



The Abolition of Deposit Insurance

A modest proposal for banking reform

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Glossary

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The Centre for Policy Studies has provided inspiration for many of the policies which our Conservative Government has put into practice. A number of these policy ideas, which were often accused of being impractical when they were first put forward, are now universally accepted and are being implemented by governments across the world... Although the recommendations they make are for policies in Britain, the principles that underlie them are universal.

Margaret Thatcher
Downing Street
June 1989

SUMMARY

- After 40 years of increasingly frequent, increasingly severe banking crises it is time to review the most sacrosanct component of the regulatory regime for banks: deposit insurance.
- Developments since the 1970s, when it began to be widely adopted across the world, have both discredited it and made it unnecessary. There are good reasons to believe it is harmful and its abolition – the “Abolition of Deposit Insurance” or “ADI” – would trigger a significant strengthening and improvement of UK banking provided it is abolished intelligently. This paper sets out a proposal for doing so consisting of:
 - (a) an announcement that all deposit insurance will be abolished after two years, while extending the preferential ranking of insured deposits introduced in the Banking Reform Act 2013 to all relevant, uninsured deposits;
 - (b) legislation banning any and all compensation paid to depositors as a result of losses they may suffer in the wake of a bank insolvency;
 - (c) an announcement that NS&I, the state-owned savings bank, would henceforth offer savings and current accounts to everyone; and

(d) a requirement for all deposit-taking banks to publish prominently their capital / leverage ratios in comparison with NS&I (which has, in effect, a 100% leverage ratio).

- At the same time, the Basel 3 regulatory regime (i.e. the CRD IV legislative package and the associated laws and rules effected to implement and apply it in the UK) would be abolished (which will require a change in EU law): capital regulation is the price banks pay for sovereign insurance of their largest creditors, and once that is abolished, the logic for a sovereign capital adequacy regime disappears.
- There are three reasons why this does not mean that depositors are exposed to unacceptable risk, or that there is a greater risk of calamitous crashes and recessions: First, NS&I is available to offer a zero-risk repository for individual and corporate savings balances. Second, depositor super-seniority means that losses by UK retail banks and building societies would have to be very substantial and far higher than those incurred during the 2007-09 financial crisis before depositors would be exposed to losses. Third, competition with NS&I will almost certainly trigger a substantial reconfiguration of the privately owned banking sector, and in particular the accumulation of much higher levels of loss-absorbing capital and the separation of banks into low/zero-risk repositories (“Deposit Banks”) which hold those deposits people cannot afford to lose (“Core Deposits”) and riskier “Lending Banks” that are funded mainly from wholesale markets and non-Core retail deposits (“Surplus Deposits”).
- While deposit insurance seeks to protect consumers against the undercapitalisation of banks and their tendency to collapse in times of stress, it also encourages such undercapitalisation. By contrast, ADI will stimulate bank capital structures with substantially less leverage, i.e. much more equity, and should therefore lead to fewer crises and greater stability.

CONSEQUENCES

- Lending Banks will have to be much better capitalised than they are today if they are to succeed in attracting funding, from whatever source, in competition with NS&I, Deposit Banks and the rapidly growing non-bank lending segments such as marketplace lending platforms. Indeed, banks will probably conclude that it makes sense to provide mutual guarantees to each other, provided eligible banks are appropriately similar, low-risk and well managed.
- These mutual guarantee schemes may re-introduce (a version of) the CRD IV regime for its members. The history of successful mutual insurance schemes of this kind should provide great comfort to the fearful sceptic. “Mutual insurance” would not be the same as sovereign insurance, nor should it be: the fundamental rationale for the proposal is to re-price risk and create more powerful incentives to mitigate its cost.
- Consumers will become, and be required to become, more risk-aware in their choice of bank or comparable counterparty. They will find this a less impossible task than is commonly believed. Banks will become more specialised and

on account of their stronger capitalisation will be able to perform their often valuable role in maturity transformation better. At the same time, banks may well become less important, permitting the emergence of other, more efficient lending institutions. The ongoing disintermediation of banking services will almost certainly accelerate – no bad thing – until one day a digital deposit-holding infrastructure using the revolutionary blockchain technology may make conventional banks altogether redundant. ADI merely anticipates such a possible development by crystallizing the non-zero risk of holding plain vanilla deposits.

- The role of the state will be defined by consumers depending on their risk appetite, no more, no less. It may evolve to provide basic payments and ultra-low risk investment services, for a fee, depending on demand. In this way it will encourage competition and stability in the banking system. No centrally developed plan, no central supervision of all actors in all types of firms at all times across all business lines will be required. Mutual guarantee schemes may do this, but only if they think they have to; otherwise they will not.
- In the end we may live in a world with far less leverage, less, but no less optimal financial intermediation, fewer (severe) recessions and a more functional involvement of the state which makes better use of its balance sheet: it is a world that we should find appealing.

1. BACKGROUND

The credit crisis of 2007-09 violently exposed three key flaws in international banking systems after four decades of rapid growth in the wake of the collapse of the Bretton Woods system in the early 1970s: very rapid balance sheet growth was supported by insufficient loss-bearing equity capital; the maturity mismatch inherent in fractional reserve banking was aggravated by the disappearance of ready liquidity in those asset classes on which banks relied for liquidity in a stressed environment, e.g. the short-dated commercial paper market; and the cross-default risk between wholesale banking activities and retail banking operations, i.e. those activities of (international, universal as well as mono-line) banks that were organised around and identifiably funded from retail deposits raised from the general public via current accounts and savings deposits.

The reform of the regulatory framework for banks has therefore sought to strengthen banks' resilience in each of these three areas. First, the flawed Basel 2 supervisory framework has been replaced with Basel 3 which imposes significantly higher common equity capital requirements, introduces loss-absorption capacity for non-equity capital, reduces the scope for manipulation of risk-weighted assets and, therefore, the

overstatement of capital adequacy, and, finally, a global liquidity standard and monitoring regime. In addition, national and international regulators have pursued initiatives to deal with the “too big to fail” problem, especially for large, systemically important institutions, adopted new resolution regimes for failed banks and tightened remuneration and supervisory codes for senior risk-bearing managers and non-executive directors, respectively. Second, in many jurisdictions some attempt has been made to separate wholesale from retail banking activities even when they remain under common ownership by a single holding company. The recommendations of the Vickers Commission – and, indeed, their partial implementation – are one manifestation of this effort in the UK, as are e.g. the Volcker Rule in the US (on the basis that the prohibition of certain proprietary trading activities is, ultimately, designed to shield some banks’ creditors from undue risk exposures funded in part by other creditors).

