{A\gamma - A_d\eta\gamma}{A - A_d}. \quad (12)$$

Note that $\Delta\gamma$ is also the amount by which the proportion of performing assets on the balance sheet increases.

3.7 Variable public cost accounting

So far we have only considered how banking sector support affects public bodies' balance sheets using a simple assumption: costs of providing the support are fully realized on the public balance sheet at the end of the liquidity crisis. At this point the full cost becomes known and accounted for on the public balance sheet. The central bank and elected politician are thus indifferent to both the mixture of guarantees and ELA and whether the central bank or fiscal authorities provide this assistance.

We now relax these assumptions. Doing so improves our understanding of how politicians and central bankers interact when deciding on how to intervene in a liquidity crisis.

¹⁵An exception would be if the government only accepted collateral in the form of cash and cash-like monetary instruments denominated in the same currency as the ELA. However, this would likely defeat the purpose of providing the assistance.

Government finance accounting regimes shape when and how costs are accounted for. An accounting regime could list ELA and guarantees only in attached notes to the government accounts and require that they count as costs against the accounts only if there are recognized losses to either program. This is what Eurostat did, for example, when calculating balance sheets of EU member states during the recent global financial crisis. An accounting regime could require that a government immediately place the full or expected cost of a guarantee against the government debt. Accounting rules could likewise force a government to declare the expected loss from ELA by reporting the “fair” value of the possibly non-performing collateral provided to it. The calculation of fair value is itself determined by the accounting regimes. These are examples of how both actual and possible costs may be declared at earlier points in time. Accounting rules could also shift both the reporting of key details relevant for calculating costs as well as those costs themselves into the future. For example, the Bank of England is not required to include in its Annual Report the “fair” value of collateral provided in an ELA swap as this is legally considered a “disclosure limitation”.¹⁶ Not only does this accounting definition obscure the risks to the Bank of providing this assistance, it can even obscure the existence of the assistance as there is no change in the value of the Bank’s assets in its annual report (Plenderleith, 2012, 71). Costs could be shifted directly into the future under other rules. Imagine that a bank defaults on its ELA and the government seizes collateral with book value equal to the defaulted amount. If the accounting regime does not require the government to depreciate the value of these assets until they are sold, then costs to the public will not be revealed until some point in the future when the assets are sold.

Another issue is reporting frequency. Central banks typically provide detailed annual balance sheet reports. If a body only has to report its balance sheet annually (e.g. the Central Bank of Iceland only publishes an annual report), for instance, then assistance could be provided without the cost being publicly visible for up to a year. Many central banks report basic balance sheet statistics on a monthly or weekly basis (see Table A in Rule, 2015) with some lag. These reports typically are not as detailed as the annual report and may not include off-balance sheet items like guarantees and/or ELA. The Bank of England did not disclose the existence of the ELA it provided in 2008-09 to the Royal Bank of Scotland and Lloyds TSB until more than a year after its ELA program started. This was facilitated by reporting rules (see below for details).

¹⁶Gorton and Ordoñez (2016) and the Bank of England’s external evaluator in this case (Plenderleith, 2012) argue that keeping the identity of the ELA beneficiaries secret helps restore stability without creating “information externalities”, i.e. identifying troubled banks. We argue that this is mostly a separate issue from reporting the central bank balance sheet impact of the assistance. However, given the number of banks in a banking system and it might be possible to deduce who institution-specific ELA is targeted at if the size of the support is known. If the case, this could provide further incentives for banks to reduce the balance sheet impact of their ELA in the near-term.

Another concern could be whether the central bank’s activities are demarcated only on the central bank’s balance sheet if they also show up on fiscal accounts. For much of this paper we assume that they are treated as separate accounting entities, but the rules could consolidate at least part of them. In terms of our model below, this would bring the elected politician’s and central banker’s balance sheet preferences closer in line with one another.

If policymakers care about how their balance sheets change over time, the ways in which public responses to liquidity crises are accounted for can affect politicians’ and central bankers’ incentives to use these policies.

3.8 Formalizing public balance sheets

Before discussing the possible range of preferences that central bankers and elected politicians may have about who and how the costs of responding to a liquidity crisis are born, we lay out the basic structure of their balance sheets.

Central bank’s balance sheet The central bank’s balance sheet includes liabilities—typically circulating banknotes and commercial bank reserves—, which are the backbone of the payments system for the wider economy. On the asset side, central banks hold reserves—e.g. foreign currency reserves, government bonds, and, in the age of quantitative easing, even private loans. Foreign currency reserves are typically used to maintain a stable exchange rate. They also hold capital with which they plan to absorb losses. They aim to keep their reserves at a given level.¹⁷ The central bank’s balance is simply:

$$\theta_{CB} = A_{CB} - (L_{CB} + C_{CB}). \quad (13)$$

Elected politician’s balance sheet The elected politician’s fiscal balance sheet consists of two components: the budget balance and the debt. The budget balance is the difference between its revenue (e.g. taxes, revenue from the sale of government assets) and its spending. The net debt is the difference between its assets A and its liabilities debt L . Guarantees and ELA often are not included on general government accounts.¹⁸ If there are true losses, however, they may affect the debt component of the government’s balance sheet by increasing its expenditures and its liabilities or, in the case of ELA, changing the value of its assets if the value of the collateral is lower than assumed when the loan was made.¹⁹ As such, for elected

¹⁷Note that for simplicity we do not include income in the balance sheet model. For a somewhat more complex, yet still stylized characterization of a central bank balance sheet see Table B in Rule (2015).

¹⁸See Dippelsman, Dziobek and Mangas (2012), which provides an IMF analysis of how to measure government debt.

¹⁹See, for example, the European Union approach of July 2009, which is spelled out in Eurostat 2012.

politicians we focus on the balance between their assets and debt liabilities, which is the same thing as net debt:

$$\theta_{EP} = A_{EP} - L_{EP} \tag{14}$$

According to one set of rules, namely those that Eurostat enforces for EU member states, ELA affects the fiscal deficit through what are called in the European System of Accounts “capital transfers”, which in turn is the mechanism that increases the net debt. There is an explicit expenditure booked to the government for the loss. A future extension of the model could include this component. For simplicity at this point, however, we focus on the debt component of the fiscal balance sheet.

3.9 Accounting rules of the game and the impact of policy decisions on public balance sheets

For a given shock, guarantees and emergency liquidity assistance can have different effects on the public budget at times t_1 through t_3 depending on the government accounting regime’s rules.

We denote the proportion of the total book value of a guarantee or ELA that is recorded against a public authority’s liabilities in the case of guarantees, or assets—based on collateral banks have provided—in the case of ELA, at time t_1 , that is before the guarantee has been called or the ELA defaulted on, with π . Thus a guarantee increases liabilities from t_0 in t_1 by πg where $\pi g \in [0, 1]$ and ELA similarly changes assets by $\pi_s s$ where $\pi_s s \in [-1, 0]$.²⁰

At time t_2 liabilities are the sum of t_0 liabilities, k_g as defined above. Additionally, public bodies that provided emergency liquidity assistance will acquire the assets posted as collateral with original book value of A_d . The impact that these assets have on public balance sheets at any individual point is a function of the accounting rules. As stipulated above, many of these assets will be non-performing. If the accounting rules require assets to be valued at their BOOK value until sold, then the proportion of non-performing assets at any particular time before them is not relevant. Taking over collateral posted for defaulted assets is treated under these rules as a swap of equally valued assets. If, however, the rules require assets be held at their MARKET value,²¹ then the proportion of non-performing loans is important is a crucial component of

²⁰In this conceptualization, the value of the ELA could be treated by the accounting rules as ranging from completely discounted from their book value—i.e. expect a full default and no collateral of value seized—to their book value—i.e. they are paid back in full. The latter is known as a “financial transaction” by the European Union’s European System of Accounts. It assumes that like value assets have been exchanged.

²¹This would be what is also known as mark-to-market or fair value accounting.

determining the asset value impact. The value of the public authorities' assets will decrease by $A_d - A_{dr}$.²²

At time t_3 the public authorities can choose to sell the assets they have acquired as collateral. One could expect that if they sell their assets at this time, they will receive a return ρ that is a proportion of the book value. This proportion is less than the book value (as there are non-performing loans in the portfolio), but also higher than the real market value at which they were acquired. This is because as time from the liquidity crisis passes, the market for bank assets improves. Thus ρ is in the interval $(\frac{A_{dr}}{A_d}, 1)$.²³ Public authorities could also choose to not sell the assets, instead keeping them on their balance sheet. If the choice is to SELL then the BOOK and MARKET accounting rules prescribe the same value ρA_d and so the value of the public assets decreases by $A_d - \rho A_d$.

The effects this sequence of events has on central banks, elected politicians, and banks balance sheets is summarized in Table 1.²⁴

Linking central bank and elected politician balance sheets So far we have assumed that the impact of a policy choice by one actor is contained to that actor's balance sheet. Central bank ELA operations are at the very least implicitly guaranteed by their governments, if not explicitly guaranteed. If a central bank extends ELA, but banks still default and their collateral is not sufficient to cover their default, then a central bank could face its own difficulties. It would need its shareholders (e.g., usually the government) to recapitalize it in order for the monetary and payment system, and therefore the economy, to continue operating. Alternatively, a central bank could create money to cover its obligations. This policy choice would presumably increase domestic prices and become part of monetary policy and may not be fit with the bank's objectives. Accounting rules can shape how fiscal backstops affect the debt and therefore how attractive they are to politicians. For example, the Bank of England informed the Treasury in October 2008 that, without a public guarantee, the Bank would effectively provide less emergency assistance and impose higher costs on banks. Politicians were reluctant to extend such a guarantee if it would be made public immediately.²⁵ Ultimately, the guarantees were made and they were publicly disclosed a year after the fact, thus skirting the edges of an accounting regime that would have made potential costs more transparent. In South Africa, the central bank is not even allowed to issue a ELA unless it is backed by collateral that is ruled to be of sufficient quality. If, as in the case we discuss below, the collateral is not of sufficient value

²²Note that for simplicity we assume that the book value of the posted collateral is equal to the ELA provided. A clear extension of the model would be to relax this assumption.

²³For simplicity, at this point we assume that ρ is drawn from a uniform distribution.

²⁴Note that the assumed 'fair value' accounting regime shown has assets valued at the market rate only when they are acquired. A future extension could relax this assumption.

²⁵From the Bank of England's Transactions Subcommittee of Court (Transco) Minutes available at: <http://www.bankofengland.co.uk/archive/Documents/archivedocs/codm/20072009/transactionscom.pdf>. Accessed August 2015

then the central bank may not issue it without a government guarantee. The accounting rules could even link the two balance sheets directly by consolidating the central bank's assets and liabilities at least partially on fiscal accounts.

For the model, depending on the accounting regime, an intra-governmental guarantee could shift the liability component of a policy cost from one balance sheet to the other up to the value of the guarantee. Interestingly, the asset side effects of the policy would remain with the public body that originated the policy, as, unless specified otherwise, the seized assets would remain on that body's balance sheet.

Table 1: Summary of Effects to Assets and Liabilities from ELA and Guarantee Choices for the Central Bank, Elected Politician, and Banks

	CB	EP	Banks
t_1	$L_{CB,t_0} + \pi_g g_{CB}, A_{CB,t_0} + \pi_s SCG$	$L_{EP,t_0} + \pi_g g_{EP}, A_{EP} + \pi_s s_{EP}$	$\psi_t L, \lambda_t A$
t_2	$L_{CB,t_0} + k_{CB,g},$ $\begin{cases} A_{CB} \text{ if BOOK} \\ A_{CB} - (A_d - A_{CB,dr}) \text{ if MARKET} \end{cases}$	$L_{EP,t_0} + k_{EP,g},$ $\begin{cases} A_{EP} \text{ if BOOK} \\ A_{EP} - (A_d - A_{EP,dr}) \text{ if MARKET} \end{cases}$	$L - (k_g + s_d), A_\delta$
t_3	$L_{CB,t_0} + k_{CB,g},$ $\begin{cases} A_{CB} \text{ if BOOK, NO SALE} \\ A_{CB} - (A_d - A_{CB,dr}) \text{ if MARKET, NO SALE} \\ A_{CB} - (A_d - \rho A_{CB,d}) \text{ if SALE} \end{cases}$	$L_{EP,t_0} + k_{EP,g},$ $\begin{cases} A_{EP} \text{ if BOOK, NO SALE} \\ A_{EP} - (A_d - A_{EP,dr}) \text{ if MARKET, NO SALE} \\ A_{EP} - (A_d - \rho A_{EP,d}) \text{ if SALE} \end{cases}$	$L - (k_g + s_d), A_\delta$

3.10 Utilities

The central bank and elected politicians aim to maximize their utility on three dimensions: financial stability, monetary policy stability, and their balance sheet.

Financial stability utilities Regarding the financial stability component (fs). Earlier we assumed that both the central bank and elected politicians have a preference for financial stability. We defined this as $\lambda_t A + s = \psi'_t L + C$. So, both actors' utility is partially a function of the quadratic utility function:

$$U_{fs,t} = -[(\lambda_t A + s) - (\psi'_t L + C)]^2. \quad (15)$$

Balance sheet utilities At the same time they want to minimise the policy response's net costs to their balance sheet (b). One preference could be that central banks prefer a “costless” policy in that it has no net effect on their balance sheet. Formally, their ideal balance sheet effect of a policy could be at all points in time t : $\beta_{CB} = \theta_{t-1} - \theta_t = 0$. Regardless of the specific preference, their general utility is given by:

$$U_{b_{CB},t}^{CB} = -(\beta_{CB}^{CB} - b_{CB,t})^2. \quad (16)$$

Similarly, the elected politician's utility is given by:

$$U_{b_{EP},t}^{EP} = -(\beta_{EP}^{EP} - b_{EP,t})^2. \quad (17)$$

Note that these utilities assume that the central bank and elected politician are focused maximizing their utility in the present period.

Monetary policy stability utilities Central banks and elected politicians have monetary policy preferences. Because financial assistance, especially by the central bank but also fiscal authorities, can affect monetary policy stability, public actors' financial response policy preferences are affected by their monetary policy preferences. Therefore, both public actors have preferences about the strength of the other's balance sheet:

$$U_{b_{EP},t}^{CB} = -(\beta_{EP}^{CB} - b_{EP,t})^2, \quad U_{b_{CB},t}^{EP} = -(\beta_{CB}^{EP} - b_{CB,t})^2. \quad (18)$$

Multi-dimensional utility optimization The central banker maximizes their utility at each point in time when $\max(U_{fs,t}, U_{b_{CB},t}^{CB}, U_{b_{EP},t}^{CB})$ and likewise for the elected politician: $\max(U_{fs,t}, U_{b_{EP},t}^{EP}, U_{b_{CB},t}^{EP})$.

3.11 Discussion of implications

Future versions of this paper will fully explore the implications of the model using an optimization algorithm (e.g. Shahriari et al., 2015). There are nonetheless a number of important implications that can be drawn from the model at this point. Starting with the choices at time t_0 and assuming public policy-makers have preferences for financial and monetary stability, as well as minimizing the negative balance sheet effects of financial market assistance,²⁶ the choice is driven by the accounting rules. We can see this by looking at the extreme cases. Under an accounting regime that allowed guarantees to be kept off of the books before they were called (a $\pi_g = 0$), but where ELA was held at a full discount ($\pi_s = -1$) by both actors, then they would exclusively choose to respond to the financial stress with guarantees up to the amount needed to stabilise bank liabilities at such a locally sustainable level. They would not choose any emergency liquidity assistance as doing so would decrease their assets at time t_1 . Conversely, if $\pi_g = 1 \wedge \pi_s = 0$ they would choose to exclusively use ELA up to the level needed to stabilize markets. Both choices stabilise markets and minimise the stated impact of the policy on their balance sheets at time t_1 .

The choice in t_1 and the accounting rules have important implications for bank resolution throughout the remainder of the game. At time t_2 under the full guarantee scenario, public liabilities increase by the amount that guarantees are called k_g . The public authorities' assets are unchanged. Banks' liabilities decrease by k_g and their assets also remain unchanged. They still have the same proportion of impaired assets as before. This could create a "zombie bank" if this proportion is large. Under the full ELA scenario, public authorities' portfolios do not change if they are allowed to record the seized collateral at book value. This is not true if accounting rules require the assets to be marked-to-market. Instead the value of the public bodies' assets drop by $A_d - A_d r$. In both ELA scenarios, the banks' balance sheets improve as their liabilities decrease by s_d and the proportion of non-performing loans falls by $\Delta\gamma$.