There have also been significantly more radical proposals to reduce the riskiness of banks’ activities – variations of the ‘Chicago Plan’ developed by Irving Fisher and others in the 1930s, supported by Milton Friedman in the 1950s and brought back to life by Michael Kumhof at the IMF¹ and, most recently, the monetary reform proposal commissioned by the Prime Minister of Iceland.² These schemes seek to bring to an end, or severely curtail, the money creation powers of commercial banks in a fractional reserve banking system, i.e. their ability to create broad money via a simple debit & credit process that is a natural part of making loans. It is this decentralised system of money and credit creation that is a distinctive, albeit not particularly well

¹ <http://www.lse.ac.uk/economics/newsEventsSeminars/files/MichaelKumhofpaper.pdf>

² <http://www.forsaetisraduneyti.is/media/Skyrslur/monetary-reform.pdf>

understood, characteristic of modern banks, which was at the heart of the long-term developments that culminated in the pandemonium of 2007-09. The most recent and drastic consequence of this pandemonium is visible in Switzerland which will hold a referendum within the next 18 months to decide whether to ban fractional reserve banking.

There is no doubt that the banking system today is safer, and is bound to remain safer for some time, than that which imploded in 2007-09. For instance, major UK banks' capital requirements, including buffers, have increased at least sevenfold compared with Basel 2 requirements once tighter eligibility criteria for capital, higher risk-weights, higher regulatory deductions and adjustments to asset valuations are accounted for.³ The proposals of the Financial Stability Board (FSB), when implemented, would result in global systemically important banks (G-SIBs) holding total loss-absorbing capacity (TLAC) of 16-18% of risk-weighted assets (RWA).⁴ UK banks' aggregate common equity tier 1 (CET1) ratio is currently 12%, almost 5% higher than at end-2011 and 3% above the fully loaded Basel 3 minimum for UK G-SIBs, including buffers, of 9%.⁵ Holdings of cash and high-quality, unencumbered liquid assets by UK banks have trebled since 2008 and now amount to over 15% of UK banks' funded

³ <http://www.bankofengland.co.uk/publications/Documents/speeches/2015/speech803.pdf>, p.2.

⁴ See <http://www.financialstabilityboard.org/2015/11/tlac-press-release/> and <http://www.financialstabilityboard.org/wp-content/uploads/TLAC-Principles-and-Term-Sheet-for-publication-final.pdf>

⁵ Including capital conservation buffer requirements. G-SIBs minimum is 9.5%, including the G-SIB buffer of 2.5%. The effective minimum for UK banks is likely to be ca 9%, including an average 2% G-SIB buffer. See Chart B.1 and Table B.2 in Financial Stability Report, July 2015, Bank of England <http://www.bankofengland.co.uk/publications/Documents/fsr/2015/fsr37sec7.pdf>

assets.⁶ In the UK branches of non-EEA banks are now subject to a much tougher supervisory regime than has historically been the case, and the Prudential Regulatory Authority (PRA) can force such branches to obtain full authorisation as subsidiaries which puts them on an equal footing to UK-registered banks.⁷ This has brought the UK's regime closer in line with that of the US (where foreign branch activities have historically been more tightly controlled) and reduces the power of one important international transmission mechanism of the 2007-09 banking crisis.

However, in important respects the structural impediments to a fundamentally safer banking market have not been eliminated.

First, the fully loaded minimum common equity requirement under Basel 3 is still only 7-9.5% of RWAs (including the capital conservation buffer) and therefore compatible with significantly higher leverage ratios which are not based on risk-adjustments to banks' assets. Many commentators, for instance Anat Admati and Martin Hellwig in their book *The Bankers' New Clothes: What's wrong with banking and what to do about it*, have argued that bank capital requirements should be substantially higher with minimum equity requirements of 20% of assets (not risk-weighted assets) or more. Put differently, banks' maximum leverage should be reduced from 33:1 (3%), as permitted by Basel 3 on a fully loaded basis, for all but the largest institutions, to 5:1. Whether this ratio is the right one, or should be 6:1, 10:1 or 15:1, what is clear is that even under the Basel 3 regime banks'

⁶ Ibid.

⁷ <http://www.bankofengland.co.uk/prd/Documents/publications/ss/2014/ss1014.pdf>. The approach to branches of EEA banks is different because EEA firms have EU treaty rights to passport their activities into other member states of the EU, and their deposits in the UK are covered by the home rather than host country deposit insurance scheme.

leverage remains very high compared with other financial and non-financial companies.

Second, recent regulatory reforms do not, fundamentally, affect the “Chicago” problem. As long as the act of making a loan by a bank creates deposit money, whether at the lending bank or elsewhere in the banking system, the “Chicago” problem of extremely high effective leverage – understood as the relationship between loans and common equity capital, or between loans, other interest-earning assets and real personal deposits (i.e. retail bank liabilities) held by (owed to) the public – remains. Under Basel 3 banks’ “money-printing” powers of this kind are largely undiminished and therefore the in-house creation of money-like liabilities that need to be repaid to borrowers remain the central source of banks’ earnings powers. As long as this is the case, banks’ incentives will be towards supporting the continued creation of such liabilities and a meaningful reduction of debt in an economy – UK private sector debt is ca £6.5trn or 354% of GDP⁸ – will not be viable. It is possible, though, to achieve an economic “equilibrium” with lower overall leverage while maintaining the desirable provision of maturity transformation and some independent money creation in the financial system – other advanced economies with similar levels of per capita income at substantially lower overall leverage show this. The

⁸ As at 2Q 2015. See http://www.ons.gov.uk/ons/dcp171778_414601.pdf: Table A2 for nominal GDP, last 12 months to 2015 Q2. Private sector debt from <http://www.3spoken.co.uk/2015/10/uk-private-debt-levels-q2-2015.html> Private sector debt based on ONS tables NLBC, NKZA, NNQC, NNRE, NNXM, NNWK, NLSY, NLUA, NJCS and NJBQ (Lending and securities per sector, not seasonally adjusted) scaled by BKTL (Gross domestic product at market prices, not seasonally adjusted). Calculations are here https://docs.google.com/spreadsheets/d/1UivlvdzIGllGOSs2SYTf_rsfKLFp1rHPyvQwazKIV-w/edit?pli=1#gid=10

proposals set out in this paper may be one way of identifying this “new” equilibrium.

Third, the Basel 3 regulatory regime remains extremely complex, and in some areas such as liquidity management, is considerably more complex than its predecessor. This has two implications. There will be many unintended consequences of the reforms. Liquidity in many debt markets, for instance, including in government and investment-grade corporate bonds, is substantially lower today and more volatile than it was pre-crisis. It reflects, *inter alia*, a reassessment of risk in those markets.⁹ This is certainly a positive development, but it calls into question to what extent “high quality” assets can really be liquidated in a timely and economic fashion when required. In addition, the fundamental incentives for, and ability to engage in, regulatory arbitrage remains very much alive in any system that is as complex as Basel 3. The nature of the arbitrage will change, no doubt; but it is inevitable that a highly complicated regulatory regime will, like a complex tax code, engender sophisticated avoidance and mitigation activities to generate often minor economic advantages to participants. There is clearly a direct link between these two consequences of complexity – regulatory arbitrage activities will themselves lead to unintended consequences, and whether these are welfare-enhancing has to remain rather doubtful on the basis that, if unintended, the relevant market features that are thus affected were presumably not a cause of the 2007-09 crisis.