At time t_3 there is no change from t_2 for the guarantees-only scenario. For the ELA-only scenario public authorities decide to sell their assets if they are required to account for them at the market value at which they were acquired. This is because $-(A_d - \rho A_d) > -(A_d - A_d r)$. There will be no sales if authorities can keep the collateral assets at book value as $0 > -(A_d - \rho A_d) > -(A_d - A_d r)$.

²⁶For simplicity assume for now that they are indifferent between who's balance sheet is affected and so evenly distribute the allocation across their two balance sheets.

From this discussion we can derive hypotheses about banking crisis response policies and the resulting restructuring:

H_1 : Central banks and elected politicians will choose a mixture of guarantees and emergency liquidity assistance that minimises their direct negative impact, given the accounting regime in place.

H_2 : More reliance on ELA will lead to faster bank balance sheet restructuring than equivalently powered—in terms of their market stabilizing qualities—guarantees.

H_3 : Public authorities will be more likely to sell assets they acquire as a result of their assistance to banks if accounting rules require them to be marked-to-market or take some other direct balance sheet impact.

4 Shaping preferences

Before conducting initial cases study tests of these hypotheses, we want to discuss in more detail the likely range of preferences central banks and elected politicians might have and what influences these preferences.

While the central bank and elected politician share a preference for financial stability and they may share a preference for monetary policy stability, to some extent they prefer that the other player be the one to provide assistance. Stated differently, they simultaneously prefer financial stability and to minimise the cost of this stability to “their” balance sheet. The central bank’s legal mandate and reserves, as well as the government finance accounting regime shapes to what extent each actor prefers that the other provide bank support and how.

Central banks’ preferences ELA presents a problem for central banks that want to achieve monetary policy stability. Lending to stressed banks transfers risk from the troubled bank to the central bank as long as there is risk that the collateral does not fully cover the transaction in the future. If the risks are realized, the losses would reduce a central bank’s reserves, which could undermine the ability of the bank to maintain monetary policy stability. Indeed, concerns about the threat to the Bank of England’s gold reserves was the reason that it resisted serving as a lender of last resort before the 1870s, often leading to intensified panic (Bordo, 2009, 117). When it did step into this role following the failure of Overend, Gurney, and Company, emergency lending reduced the Bank of England’s cash reserves by 85 percent (Sowerbutts and Schneebalg,

2016, 7). Assuming a central bank has a preference for monetary stability, those with limited reserves and pressures on their currency will be more reluctant to extend ELA.

Moral hazard vs. systemic risks Moral hazard is another often-cited concern that central banks may have about providing generous emergency liquidity assistance. If banks come to expect that they will be provided with generous ELA both in terms of the amount and riskiness of the collateral accepted, then they may engage in riskier lending behavior. They will expect to pay less of the costs of their risky behavior than if they did not anticipate generous ELA. This would likely lead to the very instability and crisis that central bankers wish to avoid. Central bankers are aware of this moral hazard problem, and over the long-term they will want to be less generous with their ELA, regardless of the ability of their balance sheet to take on the risks without harming monetary policy stability. This sentiment is reflected in the comment by the director of the Bank of England at the time of Overend Gurney's failure: the idea of the Bank acting as a LoLR is "the most mischievous doctrine ever broached in the monetary or Banking world" (quoted in Sowerbutts and Schneebalg, 2016, 8). Goodhart (2009) contends that the risks of moral hazard from ELA are present, but also often much lower than the risks of not acting to save a failing financial system. If correct then moral hazard's importance in actual decision-making is less than often argued.

Central banks more concerned with financial stability should also in theory focus their emergency liquidity assistance on institutions that are systemically important in order to prevent instability across the whole financial system. Determining systemic importance is not straightforward, but can involve institutional characteristics such as size, complexity of operations which would make orderly resolution difficult, the extent to which it provides unique financial services, and how interconnected it is with other institutions (Dobler et al., 2016, 23).

Mandates The extent to which a central bank values these different components is not constant. An important factor shaping how a given central bank values monetary vs. financial stability is their mandate.

Returning to the Bank of England example, The Bank Charter Act of 1844 effectively mandated a very strict focus on monetary policy stability. It required the Bank of England to only issue new banknotes if they were backed by gold or government debt. Thus the Bank was particularly concerned with protecting its reserves.

Central banks in developed economies during the recent era are almost always mandated with at least ensuring monetary policy stability. Additionally, there is often an explicit or implicit mandate to ensure financial stability. By explicit, we mean that the bank is supposed to consider financial stability according

to its statutes. By “implicit” mandate for financial stability we do not mean implicit in their interactions with politicians. Instead we mean that implicit in a mandate for monetary policy stability is a mandate to maintain a well functioning payments system. This likely requires a stable financial system (Manning and Russo, 2008, 8). For example, as Fed Governor Lael Brainard noted in a 2014 speech, financial stability did not appear in the founding statutes of the US Federal Reserve Bank, but the Bank was created during a severe financial panic, and preserving financial stability has since been an important part of the Bank’s work.²⁷

The extent to which a central bank’s mandate weights monetary over financial stability could affect their ELA preferences.

Relative balance sheet strength “Changes in the balance sheet through time can also reveal how successful the central bank has been in achieving its goals and how sustainable its current policy objectives are” (Rule, 2015, 1). The strength of a central bank’s balance sheet to absorb losses from ELA is a key determinant of the “scale and scope” of ELA (Goodhart, 2009, 234). Loss absorption capacity is both a function of a central bank’s reserves and the stresses it is likely to face on the currency. Clearly central banks with larger reserves will be better placed to take on ELA risks while also ensuring that prices remain stable, all else equal. However, all else might not be equal. Central banks that maintain reserve currencies will tend to have lower pressures than those that do not as market participants will be more inclined to hold assets in this currency. Even central banks with reserve currencies may be reluctant to take on ELA risks if they have large and highly stressed banking systems relative to reserves.

Not only could a central bank with an impaired balance sheet due to ELA losses have difficulty maintaining prices stability, it may also harm its operational autonomy (Dobler et al., 2016, 35). For example, the Bank of Canada notes that it manages its investment portfolio to maintain operational independence “by providing a source of revenue that ensures the Bank is not dependent on government appropriations” (Johnson and Zelmer, 2007, 3). If the central bank experiences losses from its ELA and needs to request a recapitalisation from the government in order to have a balance sheet that allows it to maintain price stability, the government may assert more political influence.

²⁷Accessed at <https://www.federalreserve.gov/newsevents/speech/brainard20141203a.htm>, July 2016.

4.1 Elected politicians

Elected politicians face a dilemma when confronted with a financial crisis. In general, their voters both would like them to reestablish financial market stability, while at the same time minimizing the public costs of doing so. Voters have a strong preference for financial stability because they both tend to be creditors to the financial system via their bank deposits and the real economy tends to be severely harmed by financial market stress.

At the same time, voters give elected politicians strong incentives to contain the costs of responding to financial crises. Previous work on the impact of removal pressures on politicians' choices concludes that the easier it is for citizens to remove a politician, the more likely it is that incumbents will take into consideration taxpayer costs (see below for a detailed discussion of the existing literature). It presumes that citizen removal is easier in democracies, where citizens are also voters. The implication is that the overall cost to the public purse of government measures for addressing banking crises will be lower in more electorally competitive countries (e.g. Keefer, 2007; Rosas, 2009). Election timing could be an important factor that shapes removal pressures. If a government has just securely won an election and it has a fixed term ahead of it, it is less subject to pressure from voters. In such cases the government may be incentivised to take on more costs now while it is in the "electoral shadow", rather than wait for the next election.

During a crisis, there could be pressure from creditors to control debts. The extent to which sovereign creditors influence policy responses will vary depending on factors such as whether governments are reliant on foreign credit and governments' abilities to service their debt burden. Nonetheless, for many countries pressure will be unusually high. Most need to rely more on foreign creditors during a banking crisis as, almost by definition, the domestic banking sector has difficulty providing credit. If politicians are not able to access credit, they will likely not be able to provide voters with services they expect, therefore threatening politicians' ability to stay in office. Foreign creditors have more leverage to force adjustments as they can more easily choose to invest elsewhere.²⁸ So pressure to contain costs will be particularly strong in countries that are more reliant on foreign creditors, which include international institutions like the International Monetary Fund.