There is also an important demand-side dimension to regulatory complexity: customers of banking services will continue to find it hard to understand banks’ financial position and ability to absorb losses. To the uninitiated, it is really impossible to read, let alone

⁹ See e.g. <http://www.imf.org/external/pubs/ft/gfsr/2015/02/pdf/c2.pdf>

understand, banks' financial statements, and this is the case for internationally active universal banks as much as for many larger, domestic retail banks with a variety of assets subject to different accounting treatments and hedging requirements. This informational asymmetry lies at the heart of banks' profits. Its mitigation can be a central consequence – and, indeed, objective – of reform.

Finally, when reviewing the regulatory initiatives of the last few years – and this observation does not just apply to the banking sector, but more generally across industries subject to regulatory oversight – one has to consider the role that government agencies should play in managing the commercial relationships and activities taking place between private individuals and one of their institutional manifestations, companies. In fact, this should be the first and most important concern of everyone involved in bank regulation, and one that is easy to lose sight of when pondering the complexities of liquidity coverage ratios and loss-absorption provisions of additional tier 1 capital. What, in fact, should be the role of the state in regulating and supervising bank activities? Why exactly should such regulation be different to the one applied to non-bank corporations? To give one specific example: the Companies Act 2006 imposes seven strict fiduciary duties on all company directors to ensure that they ultimately act in the best interest of the company; to act within their powers; to promote the success of the company; to exercise independent judgement; to exercise reasonable care, skill and diligence; to avoid conflicts of interest; not to accept benefits from third parties; and, finally, to declare an interest in a proposed transaction with the company. In addition, it contains a range of provisions that affect directors in other ways, e.g. shareholders' statutory rights to pursue claims against directors for misfeasance on behalf of a company. Senior managers and certain non-executive directors of banks (and certain other

financial institutions), however, are also subject to the specific provisions in the Financial Services (Banking Reform) Act 2013 (Banking Reform Act 2013) which do not apply to persons holding the same positions in unregulated, non-financial firms. Some of these new provisions are draconian: for instance, senior managers and senior non-executive directors are now potentially criminally liable for taking reckless decisions which causes a firm to fail.¹⁰ Unlike civil law, which regulates relationships between individuals, criminal law deals with offences against society as a whole and it is certainly noteworthy that privately owned organisations that are not clearly deemed to be or classified as public utilities can have developed in such a way that it is seen to be necessary to consider, from a commercial and legal point of view, their impact on society as a whole rather than merely its customers, suppliers and employees. In fact, what the Banking Reform Act 2013 makes abundantly clear is that banks are now regulated in many ways as if they were a public utility even though, leaving residual post-crisis state ownership of some banks aside, they are not, neither legally nor officially from a regulatory point of view. One should ask the question why this is a sensible arrangement.

Today, after 80 years of very extensive regulatory intervention in the wake of the Great Depression, the government's involvement in banking is so immense that it is difficult to see clearly where the private sector world begins and the imprint of the state's authority ends. This is not only due to the state's extensive investments in many banks, including in the UK; it is above all

¹⁰ See <http://www.bankofengland.co.uk/pra/Documents/publications/ps/2015/ps315.pdf> and <http://www.nortonrosefulbright.com/knowledge/publications/127445/update-on-the-senior-managers-regime> for a useful summary of the main provisions of the Senior Managers Regime. See also <https://www.slaughteranddmay.com/media/2008770/the-governments-response-to-the-parliamentary-commission-on-banking-standards.pdf>

attributable to the vast array of support mechanisms and restrictions imposed by central banks, regulatory agencies and governments to aid the smooth operation of the deposit-taking system and, therefore, the central component of banks' liabilities. Are all these activities really meant to be undertaken by representatives of central government? What exactly is the correct division of labour between government and individual citizens, even in complex areas such as banking? These questions are very rarely asked today because their answers are taken for granted – in the orthodox narrative of the financial crisis an independent financial system succumbed to an avalanche of individual greed and moral turpitude, and government intervention was needed to establish moral rectitude and reign in out-of-control executives. And not only that: only government, i.e. no other agency, was able to establish and maintain the smooth operation of banking services via central oversight. And yet, it would be difficult to argue that the government's involvement in banking has been an unmitigated force for good – if it had been presumably the Great Recession would not, or should not have happened, given that, in fact, government regulation predates it by many decades.

Politics is fate, Napoleon said to Goethe when they met at Erfurt. This is the central concern of our lives – how to combine individual independence with state authority, how to arrange the distribution of rights and responsibilities between individuals and representatives of individuals, and how to design the best and most effective role that government should perform. It is a point worth raising again even in an area as complex as banking.

2. THE PROBLEMS WITH DEPOSIT INSURANCE

Deposit insurance has a relatively long history and in its current form was implemented for the first time in the US in the 1930s. The first application of the idea goes back to 1829 when the state of New York introduced an insurance scheme for circulating notes and deposits that was modelled loosely on the Canton Guarantee System that operated (on a compulsory basis) among Hong merchants in Canton from the late 18th to the mid-19th century.¹¹ Joshua Forman, who designed the New York scheme, rationalised it as follows:-

The propriety of making the banks liable for each other was suggested by the regulation of the Hong merchants in Canton, where a number of men, each acting separately, have by the grant of the government the exclusive right of trading with foreigners, and are all made liable for the debts of each other in case of failure. The case of our banks is very similar; they enjoy in common the exclusive right of making

¹¹ From 1780-1842. See F.D. Grant, Jr. (2014), "The Chinese Cornerstone of Modern Banking, The Canton Guaranty System and the Origins of Bank Deposit Insurance 1780-1933", Brill Nijhoff. See also <https://www.fdic.gov/bank/historical/brief/brhist.pdf>

*a paper currency for the people of the state, and by the same rule should in common be answerable for that paper. This abstractly just principle, which has stood the test of experience for seventy years, and under which the bond of the Hong merchant has acquired a credit over the whole world, not exceeded by that of any other security, modified and adapted to the milder features of our republican institutions, constitutes the basis of the system.*¹²

The New York scheme consisted of an insurance fund (providing unlimited cover), to which all banks paid contributions, a board of commissioners which was granted examination powers and, ultimately, a specified list of permissible investments of bank capital. Five other US states operated similar programmes at the time. Some of them replaced insurance funds with a mutual guarantee system that was administered by supervisory officials selected by, and accountable to, the banks. These regimes were actually more successful than the insurance funds operated by New York (and Vermont and Michigan) which didn't have similar supervisory arrangements.

Two factors led to the demise of these innovative insurance schemes in the US.¹³ First, after 1836 it became much easier to establish new banks, but many of these were excluded from the insurance schemes, which therefore lost much of their scope and power. The second factor was the creation of a national banking system commencing in 1863 as a war-financing measure. When Congress levied punitive taxes on state bank note issuance a couple of years later many state banks converted to federally chartered banks to avoid the tax. As such conversions increased,

¹² Quoted in F.D. Grant, *ibid.*, p. 219.

¹³ <https://www.fdic.gov/bank/historical/brief/brhist.pdf>, p. 10.

membership of state insurance schemes declined until they ceased to exist in 1866.

As bank deposits increased significantly in the following decades, a number of states again established “deposit guaranty” systems in the early 1900s. Coverage was provided by funds from members, and in some cases membership was compulsory. Three points are noteworthy in relation to these schemes: in no case did the state explicitly guarantee deposits – these were mutual insurance arrangements; national banks were not allowed to participate, i.e. the US was still far away from a federal insurance scheme which was only adopted in 1934; and unlike their 19th century predecessors, these state-based insurance programmes were largely unsuccessful for two reasons – many schemes were poorly designed causing problems of moral hazard and adverse selection (e.g. because membership was voluntary and/or regulatory oversight minimal); and these defects became terminal when the deep agricultural depression after WWI revealed that many investment projects that had relied on high and rising commodity prices were unviable at low and falling ones. This caused many banks to become insolvent, resulting in significant amounts of unpaid depositor claims. By the early 1930s, none of these state insurance schemes therefore remained in operation. A national deposit insurance scheme was finally introduced in the US to protect retail depositors who had suffered in the Great Depression. The scale of the banking crisis – almost 9,100 banks failed in 1930-33 causing \$1.4bn depositor losses (ca \$24.5bn in today’s money) – finally created the Congressional support that had been absent in the preceding 50 years (150 deposit insurance proposals had been made in Congress before 1933).¹⁴

¹⁴ Ibid., p.17.

By the early 1960s the US was still the only developed country with federal deposit insurance and today insures \$250,000 per depositor per insured bank.¹⁵ In the early 1970s 12 countries had deposit insurance,¹⁶ in the early 2000s it was 88,¹⁷ today it is 112.¹⁸ Over this period of time the number of banking crises worldwide rose by a factor of almost 500 when measured as the proportion of countries worldwide experiencing a banking crisis during the period 1950-73 (0.04%) compared with the 1974-2008 period (17.3%, with a peak share of 41% in 2008).¹⁹ The regulatory response to the breakdown of Bretton Woods and the internationalisation of capital flows – ultimately the capital, liquidity and deposit insurance regimes for deposit-taking institutions – was both caused by such banking crises and inadequate in preventing them.

A number of countries had no deposit insurance until very recently. New Zealand still does not have one (see Appendix), Singapore had no deposit insurance until 2006, and Australia only introduced one in 2008, to protect itself against runs on domestic banks caused by an international crisis. Conditions in Australia had not required such insurance before then – the last bank failure in Australia in which depositors lost money was in 1931 when the Primary Producers Bank of Australia collapsed, and

¹⁵ <http://www.fdic.gov/deposit/covered/categories.html>

¹⁶ <https://www2.bc.edu/edward-kane/depositInsArndGlobe.PDF>, p.3.

¹⁷ <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20699211~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>

¹⁸ <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:23582743~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>

¹⁹ Figure 5.3, “This time is different”, <http://www.carmenreinhardt.com/this-time-is-different/>

even then losses were small – only 1.25% of deposits²⁰ compared with e.g. 20% in the US for bank failures in 1930-33.

The UK has had a deposit insurance scheme for only 37 years but has not suffered meaningful depositor losses in any bank collapse for a very long time. The failure of City of Glasgow Bank (CGB) in 1878 was the last one that caused a bank run (if you exclude the very short “run” on Northern Rock in 2007) and some depositor losses, but the deposits were those of some of the leading shareholders in CGB who had been responsible for its demise. Indeed, under the then still dominant regime of unlimited liability, it was CGB’s shareholders who funded its losses and 86% of them were wiped out in the process.²¹ Unlimited liability, which finally disappeared from the UK in the 1950s,²² also explains why deposit insurance was regarded as unnecessary: it provided the assurance to depositors that, it was argued, was needed to maintain financial stability.

Deposit insurance was introduced in the UK in 1979 when the 1977 EEC Directive²³ “*on the coordination of the laws, regulations and administrative provisions relating to the taking up and pursuit of the business of credit institutions*” was implemented in the new Banking Act 1979.²⁴ When the first deposit insurance proposal was floated by the European Commission in the mid-1970s, the UK government was already considering a similar scheme in

²⁰ http://fsgstudy.treasury.gov.au/content/Davis_Report/04_Chapter2.asp and <http://www.rba.gov.au/publications/rdp/2001/pdf/rdp2001-07.pdf>

²¹ <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2015/q102.pdf>

²² <http://www.bankofengland.co.uk/publications/Pages/speeches/2015/833.aspx>

²³ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31977L0780&from=en>

²⁴ http://www.legislation.gov.uk/ukpga/1979/37/pdfs/ukpga_19790037_en.pdf, Part II.

connection with the new banking legislation that it was developing at the time. This, like the directive, was a response to a number of banking crises in Europe during the 1970s, including inter alia the Secondary Banking crisis in England in the early 1970s (when inter-bank depositors of so-called secondary banks did lose money, but retail depositors of regulated banks did not), the collapse of Michele Sindona's empire in Italy and the US in 1974 and a Spanish banking crisis that commenced in 1977.²⁵ The UK regime covered payouts of 75% of deposits with maturities of less than five years and balances up to £10,000. It was subsequently amended under the Banking Act 1987 to increase eligible deposit balances to £20,000,²⁶ with a further revision in 1995 when insurance was extended to cover 90% rather than 75% of an eligible deposit, i.e. maximum pay-outs were increased from £15,000 to £18,000.²⁷ These regulations implemented a new EU Directive in 1994²⁸ which introduced for all EU member states a minimum (but not a harmonised) insurance cover of €20,000 (effective from 1999) with depositor compensation in co-insurance arrangements (where depositors bore part of any loss) of at least 90%. In 2001, the Financial Services Compensation Scheme (FSCS) then took over administration of the UK insurance scheme under the terms of the Financial Services and Markets Act 2000, with insurance levels of 100% of the first £2,000 and 90% of the next £33,000.²⁹ When in March 2009 the 1994 Directive

²⁵ http://www.dnb.nl/binaries/ot054_tcm46-146064.pdf

²⁶ http://www.legislation.gov.uk/ukpga/1987/22/pdfs/ukpga_19870022_en.pdf, Section 60, p47.

²⁷ <http://www.legislation.gov.uk/ukxi/1995/1442/regulation/30/made>; clause 30 of The Credit Institutions (Protection of Depositors) Regulations 1995.