Given the strong pressures to both respond to financial crises and to contain the cost of doing so, emergency liquidity assistance, especially if placed on the central bank's balance sheet, could be attractive to politicians. It allows for there to be a public response to financial market distress with a smaller (immediate)

²⁸As a result, Kaplan and Thomsson (2015) show that countries which are more reliant on foreign credit do not have traditional political business cycles, i.e. spending increases before elections used to please voters. Instead they have lower deficits.

fiscal impact than alternatives, such as recapitalizations and nationalizations.²⁹ However, just because a central bank provides ELA rather than the government, does not mean that the government does not take on potentially substantial risks that could impair the public budget in the future. If banks default on their assistance then the central bank's balance sheet will be impaired. This could threaten the stability of the currency if reserves are drained. As such a government with a monetary policy stability preference would need to recapitalize the central bank, likely with an obvious effect on the public budget.³⁰

5 Case studies

At this initial stage, we focus on examining the plausibility of our model to explain two episodes—the 2007-09 assistance and restructuring of a number of banks in the United Kingdom and the 2014-16 restructuring of African Bank in South Africa.

5.1 Bank of England ELA 2007-09

The Bank of England provided emergency liquidity assistance in two rounds during the turbulent 2007-2009 period. The first was made to a broad group of 32 banks following Northern Rock's failure in April 2008. This was referred to as the Special Liquidity Scheme (SLS).³¹ The second—explicitly called the Emergency Liquidity Assistance—went to the Royal Bank of Scotland (RBS) and Lloyds TSB in late 2008 through 2009 (Plenderleith, 2012, 4). Minutes from meetings leading up to decisions within the Bank of England have been made available.³² They reveal active negotiations between the Bank of England and the United Kingdom's Treasury over how much ELA should be provided. A key point of in these negotiations was who would bear the risk of these measures and on whose balance sheet should they be revealed publicly.

Accounting treatment of the chosen ELA The Special Liquidity Scheme was treated as an “off balance sheet” item. The scheme was structured as a swap where the Bank took illiquid mortgage-backed securities from banks in exchange for liquid government bonds.³³ The swap was to be reversed (i.e., the ELA repaid) after three years.³⁴ In accounting terms, these were treated as “pure collateral swaps” (Rule, 2015, 18). In

²⁹Of course the affect on the budget could be large if banks fail and are unable to payback assistance that the public extended to them.

³⁰If a country has monetary policy autonomy, they could print money to meet their obligations, but this would likely have an inflationary effect.

³¹See <http://www.bankofengland.co.uk/markets/Pages/sls/default.aspx>. Accessed July 2016.

³²See <http://www.bankofengland.co.uk/archive/Documents/archivedocs/codm/20072009/expnote.pdf>. Accessed July 2016.

³³These were created by the UK Debt Management Office.

³⁴All support was repaid.

other words, the Bank was seen by the rules as simply exchanging one asset for another of equivalent value. The swaps did not negatively affect the Bank's balance sheet, though if at the end of the three year period a swap was not reversed, the Bank would have been left with the mortgage-backed security which may have in reality been worth less than its book value.

This policy design specifically did not affect the Bank's balance sheet. If, alternatively, cash liquidity had been provided rather than collateral swapped, the costs would have been reported in the weekly and highly scrutinized Bank Return (Plenderleith, 2012, 69).³⁵ The SLS's accounting treatment is the same as that of the Bank's permanent Discount Window Facility (DWF) for providing liquidity to specific firms affected by a market shock. The DFW importantly differs from the SLS in that the swap maturity is much shorter—30 days with the option to roll over.³⁶ All else equal, the shorter maturity decreases the risk to the central bank of the assistance. because the assistance was repaid, there was no automatic bank balance sheet restructuring, nor a need for one.

The design of the Emergency Liquidity Assistance to RBS and Lloyds given the accounting rules also ensured that it largely did not affect the Bank of England's balance sheet. The BoE intentionally did not report the scale of its emergency liquidity assistance. This was partially to avoid such a report increasing market actors' concern about the banks that received the assistance—unlike the broad Special Liquidity Scheme, the Emergency Liquidity Assistance was provided to only RBS and Lloyds.³⁷ The chosen maturity of ELA support to Lloyds and RBS corresponded very closely to the BoE's accounting year. The support was repaid in January 2009. This made it unnecessary to report risks from the policy on its Annual Report for 2008, as the reporting year ended in February 2009 (Plenderleith, 2012, 69).³⁸ The ELA to Lloyds and RBS was ultimately disclosed to the public in November 2009, or more than a year after the assistance was extended and 10 months after the program finished when the UK's National Audit Office made clear that it intended to publish details of the ELA and indemnity in a report on all of the public responses to the crisis (Plenderleith, 2012, 72).

Interactions between the BoE and Treasury Both the Bank of England and the Treasury were concerned with the stability of the banking system. They were also clearly concerned with reducing (or

³⁵Cash ELA was actually provided to Northern Rock in 2007. This was largely because Northern Rock made statements in advance that they would receive the assistance, so the BoE decided they could not keep the programme covert and chose cash liquidity assistance rather than a swap (Plenderleith, 2012, 70).

³⁶Information from <http://www.bankofengland.co.uk/markets/Documents/money/publications/redbookdwf.pdf>. Accessed August 2016.

³⁷See UK Parliament 2009, "Reporting Contingent Liabilities to Parliament." Accessed at <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmtreasy/181/18103.htm> August 2015.

³⁸The fees paid by the banks for the assistance did have to be included in the Annual Report, but the reason for fee income did not have to be stated.

eliminating) the appearance of this assistance on their respective balance sheets and the exposure of their balance sheet to downside risk. The BoE committee minutes contain multiple instances of Bank officials expressing a concern that the ELA would hurt their balance sheet. For example, in a 15 October 2008 non-executive directors (Nedco) meeting it was noted that “in view of the very substantial increase in the size of the Bank’s balance sheet, it was asked how that would be managed and whether the Bank itself would be seeking additional capital at some point”. Because of this concern, the Bank asked for and received an indemnity–guarantee–from the Treasury for its assistance before it would provided emergency liquidity assistance.

Finally, Bank officials stressed that ELA should be temporary and that the Treasury would need to take an active part in restructuring the banks.³⁹ The Bank of England did not want to be stuck with the assistance on its balance sheet.

Treasury’s recapitalisations There was a concern that the government should avoid purchasing assets from banks as this would increase the gross upfront costs relative to injecting capital into the banks. This was described as economically ‘cosmetic’–i.e. had accounting treatment effects–, but politically important.⁴⁰

The alternative policy path chosen began in October 2008 when RBS started participating in a Government recapitalization scheme. From December 2008, the Treasury bought a controlling number of shares in the bank. One component of these purchases appears to not have been intended. The Treasury underwrote–effectively guarantees–multiple rounds of share issuance, but due to a lack of market demand, ended up purchasing most of these shares. From October 2008, because of the scale of the Treasury’s share purchases, RBS was classified as a “public financial corporation” and so its balance sheet was treated as part of the general Government’s balance sheet.

From February 2009 RBS also participated in the Government’s Asset Protection Scheme. This scheme was a guarantee to the bank that, after the RBS took a set loss on its included non-performing loans, that the Government would cover up to 90 percent of further losses from included loans. The purpose of this programme was to encourage the bank to continue lending (Kellaway, 2009, 67-69). The Asset Protection Scheme was considered a contingent liability, so off of the public accounts until if and when they were called, at which point they would be counted as a capital transfer (Kellaway, 2009, 126).

A similar set of events occurred with the recapitalisation of Lloyds. The Government both bought shares in the company and underwrote new share issues. However, there was little market interest in the new shares

³⁹NedCo minutes 15 October 2008.

⁴⁰NedCo minutes 15 October 2008.

and so the Government bought nearly all of them. As a consequence, Lloyds was reclassified as a public financial corporation and thus on the general Government's books.⁴¹

The accounting treatment of the Treasury's assistance to RBS and Lloyds TSB was determined by the UK's Office for National Statistics (ONS) in conjunction with Eurostat using the European System of Accounts (ESA) rules. The various forms of assistance had different accounting effects. Many of the share purchases were deemed to be "financial transactions" and so did not affect the public debt or deficit. They did, however, put these shares on the overall balance sheet as assets. Shares bought at well below market prices were partially treated as "capital transfers" and so were classified as expenses for the public. The accounting rules treated financial institutions controlled by the government as in the general government accounts. In 2009 the ONS estimated that this accounting treatment alone increased the UK's net debt by between 70 and 100 percent of GDP. Moving forward, the Government's balance sheet would be affected by the profitability of these two public financial corporations (Kellaway, 2009, 74).

At first glance, this policy choice seems to run contrary to the model we presented above. However, it is important to consider the staging of these decisions and how their accounting treatment changed as the market consequences of the actions developed. The initial Treasury support largely involved policies that would be treated as off of the books—buying shares at market prices and providing guarantees via share underwriting and the Asset Protection Scheme. The problem for the Treasury appears to have occurred when the shares were put up for sale with the expectation that they would be bought privately and so the government would underwrite them at effectively no cost. However, because there was little market demand, the Government ended up purchasing these shares for more than the market value. This created capital transfers and, more importantly, public ownership under the ESA accounting rules. In sum, the Bank of England and the Treasury wanted to create financial stability. The BoE was especially concerned with doing so while also protecting its balance sheet so that it could pursue its monetary policy mandate. As such it requested that the Treasury both stand behind its ELA and begin restructuring the particularly weak RBS and Lloyds (this would enable them to have their ELA paid back). The Treasury also wanted monetary policy stability and to protect its balance sheet, and it agreed and effectively provided a set of policies that were initially off of their balance sheet under the accounting regime. However, once the guarantees were called—particularly when the shares they underwrote were not sold to private actors—this dramatically hit the fiscal balance sheet.

An important difference from our model is that the share underwriting differed from a liability guarantee

⁴¹A similar process also occurred with another lender—HBOS (Kellaway, 2009, 75-76). HBOS was merged with Lloyds in late 2008.

in that it resulted in the public taking on entire banks' balance sheets.

5.2 ELA outside of Europe: South Africa

Finally, we turn to a contemporary case of bank assistance and restructuring outside of Europe. The case involves the South African bank African Bank Limited. To set the scene: in mid-2014 the the central bank—the South African Reserve Bank (SARB)—became concerned about the health of the African Bank. SARB is the prudential regulator in South Africa and came to believe that African Bank had been understating the extent its non-performing loans.⁴² African Bank's loan book consisted of a large proportion of unsecured and often non-performing loans. The NPL problem began to impact the bank's publicly stated profits. Given that the bank relied heavily on domestic wholesale funding, SARB worried that continued problems could create a liquidity crisis for the bank and have possibly systemic consequences as both other banks and retail investors were significant creditors to African Bank largely via money market funds. Pension funds, including the Government Employees Pension Fund (GEPF) were also major creditors to African Bank. Beyond the possibly systemic risks presented by an outright failure, money market fund investors and pension funds were seen by policymakers in the National Treasury—South Africa's ministry of finance—as politically important.⁴³

In June, 2014 SARB appointed the accounting and consultancy firm PWC to examine African Bank's balance sheet. By late summer 2015, the advisors believed African Bank had only a few weeks worth of liquidity left before it was unable to meet its borrowing obligations. In response to the situation, the Minister of Finance placed African Bank into “curatorship” in August 2014. The appointed external curator could then freeze creditor's claims—depositors' claims were not frozen—remove the existing management, and, with SARB and the National Treasury, begin making a restructuring plan.⁴⁴

The ultimate plan involved splitting the bank into two entities—a ‘good’ and ‘bad’ bank. The former retained the “African Bank” name. The new bank was given new equity investments by SARB, South Africa's large banks and the GEPF via the public asset manager Public Investment Corporation (PIC).⁴⁵ The equity split was 50 percent from SARB, 25 percent from GEPF/PIC, and 25 percent from South Africa's

⁴²Some of these non-performing unsecured loans had been given to customers of a furniture business—Ellerine—that African Bank owned. See <http://www.bloomberg.com/news/articles/2016-05-12/african-bank-investments-report-says-ex-directors-failed-duties>. Accessed October 2016.

⁴³From an interview with a South African National Treasury official involved in the restructuring. The interview was given on the condition of anonymity.

⁴⁴Interestingly, according to an interviewed—under conditions of anonymity—senior SARB official, SARB determined that the bank was fundamentally solvent and simply facing a liquidity crunch.

⁴⁵This public pension fund had been invested in African Bank via the publicly owned asset manager—Public Investment Corporation. As of 2016, over 88 percent of the assets this fund manages are owned by the pension fund. See <http://www.pic.gov.za/index.php/about-us/our-clients/>. Accessed October 2016.

six largest banks.⁴⁶ The new bank retained a portion of the original bank’s assets and liabilities. It was given a new banking license.⁴⁷ The ‘bad’ bank was titled Residual Debt Services. It contained the remainder of the former bank’s assets and did not have a banking license. Without a banking license it did not have to hold regulatory bank capital and thus avoided a large, possibly public recapitalisation.⁴⁸ Shareholders in the original bank were wiped out. Bondholders were given various options for participation in the good and bad banks, at various haircuts.⁴⁹

Deviations from the model African Bank had three circumstances that make the underlying conditions different from the model presented above and the previous cases.

First, there were strong accounting pressures given the nature of African Bank’s problems (and previous experiences with bank guarantees) that strongly dis-incentivised large up front guarantees and emergency liquidity assistance. African Bank’s loan book had a large proportion of unsecured loans. These were seen as very poor collateral for any emergency liquidity assistance as they were not themselves backed by collateral. As such, to provide ELA, the Reserve Bank would be required to obtain a National Treasury guarantee for this assistance. As we discuss in more detail below, the accounting rules made such a guarantee “unwanted” by the National Treasury.⁵⁰ An important reason why such guarantees were “unwanted” is that South African’s government accounting regime requires full disclosure of such guarantees. They are kept on the books from the beginning.

Second, public authorities had the ability to put the bank into a legal structure known as “curatorship”. In terms of our model, curatorship decreased the immediate need for public assistance such as guarantees and ELA. However, it did not remove such a need as curatorship was legally and practically limited. A decision was made not to freeze the withdrawal of retail deposits—which would be politically very difficult—, while new lending to the bank had stopped. Additionally, while the bank’s creditors could not remove their money, investors in these creditors could, and did, begin a ‘run’ on them reinforcing the worry of a systemic money market crisis. Curatorship gave officials more time to find an assistance plan that maximised their

⁴⁶See: <http://www.biznews.com/undictated/2016/04/21/african-bank-revival-hard-lessons-learnt/>. Accessed October 2016.

⁴⁷This was part of a wider effort to shield the new bank, SARB and the National Treasury from unforeseen future legal risks associated with the old bank. These risks were colloquially called “gogga”, roughly translating as creepy-crawlers.

⁴⁸See <https://www.africanbank.co.za/investor-residual-debt.html>. Accessed October 2016. In an interview with one of the bank restructuring officials, he partially justified this structure based on his previous experience restructuring European banks. In these restructurings ‘good banks’ such as the Royal Bank of Scotland were often largely government owned and contained significant legacy risks from the pre-resolution period. The African Bank split limited the good bank’s exposure to such risks—it was only liable for problems associated with the assets it owned.

⁴⁹See <http://www.bloomberg.com/news/articles/2016-05-12/african-bank-investments-report-says-ex-directors-failed-duties>. Accessed October 2016.

⁵⁰From anonymous interviews with multiple officials involved in the resolution.

interests as described by the model. But due to market pressures and the fact that curatorship is legally a restructuring process,⁵¹ restructuring began in earnest.

In terms of our model, these two sets of factors meant that South African officials did not provide *upfront* guarantees or ELA. At the same time they did have strong incentives to provide assistance in the near-term and restructure the bank. As such, South African politicians were in a functionally similar situation to a country that had chosen ELA. In this situation, we argue below that the government finance accounting regime shaped actors' restructuring choices in much the same way as we previously hypothesised. In fact, SARB would provide liquidity assistance to Residual Debt Services, but this would be fairly limited largely because of how it would show up on national accounts.