²⁸ Article 7; <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:1994:135:FULL&from=EN>

²⁹ <http://www.policyexchange.org.uk/images/publications/incentivising%20bori ng%20banking%20-%20jun%2010.pdf> for a useful summary. This paper also

was amended³⁰ to increase the minimum insurance cover to €100,000 by December 2010 (£85,000 at the time, which due to the weakness of the Euro has been reduced to £75,000 for single accounts from 1 January 2016), co-insurance arrangements were abandoned and pay-outs were significantly accelerated from up to nine months to a week; finally, the Deposit Guarantee Scheme Directive, which came into force in June 2015, then provided for further harmonisation of this minimum guarantee level across EU member states and this was incorporated in UK law via the Deposit Guarantee Scheme Regulations 2015.³¹ For the first time, insurance eligibility criteria were also extended to corporate deposits regardless of the size of the relevant company (but subject to the same payout cap of €100,000) as well as temporarily high deposits (up to £1m).

The UK scheme is today pre-funded by all covered institutions at an average cost of ca 0.8% of covered deposits. The large majority of deposits are today fully insured. The European Commission has estimated that 90% of all deposit balances in the EU are lower than its insurance threshold (expressed in €100,000),³² and calculations from the BBA in 2008 would suggest that almost all retail deposits in the UK are covered by this limit.³³ In other words, the vast majority of individual account

discusses a scheme for reducing deposit insurance in the UK, although is very different from the proposal set out here.

³⁰ Directive 2009/14/EC. http://ec.europa.eu/internal_market/bank/docs/guarantee/200914_en.pdf

³¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0049&from=EN>. It also confirmed that payouts to depositors would have to be made on a gross basis without set-off against liabilities of depositors to credit institutions holding their deposits. The UK statutory instrument is http://www.legislation.gov.uk/ukSI/2015/486/pdfs/ukSI_20150486_en.pdf

³² See http://europa.eu/rapid/press-release_IP-08-1508_en.htm?locale=en

³³ Data collected from BBA members suggested that 96% of consumer savings accounts were covered by a £35,000 limit. See Treasury Select Committee,

holders are not exposed to any theoretical loss in the event of a bank insolvency. In crisis situations the public is reassured that its money is safe, often even if their deposits exceed the threshold: for instance, all deposits of Northern Rock were guaranteed by the government for 2½ years between 2007-10, and during the crisis pronouncements by senior politicians almost certainly, and correctly, created an understanding by the general public that retail deposits were “safe”, i.e. underwritten by the state even if they exceeded £85,000.³⁴

It appears that this public expectation established itself more or less immediately after deposit insurance was introduced in April 1979. In October that year *The Times* reported, technically incorrectly but tellingly, that “*the public will now be insulated against the risk of any future banking collapses*”. Concerns about the new insurance were voiced relatively widely in the House of Commons when the new banking act was debated in 1978. John MacGregor, Conservative MP for South Norfolk, having accepted the need for tighter supervision of the banking system after the secondary banking crisis, questioned:³⁵

the whole principle of the scheme, which is really asking the entirely prudent banks and those who deposit with them to bail out those who are not prudent—and, incidentally, their

5th Report (January 2008), Section 6 – Depositor Protection, para 229. <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtreasy/56/5609.htm#n464>

³⁴ Nick Clegg called for an Irish-style guarantee on all deposits in September 2008, a call for a degree of safety that the government said it “would take extremely seriously”. While Gordon Brown, then Prime Minister, declined an unlimited guarantee, he said that that the government “had not let any UK depositor lose out”, and clearly intended this comment to serve as a guide to future policy. See http://news.bbc.co.uk/1/hi/uk_politics/7644157.stm and http://news.bbc.co.uk/1/hi/uk_politics/7644818.stm

³⁵ http://hansard.millbanksystems.com/commons/1978/nov/23/banking-bill#S5C_V0958P0_19781123_HOC_313

depositors who were taking risks, and who should have known that they were taking risks, by seeking higher interest rates. Is this the right way to go about consumer protection?

Not only did the deposit protection scheme create moral hazard, it was also unnecessary for:

[i]f the new system is sound [that is, the new regulatory system brought in with the Banking Act 1979], [...] is there any need to set up this kind of spurious scheme in order to give some spurious feeling of consumer protection?

...a sentiment that was echoed by a number of MPs during the debate.³⁶

On the other side of the aisle, one of the Labour MPs speaking during the November 1978 debate (Denzil Davies, MP for Llanelli) confirmed that he did not believe the banking system was now less secure than it had been in the past, but the number of regulated firms meant that realistically the supervisory capabilities of the Bank of England needed a “backstop” in a crisis, which is what the deposit protection scheme was for. *“The reason we are setting up the fund is so that the public knows that it is being protected”*.

Over time official concerns about a general public perception that depositors were not at risk at all became more noticeable. For instance, in the wake of the collapse of BCCI in 1992, the then government – Conservative rather than the Labour government under which deposit insurance was introduced in 1979 – argued:

³⁶ e.g. Ian Stewart, Conservative MP for Hitchin. The logic of the argument was rather robust: if you are changing the supervisory and regulatory system in order to make banks and their operations (and customers) safer, why do you also need a deposit protection scheme? Does the latter not betray a weakness in the former and, if so, why not strengthen the former to make the latter unnecessary?

If depositors expected full compensation for losses, then they too would no longer need to consider the risk associated with the particular banks in which they placed their money. This, in turn, would have serious and potentially damaging consequences for the whole banking system as it would favour institutions which, for example, offered unrealistically high rates of interest, at the expense of more prudent ones. And it would encourage managers who wanted to attract deposits to adopt riskier strategies. The recent experience of US savings and loans institutions shows all too clearly that this is a real—and not simply a theoretical danger.³⁷

Similar sentiments were expressed by Sir Callum McCarthy in February 2006:³⁸

[w]ere the FSA to aim to relieve consumers of all adverse consequences, an environment would be created in which they no longer needed to weigh up the reasonableness of their financial decisions. No market can work effectively without involved customers. To relieve consumers of retail financial services of the consequences of their actions would destroy this as an effective market. Consumer responsibility is therefore vital to the effectiveness of financial markets.

and he concluded that in the wake of the S&L crisis in the US:

it was quite clear that 100% coverage resulted in some distortion of behaviour and some serious moral hazard.³⁹

³⁷ Para 221, <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtr/easy/56/5609.htm>

³⁸ Ibid, para 222.

³⁹ It is another, but informative matter that the co-insurance structure recommended by Sir Callum McCarthy, which created a partial loss-

There can be little doubt that the existence of almost complete loss protection for the vast majority of depositors affects their behaviour and institutional risk assessment, and in particular their willingness to undertake such risk assessments. It is completely natural to expect – indeed we will observe it in our own behaviour – that depositors will translate a statutory promise of partial compensation in times of crisis into an effective pledge of unlimited protection in times of real duress. Indeed, this is exactly what was offered by politicians in many countries during the 2007-09 crisis,⁴⁰ and has happened in other banking crises before.⁴¹ On the basis that this shifts the economic cost of crises without reducing it, such depositor protection is equivalent to a substantive mis-pricing of the risks associated with depositing money with banks – in other words, the macroeconomic equilibrium cost of retail deposits is higher than prevailing market rates. Its secondary consequence is that the volume of such deposits placed with banks is almost certainly significantly higher than it would be in the absence of such deposit insurance (that many consumers will assume that all their deposits are insured even when they are not only makes this worse). This nonchalant attitude towards risk by depositors inevitably

exposure for retail depositors, also proved to be ineffective in instilling optimal risk-assessment and supervision in banks.