South African Reserve Bank's interests and policy tools The South African Reserve Bank operates largely independently. Its independence is prescribed by the 1996 South African Constitution. SARB uses this independence to pursue a price stability mandate set by the Government. The Bank interprets the price stability mandate to include maintaining a stable financial system.⁵² SARB is also the main prudential regulator in the country and has legislatively prescribed policy tools for resolving troubled financial institutions.⁵³ As such a number of people interviewed both at the bank and other government institutions commented in interviews that the bank was very concerned with systemic risks. Finally, the central bank was concerned with small borrowers to maintain access to to the financial system. African Bank had been a major source of credit to these borrowers as other banks were decreasing their business in this area.⁵⁴

SARB has two sources of pressure to contain liabilities and losses on its balance sheet. First, South Africa is an emerging market country with a sometimes volatile currency. Its precarious monetary position makes it practically even more difficult for SARB compared to the other developed economy central banks we looked at to provide financial assistance to troubled banks. SARB is unable to simply issue new currency to provide assistance to banks. Instead it issues debt for the amount of the assistance, thus 'sterilising' the monetary policy impact of the assistance in an effort to maintain price stability.⁵⁵ A number of interviewees, indicated that officials at SARB were particularly concerned with the possibility of systemic problems in money market funds from an African Bank failure.

⁵¹To put a bank in curatorship there has to be a reasonable belief that the bank is insolvent.

⁵²See <https://www.resbank.co.za/AboutUs/Mandate/Pages/Mandate-Home.aspx>. Accessed October 2016.

⁵³These powers changed in a small but important way over the course of the crisis with the passing of an amendment to the Bank Act. This change allowed for the African Bank to be split into a good and bad bank. Previously assets were allowed to be sold from an existing bank, but a new bank was not allowed to be created. A restructuring consultant we interviewed who worked on this case noted that the legislative process on this issue gave creditors, especially sub-debt holders leverage that they used to gain more favourable terms in the restructuring process.

⁵⁴From an interview with a senior SARB official given under conditions of anonymity.

⁵⁵This is not a legal requirement, but a choice to maintain monetary policy credibility.

Second, unlike the other central banks we have looked at so far (at least in the contemporary period), SARB has an additional source of pressure to have a stronger balance sheet: private equity holders. Though there have been recent legislative changes to reduce individual private equity holders's stakes in the Bank they still play an important role in the running of the Bank. For example, they continue to elect seven of the bank's non-executive directors. The South African president appoints four. Important, or at least vocal, shareholders regularly put pressure on the SARB to produce a return on their investment.⁵⁶

While SARB wanted to assist African Bank to avoid the potentially systemic consequences of a failure, it had strong incentives from its mandate, position in currency markets, and private shareholders, to limit the impact of this assistance on its balance sheet.

The Bank was even limited in the policies that were ultimately chosen. Without high quality capital, SARB would need a National Treasury guarantee to provide guarantees for liquidity assistance. It was also unclear if SARB was even allowed to invest equity in the new bank if there was a chance that it might lose money on this investment.

National Treasury's interests, policy tools, and accounting regime Based on interviews with National Treasury officials involved in the restructuring process, the Treasury was less concerned with the systemic risks from the bank failing. Though it was concerned about the bank's politically important creditors—namely money market funds and pension funds. There was a desire to limit the transfer of risks to the public⁵⁷ the moral hazard resulting from a public bailout,⁵⁸ and explicitly a desire to impose some sort of bail-in in line with emerging international norms including the recommendations from the Financial Stability Board based in Basel and the European Union's Banking Recovery and Resolution Directive. The National Treasury was also, "absolutely driven" by a desire to minimise the fiscal impact of the assistance. Officials were particularly cognizant of the overarching government accounting regime legislation: the Public Finance Management Act.⁵⁹

The National Treasury had a number of possible policy tools available to it. It could have recapitalised the old bank, or the eventual new bank. It could have guaranteed these assets. It could have provided

⁵⁶An anonymous interviewee discussed how at the annual shareholder meetings, vocal shareholders expressed their concern that assistance to African Bank would hurt their returns.

⁵⁷This was partially based on a previous experience assistance experience in the early 2000s where the National Treasury gave a guarantee to Saambou Bank, which left it legally liable for litigation from customers based on the bank's previous poor practices.

⁵⁸One anonymous interviewee argued that while African Bank was relatively small and could have been bailed out by the Treasury, there was a concern that a failure at one of South Africa's larger banks would be very problematic for the public purse. A bail-in of African Bank's creditors would send a signal that they had the "guts" to impose some sort of bail-in on the larger banks.

⁵⁹From an anonymous interview with a Treasury official involved in the resolution. The Public Finance Management Act sets out the rules on guarantees and other assistance as well as establishing the government finance accounting regime.

emergency liquidity assistance. The finance minister also ultimately had to approve the restructuring plan, whether the Treasury or SARB only participated.

The National Treasury, while not subject to an external and independent government accounting regime as in Europe, had strong external pressures to follow relatively stringent rules for what could be considered off the books. A key example is the comparatively open approach SARB took to reporting its guarantees. Foreign investors, who finance more than 30 percent of South Africa's sovereign debt, had demanded more information about previously off book risks.⁶⁰ As a result, (most) guarantees are reported in full in the annual Debt Management Report. See below for an interesting exception. This accounting rule made the possibility of providing extensive guarantees to African Bank unpalatable to the National Treasury. South Africa also uses a cash accounting framework. Any capital or equity injection under these rules would immediately increase the government's deficits and, because the government was in deficit, require additional borrowing. This borrowing would have required Parliamentary approval. It was viewed that Parliament would not approve such public assistance to African Bank. The National Treasury could make use of up to 15 billion Rand in emergency funds, but these would need to be justified to Parliament ex post. Again, it was believed that elected parliamentarians would not look favourably on such an increase in the deficit and debt.

Interaction between SARB and National Treasury Once it was decided that African Bank would need assistance and restructuring, SARB and the National Treasury were in intense contact and devised multiple plans for this. The National Treasury was in a better position to limit the impact of the assistance on its balance sheet than SARB. It was less concerned with the systemic risks of a failure and, perhaps more importantly, had to approve many of SARB's plans. Nonetheless, it was concerned with politically important creditor losses from a sudden bank failure and broadly with monetary policy stability.

Outright guarantees to African Bank was not significantly considered. This was partially due to a bad experience in the most recent prior bank South African restructuring⁶¹ and also because South Africa's accounting regime required that all guarantees be disclosed in full on both national and SARB accounts.⁶² There was little political appetite for this or an appetite at SARB. A senior SARB official commented that in South Africa you look at both the overall balance and the guarantees when determining public bodies' position. Because African bank largely had unsecured loans, it had only very poor collateral that would

⁶⁰An anonymous interviewee also indicated that officials within the National Treasury wanted to get a handle of the extent of guarantees that had been provided by the Government.

⁶¹This was mentioned by multiple interviewees.

⁶²This was also mentioned by multiple interviewees.

legally require SARB to gain a guarantee from the National Treasury if it provided ELA. As such SARB's legal structure and the national accounting regime made large guarantees and ELA politically undesired for the same reason.

It is notable how the proposed plans progressed so as to minimise the balance sheet impact of the assistance and restructuring. One of the initial plans, and actually the originally announced—but not implemented—plan, was to have African Bank sell assets with a book value of 30 billion Rand to SARB for seven billion Rand. This figure was a “conservative” estimate—made by the PWC consultants—of the assets' recovery value. A “claw back” provision would be included where creditors would be given any surplus beyond the seven billion Rand if the assets eventually sold for more. This plan would have shifted risks from the assets selling for less than seven billion Rand and unforeseen legal risks associated with the assets directly onto SARB's balance sheet. This plan was quickly viewed as sub-optimal for the Bank's balance sheet.

Largely because of these risks and the direct impact that the purchase would have for SARB's balance sheet, another alternative was considered: a good/bad bank split. A new bank—the ‘good’ bank—was created, with many of the original African Bank's assets. Another entity—the bad bank called Residual Debt Services—would purchase the assets with 30 billion in book value from African Bank using a seven billion Rand loan from SARB.⁶³

This plan nonetheless had potential negative impacts for SARB's balance sheet. There were risks associated with the loan to Residual Debt Services and there were risks from SARB's equity stake in the good bank. There were extensive discussions within SARB⁶⁴ about whether its remit would allow it to make such an investment if there was a reasonable risk that it would not be made whole. This was especially a concern for SARB's private investors, some of whom actively demanded return on their equity.

The National Treasury was repeatedly approached by SARB, the curator, and South Africa's major banks to be an investor in the new bank. They declined out of a desire to minimise risks to the public balance sheet and, importantly, because of cash accounting rules would have been required to book this against the deficit and issue new debt. SARB on the other hand was able to keep its new African Bank equity out of its consolidated accounts.⁶⁵ This is because, while SARB owns 50 percent of African Bank's equity, it is not considered a SARB subsidiary under the accounting rules. This is because SARB appoints none of the board members. They are all appointed by the major banks, who own 25 percent of the African Bank's equity.

⁶³Due to the time it took to conclude the deal, the assets ‘fair’ accounting value changed and so a smaller loan was ultimately given.

⁶⁴From an interview with an externally appointed restructuring consultant on the case.

⁶⁵It is disclosed in a note in its Annual Reports

As part of the restructuring, the bad bank Residual Debt Services would also provide a 5 billion Rand guarantee to the new African Bank for unforeseen losses from the old bank's activities. SARB shouldered some of this risk as they stood behind the guarantee up to an amount that Residual Debt Services was unable to honour it.

It is notable that apart from the 50 percent equity injection into the new African Bank, SARB's support was structured as guarantees through Residual Debt Services. Residual Debt Services was owned by the failed bank's creditor. This enabled SARB to not have to increase its borrowing, unless the guarantees were called.

Because of the limited set of options provided by the government finance accounting regime for assisting African Bank in a way that limited the reported fiscal implications of the assistance, the National Treasury's stated assistance was limited to a relatively small guarantee given to SARB. As in the UK and Irish cases, the National Treasury provided the central bank with a guarantee to backstop its ELA support. This guarantee amounted to seven billion Rand in 2015 (South African Reserve Bank, 2015, 98).⁶⁶ This guarantee was declared in the annual Debt Management Reports ⁶⁷

Public assistance and losses via Public Investment Corporation Despite SARB and the National Treasury assuming some of the risk of restructuring African Bank via guarantees and in SARB's case an equity investment, as of October 2016 perhaps the only public entity to book a loss from the bank restructuring was the government owned asset manager Public Investments Corporation (PIC). It had been invested in African Bank before the liquidity crunch and lost 4 billion Rand as a result of the restructuring.⁶⁸ PIC lost these funds because it received the same terms as African Bank's other creditors. As part of the restructuring the Government Employee's Pension Fund via PIC also made a new investment in a 25 percent equity stake in the new African Bank.

These entities unusual accounting treatment suggests that their support may have been relied upon to increase the public support without hitting SARB or the National Treasury's balance sheets.

While is wholly owned by the South African Government, "contribut[ing] towards the realisation of key developmental priorities of Government",⁶⁹ and has the Minister of Finance as the shareholder representative who also appoints the board,⁷⁰ PIC does not appear on the fiscal balance sheet. Nor does the GEPPF.

⁶⁶SARB would have been had to pay a 30 basis points fee if the guarantee had been utilized. It was not ultimately utilized.

⁶⁷See page 44: <http://www.treasury.gov.za/publications/other/Debt%20Management%20Report%202015-16.pdf>. Accessed October 2016.

⁶⁸See: <http://www.bloomberg.com/news/articles/2016-05-12/african-bank-investments-report-says-ex-directors-failed-duties>. Accessed October 2016.

⁶⁹See <http://www.pic.gov.za/index.php/about-us/mission-and-vision/>. Accessed October 2016.

⁷⁰See <http://www.pic.gov.za/index.php/faqs/>. Accessed October 2016.

As discussed above, South Africa’s government finance accounting regime has the Government regularly declare guarantees it has extended to state owned corporations, including to SARB for the African Bank restructuring,⁷¹ PIC and GEPF are not included in these declarations. The Government Employees Pension Fund does in fact receive “certain guarantees” from the government if PIC experiences losses that prevent it from making returns large enough to cover defined benefit pensions.⁷² Unless PIC suffered such a severe loss from African Bank that prevented it from giving the pension fund a large enough return to meet its obligations, there would be no impact on the fiscal balance sheet.

PIC/GEPF’s 25 percent stake in the new African Bank was not part of early restructuring proposals, which included only SARB and the large private banks. Over the course of the planning process, the large banks were able to negotiate a lower participation, leaving an equity hole that needed to be filled. Despite largely not participating in the negotiations, PIC was chosen to fill this hole.⁷³

The implication of this investment is to have a public entity assist the bank restructuring process in such a way that it does not immediately impact the public balance sheet under the existing accounting regime, which otherwise strongly curtailed off balance sheet fiscal interventions.

6 Conclusions

In this paper we have looked in a previously examined corner—government finance accounting regimes—of the political process behind how governments and central banks decide to assist and restructure troubled banks. This investigation has potentially important implications for creating governance structures that are likely to lead to bank resolutions that limit public risks and healthy banks that can positively contribute to providing credit to the real economy.

Since the 2008/09 financial crisis, there has been considerable interest, especially in the United States and the European Union in developing legal and administrative structures for assisting and resolving failed banks. Notably, in 2014 the EU passed the Bank Recovery and Resolution Directive specifying four tools available to its members to address troubled banks.⁷⁴ However, apart from setting out broad, legally permissible tools, these efforts do little to shape policy-makers’ incentives to assist banks in ways that minimise the public assumption of private risk and rapidly restructure failed institutions such that they can make positive

⁷¹See page 44: <http://www.treasury.gov.za/publications/other/Debt%20Management%20Report%202015-16.pdf>. Accessed October 2016.

⁷²See <http://www.pic.gov.za/index.php/faqs/>. Accessed October 2016.

⁷³From an anonymous interview with a Treasury official involved in the negotiations. The official also described how PIC “felt bullied” by the process and at the end when their participation was clear, “panicked”.

⁷⁴These tools are: private acquisitions, a bridge bank, a bad bank, and bail-in.

contributions to the real economy, rather than becoming “zombie banks”.

So far, efforts to create these structures have largely not involved government finance accounting regimes. One exception is –the European Union’s statistical agency–Eurostat– efforts to incentivise member states to include more private sector participation in bank resolutions by allowing them to largely keep these types of policies off of fiscal balance sheets (see Gandrud and Hallerberg, 2016). In this paper we have shown the importance of these efforts and can make initial suggestions about the direction that government accounting regimes should take.

First, there should be requirements to fully report the extension of unlimited guarantees to financial institutions. Second, there should be conservative rules on what types of liquidity support and capital injections can be considered investments. Third, assets assumed by the public entities should be placed on the books at some ‘fair value’ rather than book value, though often difficult to determine.

Finally, none of these efforts will have much impact unless the government finance accounting regime is protected from short-term political pressure. Policymakers often have strong incentives to bailout failed financial institutions and may be inclined to rewrite accounting rules that make it difficult for them to do so. Protection from short-term pressures could be institutional and de jure in that statistical rule-makers and implementers are legally independent of political control. Or it could be de facto as in the case of South Africa where foreign investors, upon which the Government relied, requested fuller information on the Government’s fiscal position.

References

- Bagehot, Walter. 1873. *Lombard Street: A description of the money market*. Kegan, Paul and Trench.
- Bordo, Michael D. 2009. *The Lender of Last Resort: Alternative Views and Historical Perspective*. Oxford: Oxford University Press.
- Buiter, Willem, J’urgen Michels and Ebrahim Rahbar. 2011. “ELA: An Emperor without Clothes?” *Citi Economic Views* 21 January. Available at: <http://www.willembuiter.com/ela.pdf>. Accessed July 2016.
- Caballero, Ricardo J, Takeo Hoshi and Anil K Kashyap. 2008. “Zombie Lending and Depressed Restructuring in Japan.” *American Economic Review* 98(5):1943–1977.
- Chang and Andres Velasco. 2001. “A Model of Financial Crises in Emerging Markets.” *The Quarterly Journal of Economics* 116(2):489–517.