⁴⁰ 10 countries introduced blanket unlimited retail deposit guarantees during the financial crisis: Australia, Belarus, Hong Kong, Jordan, Mongolia, Singapore, Slovak Republic, Thailand, Turkmenistan, Uzbekistan. The fact that the vast majority of individual deposits are below insurance limits makes this unnecessary in most countries. Source: Asli Demirgüç-Kunt, Edward Kane & Luc Laeven, Deposit Insurance Database, IMF WP/14/118 (<https://www.imf.org/external/pubs/cat/longres.aspx?sk=41710.0>)

⁴¹ Sweden (1992), Japan (1996), Thailand (1997), Korea (1997), Malaysia (1998) and Indonesia (1998) issued blanket guarantees to arrest banking crises. Turkey (2000) extended this blanket guarantee to all domestic and foreign wholesale creditors as well. See https://mitpress.mit.edu/sites/default/files/titles/content/9780262042543_sch_0001.pdf, p.17.

encourages a greater degree of nonchalance by other creditors and banks themselves, i.e. creditors and banks' own attitude to risk is supported by, and reflects, that of their depositors. It is natural for banks to seek to maximise cheap leverage of this kind (witness, for instance, the 103% loan/deposit ratio of the main UK retail banks and building societies at the end of 2014).⁴² Banks can control, via management of their position on Best Buy tables for savings products, the amount of retail funding they raise extremely precisely and in effect the availability of such funding is almost unlimited.⁴³ This means that banks' capacity to grow is almost unlimited. In such an environment it is natural if individual loan officers, who may well struggle to relate their individual underwriting decisions to the credit risk of the bank – let alone the banking system – as a whole, operate on the basis of unlimited funding availability and an assumption that any individual loan losses can be disregarded because in “normal circumstances” they will be immaterial if the overall balance sheet grows sufficiently strongly. It is extremely likely that behaviour of this kind encourages – indeed, represents – moral hazard.

The problem of moral hazard is aggravated by, and aggravates the difficulty of correctly pricing risk and dealing with uncertainty – i.e. the difficulty of matching subjective probabilities attached to particular occurrences to their actual probabilities. Tversky and Kahneman's “availability heuristic” (where probabilities are affected by ease of recall and mental association) and Herbert Simon's “threshold heuristic” (at some low level of probability it is treated as

⁴² 121% for all UK building societies at the end of their last fiscal year (2014 for most societies), and 100% for the main UK retail banks (Barclays, Santander UK, RBS, Lloyds Banking Group, HSBC Bank Plc).

⁴³ See also Andrew Haldane, *Banking on the State* (2009), <http://www.bankofengland.co.uk/archive/Documents/historicpubs/speeches/2009/speech409.pdf>

being zero) appear to be central elements of human decision-making and risk-assessment processes that lead individuals to systematically underestimate “fat tail risks”. These difficulties of complete risk assessment make it straightforward to relate Robert Merton’s 1977 theoretical confirmation that banks will hold riskier assets when deposits are insured to the observations and conclusions we make ourselves in “real life”.⁴⁴ One does not even have to believe that moral hazard is a *direct* function of deposit insurance. It is sufficient to argue that it is simply a reflection of the significant leverage in banks, i.e. that shareholders’ investment in a bank is small relative to total funding liabilities, which in good times permits the generation of very attractive rates of return on that investment; and that it is this asymmetric payoff profile – ultimately attributable to deposit insurance which permits and encourages very high degrees of leverage - which generates moral hazard. Adding extensive insurance protection to disaster myopia and leverage is certainly scaling up risk exposures (i.e. probability of defaults) and potential losses (i.e. loss given defaults) significantly. This has been known for a long time.⁴⁵

Erosion of market discipline is encouraged by the way the deposit insurance schemes is funded: The FSCS states: “*The amount levied for compensation payments is the amount of compensation paid [in the prior year] plus an estimate of the compensation costs we expect to pay in the twelve months following the levy date, assumed to be 1 July each year, allowing*

⁴⁴ See Robert Merton (1977), An analytic derivation of the cost of deposit insurance and loan guarantees, *Journal of Banking and Finance* at <http://www.people.hbs.edu/rmerton/analytic%20derivation%20of%20cost%20of%20loan%20guarantees.pdf>

⁴⁵ See, for instance, Jack Guttentag and Richard Haring’s influential study “Disaster Myopia in International Banking”, IIF (1986) at http://www.princeton.edu/~ies/IES_Essays/E164.pdf.

for any retained fund balances".⁴⁶ Such a scheme provides adequate insurance cover for small, randomly distributed losses that are independent of each other. It fails when faced with substantial fat tail risks of very high potential losses in a systemic crisis where interdependence among institutions can propagate and magnify total risk very significantly. This is especially the case for highly concentrated banking systems. In the UK the maximum levy that can be raised for deposit protection by the FSCS is £1.5bn.⁴⁷ This is less than 7% of the capital that was required to "bail out", i.e. acquire / nationalise, the five banks that failed in 2008 – Kaupthing Singer & Friedlander, Bradford & Bingley, Heritable Bank, Icesave and London Scottish Bank. Virtually all of this – £20.4bn – was funded by borrowings from the Bank of England and ultimately HM Treasury⁴⁸ which are being repaid from recoveries from the insolvent estates over a lengthy period of time, with only servicing costs on the HMT loans and a small amount of capital losses on certain loans relating to four of the five bailout banks being funded from industry levies. It is true, of course, that the ultimate *direct* cost of the bailout itself (i.e. excluding the far more significant wider macro-economic costs) is a fraction of the balance sheet or deposit value of the banks concerned as the run-off value from assets is generally sufficient to cover most of the institutions' liabilities and hence repay HMT debts. This does not change the fact though that the FSCS does not have the capital to fund extreme losses and therefore requires reinsurance protection provided by the government. It is therefore not a viable and credible safety net in

⁴⁶ <http://www.fscs.org.uk/industry/funding/levy-information/>

⁴⁷ Ibid.

⁴⁸ FSCS Annual Report 2014, p.56.

a systemic crisis – whose risk and cost cannot, it appears, be priced correctly and charged to banks ex-ante.

An absence of appropriate risk management on behalf of many stakeholders in banks has, therefore, meant that deposit insurance, far from reducing the probability and severity of banking crises, has increased them. The Savings & Loan crisis in the US during the 1980 & 90s, during which one third of US Savings & Loans associations (S&Ls) failed, is a good case study of how comprehensive deposit insurance coupled with lax supervision and financial deregulation led to a severe crisis that threatened the viability of a large banking sector in the US. An increase in the insurance cover from \$40,000 to \$100,000 per account in 1980 coupled with deregulation that gave thrifts many of the traditional banks' rights without equivalent regulatory oversight by the FDIC made it much easier for S&L's to raise money at high rates from outside their traditionally small, regional target markets. They did this to deploy funds in high-yielding real estate and other non-traditional loans which appeared to be profitable due to lower real capital requirements and a lack of proper mark-to-market accounting, resulting in an appearance of profitability and solvency when neither existed. Deposit insurance in the US was originally priced at $1/12^{\text{th}}$ of 1% of an institution's deposits, but even when that increased to $5/24^{\text{th}}$ of 1% in 1985 it made no distinction between different types & riskiness of firms, and the cost was in any event too low to feature materially in return on capital calculations. As the cost of insurance was too low, so was the capital of the insurer – the reserves of the Federal Savings and Loan Insurance Corporation (which administered deposit insurance for S&Ls until this was transferred to the FDIC in 1989) only amounted to 1.18% of its insured deposit liabilities in 1981, and this declined to 0.54% by 1985 when the crisis started (representing \$4.6bn), i.e. to a level that was meaningless compared with the potential and actual claims that subsequently

materialised. Two years later its reserves were \$13.7bn in deficit,⁴⁹ the final total cost was almost ten times higher.

As deposit insurance was compulsory for S&Ls (as it is in all insurance schemes today), it is not straightforward to evaluate individual bank behaviour in response to it as there is no “control group” to compare it against. This is possible in relation to some of the voluntary insurance schemes that existed in the US until the mid-1920s. David Wheelock and Paul Wilson have analysed the characteristics of banks in Kansas that participated in an optional insurance scheme that began operation in 1909 and closed in 1929 in the wake of a decade-long banking crisis, and compared it against uninsured banks in the state.⁵⁰ The results are illuminating. Between 1920 and 1926 122 state-chartered banks failed in Kansas, of which 94 had been members of the insurance scheme (representing a failure rate of 4.6%) and 28 had not (a 2.3% failure rate). By comparison, the failure rate of the – uninsured – national banks in Kansas was only 0.8%. The proportionally higher failure rate for insured banks reflects the greater riskiness of their operations: insured banks had lower capital ratios than uninsured banks, higher deposits relative to assets and held fewer liquid assets against deposits than uninsured banks. As the authors conclude: “*Conservatively managed banks were less likely to fail and, at the same time, banks that carried deposit insurance were more risky and, hence, more likely to fail than their uninsured competitors.*”

⁴⁹ See p6-7 and Table 1-1, Edward Kane, The Federal Deposit Insurance Mess. How did it Happen, <https://books.google.co.uk/books?id=85C2UdOGIc&pg=PP2&lpg=PP2&dq=kane+the+S%26I+insurance+mess&source=bl&ots=l6i-Mgym-q&sig=gPk3KHZ6LdCGPOkxlcZs5PcQ0F0&hl=en&sa=X&ved=0CCEQ6AEwAGoVChMlp8f5zau8xwIVxq7bChIfuA4J#v=onepage&q&f=false>

⁵⁰ https://research.stlouisfed.org/publications/review/94/05/Deposit_May_Jun_1994.pdf

The Kansas experience from almost a hundred years ago is typical of many insurance schemes generally. Oklahoma introduced an insurance scheme in 1907 which was compulsory for state banks, but did not permit nationally chartered banks from participating.⁵¹ This led to a 41% increase in state banks in the two years to June 1909 (the number of nationally chartered banks declined by 18% over the same period), a sharp increase in credit growth in Oklahoma and extremely high dividend payouts by insured banks (but not uninsured ones), all in an environment of very limited capital adequacy regulation or supervision. It did not last: during the period of the insurance scheme was in operation (1907-1923) the failure rate for insured banks was 35.6% vs 7.6% for the (uninsured) national banks.⁵² Kam Hon Chu has found in a cross-country contingency table analysis that deposit insurance schemes with low coverage had fewer banking crises than countries with high-coverage insurance regimes.⁵³ Asli Demirgüç and Enrica Detragiache, two leading economists specialising in deposit insurance one whom is the co-originator of the worldwide database on deposit insurance regimes, themselves have concluded, based on data from a large panel of countries for the period 1980-97, that “*explicit deposit insurance tends to be detrimental to bank stability...the more extensive [...] the coverage offered to depositors, where the scheme is funded, and where the scheme is run by the government rather than by the private sector.*”⁵⁴ They

⁵¹ <http://economics.kenyon.edu/melick/Research/KrosznerMelickDraft5.pdf>, p.8.

⁵² Deposit insurance: Lessons from the record, C. Calomiris, *Economic Perspectives*, Federal Reserve Bank of Chicago, 2011, p.12 (see <https://www.chicagofed.org/publications/economic-perspectives/1989/06mayjune1989-part2-calomiris>)

⁵³ http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2253942

⁵⁴ “Does deposit insurance increase banking system stability? An empirical investigation”, Asli Demirgüç and Enrica Detragiache (2005), <http://www->

also found that insurance for one creditor encourages other, wholesale creditors to pressure policy-makers to extend protection to their own claims. Building on earlier work by one of the authors in the late 1990s which found that banks' costs of funds were lower and less sensitive to bank-specific risk factors in countries with explicit deposit insurance, they concluded "[...] *that deposit insurance weakens market discipline, be it discipline exercised by depositors, by other bank creditors, or by bank shareholders.*"⁵⁵

A review of almost all banking crises highlights one interesting aspect of bank failures: real industry-wide "bank runs" are extremely rare. Panics have usually been associated with depositors moving their money from unhealthy banks, and those associated with them, to healthy ones. The bank runs in February – March 1933 in response to the imposition of bank holidays are probably the closest to a general bank run that can be found in US history. All other bank runs in the US during the Depression were restricted to money being moved by depositors from bad to good banks.⁵⁶ This suggests that the problem of contagion, whereby healthy banks are brought to their heels alongside bad ones as panicking depositors withdraw their money from all institutions indiscriminately, is much less prominent, and much less of a risk, than commonly perceived. This undermines one of

wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2000/01/06/000094946_99122006330270/additional/101501322_20041117140502.pdf

⁵⁵ Ibid, p. 23.

⁵⁶ See Randall Kroszner and William Melick, Lessons from the U.S. Experience with Deposit Insurance, in *Deposit Insurance around the World*, ed by Demirguc-Kunt, Kane and Laeven, MIT Press (2008) and at <http://economics.kenyon.edu/melick/Research/KrosznerMelickDraft5.pdf> , p.6.

the foundational arguments in favour of deposit insurance. As Calomiris and Mason put it:⁵⁷

Deposit insurance and government assistance to banks since the Depression have been motivated in part by the perception that bank failures during the Depression were a consequence of contagion, rather than the insolvency of individual banks. If private interbank cooperation, buttressed by liquidity assistance from the monetary authority [...] is adequate to preserve systemic stability, then a far less ambitious federal safety net might be desirable.