- Dippelsman, Robert, Claudia Dziobek and Carlos A. Gutiérrez Mangas. 2012. “What Lies Beneath: The Statistical Definition of Public Sector Debt. An Overview of the Coverage of Public Sector Debt for 61 Countries.” *IMF Staff Discussion Paper* SDN/12/09.
- Dobler, Marc, Simon Gray, Diarmuid Murphy and Bozena Radzewicz-Bak. 2016. “The Lender of Last Resort Function after the Global Financial Crisis.” *IMF Working Paper* pp. 1–63.
- Freixas, Xavier, Bruno M Parigi and Jean-Charles Rochet. 2004. “The Lender of Last Resort: A Twenty-First Century Approach.” *Journal of the European Economic Association* 2(6):1085–1115.
- Gandrud, Christopher and Mark Hallerberg. 2016. “Statistical Agencies and Responses to Financial Crises: Eurostat, Bad Banks, and the ESM.” *West European Politics* 39.
- Gandrud, Christopher and Mícheál O’Keeffe. 2016. “Information and financial crisis policy-making.” *Journal of European Public Policy* pp. 1–20.
- Gandrud, Christopher and Mícheál O’Keeffe. forthcoming. “Information and Financial Crisis Policymaking.” *Journal of European Public Policy* .
- Gavin, Michael. 2016. “The Politics of Last Resort Lending.” Available at <https://cpsa-acsp.ca/documents/conference/2016/Gavin.pdf>. Accessed July 2016.
- Goodhart, Charles. 2009. *Myths About the Lender of Last Resort*. Oxford: Oxford University Press.
- Goodhart, Charles and Gerhard Illing. 2009. *Financial Crises, Contagion, and the Lender of Last Resort*. Oxford: Oxford University Press.
- Gorton, Gary and Guillermo Ordoñez. 2016. “Fighting Crises.” *NBER Working Paper Series* pp. 1–39.
- Irish Department of Finance. 2016. “Irish Bank Resolution Corporation.” Available at: <http://www.finance.gov.ie/what-we-do/banking-financial-services/shareholding-management-unit/irish-bank-resolution-corporation>. Accessed July 2016.
- Johnson, Grahame and Mark Zelmer. 2007. “Implications of New Accounting Standards for the Bank of Canada’s Balance Sheet.” *Bank of Canada Discussion Paper* 2007-2. Available from <http://www.bankofcanada.ca/wp-content/uploads/2010/01/dp07-2-e.pdf>. Accessed July 2016.

- Kaplan, Stephen B. and Kaj Thomsson. 2015. “The political economy of sovereign borrowing: Explaining the policy choices of highly indebted governments.” *Paper presented at Political Economy of International Organisations* .
- Keefer, Philip. 2007. “Elections, Special Interests, and Financial Crisis.” *International Organization* 61(3):607–641.
- Kellaway, Martin. 2009. “Public Sector Interventions in the Financial Crisis: Statistical Classification Decisions.”.
- Laeven, Luc and Fabián Valencia. 2013. “Systemic Banking Crisis Database.” *IMF Economic Review* 61(2):225–270.
- Manning, Mark and Daniela Russo. 2008. “Payments and Monetary and Financial Stability.” *European Central Bank* . Accessed from <https://www.ecb.europa.eu/pub/pdf/other/paymentsmonetaryfinancialstability200801en.pdf?e61b70288e1a3ec357c8125d7675e33d>, July 2016.
- Plenderleith, Ian. 2012. “Review of the Bank of England’s Provision of Emergency Liquidity Assistance in 2008-09.” *Court of the Bank of England* . Available from: <http://www.bankofengland.co.uk/publications/Documents/news/2012/cr1plenderleith.pdf>. Accessed July 2016.
- Rosas, Guillermo. 2006. “Bagehot or Bailout? An Analysis of Government Responses to Banking Crises.” *American Journal of Political Science* 50(1):175–191.
- Rosas, Guillermo. 2009. *Curbing Bailouts: Bank Crises and Democratic Accountability in Comparative Perspective*. Ann Arbor: The University of Michigan Press.
- Rule, Garreth. 2015. “Understanding the Central Bank Balance Sheet.” *Bank of England CCBS Handbook* 32. Available at: <http://www.bankofengland.co.uk/education/Documents/ccbs/handbooks/pdf/ccbshb32.pdf>. Accessed August 2016.
- Shahriari, Bobak, Kevin Swersky, Ziyu Wang, Ryan P Adams and Nando de Freitas. 2015. “Taking the Human Out of the Loop: A Review of Bayesian Optimization.” *Proceedings of the IEEE* 104(1):148–175.
- South African Reserve Bank. 2015. “South African Reserve Bank Annual Report 2014/15.”. Available at: http://www.financialresults.co.za/2015/reservebank_2015/downloads/full-annual-report1415.pdf. Accessed October 2016.

Sowerbutts, Rhiannon and Marco Schneebalg. 2016. "The demise of Overend Gurney." *Bank of England Quarterly Bulletin* 2016(Q2):1–13.

Thornton, Henry. 1802. "An Enquiry into the Nature and Effects of the Paper Credit of Great Britain."

Whelan, Karl. 2012. "POLICY PAPER ELA, Promissory Notes and All That: The Fiscal Costs of Anglo Irish Bank." *The Economic and Social Review* 43(4):653–673.

Woll, Cornelia. 2014. *The Power of Inaction: Bank Bailouts in Comparison*. Ithaca, NY: Cornell University Press.

Incomplete Case Studies Appendix

This Appendix currently includes incomplete case studies that we will further develop for future versions of the paper.

Appendix 0.1 ELA within the Eurozone: the Central Bank of Ireland

Background The Irish financial system, much like that in the United States and United Kingdom, expanded rapidly on a property bubble through much of the early to mid-2000s. Difficulties at Northern Rock in the United Kingdom, Bear Stearns and ultimately Lehman Brothers in the United States created a global credit crunch that quickly spread to Ireland. Anglo Irish Bank, which was heavily invested in the rapidly declining property market was acutely hit by tightening liquidity. By September 2008 it was having difficulty rolling over its wholesale funding and did not have sufficient quality collateral to refinance with the European Central Bank. Other lenders quickly followed in the proceeding months. The Irish Government responded to the crisis with considerable public support reaching 70 billion euros by Spring 2011.⁷⁵

Previous work has examined reasons for this considerable policy response, including a focus on signaling games played between policymakers and financial regulators (Gandrud and O’Keeffe, forthcoming) and the ability for the banking sector to act collectively (Woll, 2014). In this paper we focus on how the relationships between the Irish government, the Central Bank of Ireland, and European institutions shaped a specific though considerable proportion of this support—what was referred to as Exceptional Liquidity Assistance to Anglo Irish Bank and Irish Nationwide Building Society. In 2011 these two institutions were combined into a new one called Irish Bank Resolution Corporation (IBRC), which was ultimately given the ELA. The assistance was provided by the Central Bank of Ireland.

As Anglo Irish was unable to secure financing from the ECB, the Central Bank of Ireland stepped in with the first round of ELA in March 2009. This initially totaled 11.5 billion euros. By 2011 the IRBC successor institution 42.2 billion euros of the 53.3 billion euros it owed was owed to central banks, primarily the Central Bank of Ireland for ELA (Whelan, 2012, 655). It is important to note that these operations are considered outside of the Eurosystem and so other member states were not liable for losses from them (Buiters, Michels and Rahbar, 2011, 1).

In 2011, following the transfer of much of its assets to the new Irish bad bank—the National Asset Management Agency (NAMA)—and repayment of most of its loans to the ECB that this necessitated⁷⁶ the

⁷⁵Patrick Honohan, 31 March 2011.

⁷⁶The assets transferred to NAMA had been used to collateralise the ECB liquidity.

IRBC only had 25.6 billion euros in loans and other assets to cover its 53.3 billion euros in liabilities. Clearly the Central Bank of Ireland had taken on considerable risks by extending ELA to Anglo Irish and Irish Nationwide Building Society. To square this circle, the Irish Government had provided these banks with 29.9 billion euros in “promissory notes”, which would be repaid over a 20 year period. In February 2013, following consultations with the ECB, the promissory notes were exchanged for long-term government bonds with about 30 year maturities (Irish Department of Finance, 2016). In the same month, a decision was made to liquidate IRBC.

What explains the type and size of the ELA support that the Central Bank of Ireland provided? What explains the use of promissory notes? Why were these converted to long-term bonds and, at the same time, a decision was made to liquidate IRBC?

Accounting treatment of the promissory notes “The replacement of the promissory notes with long dated Irish government bonds has significantly smoothed Ireland’s debt profile and reduced near-term borrowing requirements” (Irish Department of Finance, 2016).

Appendix 0.2 ELA by the European Central Bank

The ECB provided ELA much later than most other central banks following the advent of the 2008-2009 financial crisis.

Appendix 0.3 ELA outside of the EU: Iceland