The 2007-09 crisis did produce something akin to a run on wholesale funding markets, in particular repos of broker dealers in the US and the asset-backed commercial paper (“ABCP”) market.⁵⁸ The contraction in the latter, when banks were forced to take often impaired assets back on their balance sheet, was particularly severe, with the total ABCP market in the US shrinking by almost half between mid-2007 and 2009. This run reflected the huge maturity mismatch in ABCP conduits, incomplete investor knowledge about exposures to different asset classes (particularly for multi-seller programmes) and concerns that liquidity support by sponsor banks was incomplete, leading to attempts to liquidate holdings in those structures – e.g. SIVs⁵⁹ – where this was deemed to be a high risk, but not others where liquidity concerns were not an issue – e.g. securities arbitrage programmes even when they held similar assets as SIVs.⁶⁰ However, these wholesale runs cannot be disentangled from the

⁵⁷ Ibid, p.6.

⁵⁸ <https://www.imf.org/external/pubs/ft/wp/2014/wp14118.pdf>, p. 15.

⁵⁹ Structured Investment Vehicles, a popular “non-bank”, or in any event off-balance sheet, investment vehicle prior to 2007.

⁶⁰ See <http://www.federalreserve.gov/pubs/feds/2009/200936/200936pap.pdf>.

structure of the banking system as a whole: if the ABCP market, to take one example, had been completely independent of banks a “run” would have had no consequences for – insured and undercapitalised – banks; if, on the other hand, the ABCP market is closely and intricately connected with the banking system – as was in fact the case – then there was clearly an indirect exposure – hence the “panic” – to all the weaknesses in the banking system, some of which, this paper argues, stem from the prevalence of deposit insurance. Strengthening banks, for instance by abolishing deposit insurance, would therefore also reduce the probability of runs or crises in non-bank (“shadow”) funding markets that may have a direct or indirect link to the banking system.

Depositors and non-depositors alike have faced very substantial financial losses as a result of the ineffectiveness of deposit insurance, which have been significantly greater than the comparable cost of insurance against other “catastrophe risks”. Between 2007 and 2014 real GDP in the UK, measured at 2011 prices, grew from £1,637bn to £1,698bn, an increase of £61bn or 3.7% / 0.6% p.a.⁶¹ If real GDP had grown at the trend rate of 3.1% p.a. that prevailed in the period 1997-2007, it would have been £319bn / 19% higher than it actually was. Even if one were to accept that a true, long-term sustainable growth rate was only, say, 2.5%,⁶² real GDP in 2014 would still have been £248bn / 15% higher than it was. Seen in this light, the UK economy has over a period of 7 years paid a premium of 27% or 3.9% p.a. on a policy

⁶¹ http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tc_m%3A77-355538.

⁶² The average annual growth rate in real GDP from 1948 – 2007 was 2.50%. <http://www.ons.gov.uk/ons/rel/elmr/explaining-economic-statistics/long-term-profile-of-gdp-in-the-uk/sty-long-term-profile-of-gdp.html>

to insure all household deposits in 2008.⁶³ This is spectacularly bad value for money in comparison with other catastrophe risk insurance products such as flood insurance in Europe (0.1-2% p.a.)⁶⁴ and the UK (0.1-0.3% p.a.), the Japan Earthquake Reinsurance Co (0.5-3.6% p.a.) or the California Earthquake Authority (0.1-5% p.a.).⁶⁵ In fact, the comparison is even worse than that as the reduction in trend growth could last for much longer than 7 years – a 25-year horizon, say, would mean the annual “insurance premium” to protect deposits was greater than 7%.⁶⁶

It is relevant and possible that losses in addition to these macroeconomic costs could arise from the series of interventions in 2007-10 to maintain the solvency and liquidity of the UK banking system, but they will account for only a fraction of the costs of (the failure of) deposit insurance. Total peak cash support to UK institutions, excluding £1trn of HMT (non-cash) guarantees), was £133bn of which £93bn remained outstanding as at 31 March 2015.⁶⁷ Significant servicing costs on the debt raised to fund the support arrangements (at a cost of slightly less than 3% p.a.) also need to be considered, net of fees and interest received by HM Treasury. To what extent the total capital invested will be recovered (while earning some return) will not be known

⁶³ Sterling retail deposits of the household sector and unincorporated businesses (Bank of England data series at <http://www.bankofengland.co.uk/statistics/Pages/dl/default.aspx>) amounted to £914bn in December 2008. 27% is the GDP shortfall of £248bn divided by that number.

⁶⁴ https://www.genevaassociation.org/media/919721/ga2012_gp37-2_paudel.pdf, p. 264.

⁶⁵ All from www.ndir.gov.au/content/submissions/issues.../dr_zhengtang_zhao.rtf p.10.

⁶⁶ Over a 25-year period the difference in real GDP at 1945-2007 trend growth of 2.5% p.a. vs 2007-14 growth of 0.6% p.a. is £1.64trn, or 182% of 2008 household retail deposit balances, i.e. 7.3% p.a.

⁶⁷ <http://www.nao.org.uk/highlights/taxpayer-support-for-uk-banks-faqs/#>

for some time, although HMG's RBS position will almost certainly result in a loss on the original £46bn investment.⁶⁸ Including repayments and fees received, as well as funding costs incurred by HMT, the best estimate currently is probably that the net cost will be no more than £3bn, or 0.3% of peak support.⁶⁹ One (simple) way of quantifying the failure of deposit insurance (and, of course, the remainder of the regulatory framework that was built around deposit insurance) is therefore that, as at mid-2015, its failure cost approximately £250bn of lost output and capital, or 15.3% of 2007 GDP. This is a very substantial cost. And yet, the economic consequences of not providing these capital injections and support programmes would have been almost certainly even greater. This only strengthens the urgency of replacing a regulatory regime built around deposit insurance with something better.

⁶⁸ The market value of UKAR's stake in RBS, excluding the dividend access share, was £30bn as at 17 August 2015, i.e. £16bn less than the investment cost adjusted for the £2.1bn proceeds from the first share sale on 5th August 2015.

⁶⁹ Rothschild estimate an overall surplus on the bailouts of £14.3bn as at early June 2015 (see https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/434153/Rothschild_report_on_the_UK_investment_in_RBS.PDF), but this excludes the financing costs for the debt raised to fund these support measures. The OBR estimates these to be ca £22bn, from which c £5bn of interest received needs to be deducted for a net funding cost of £17bn (p. 100, http://cdn.budgetresponsibility.independent.gov.uk/March2015EFO_18-03-webv1.pdf)

3. ABOLISHING DEPOSIT INSURANCE

The abolition of deposit insurance (ADI) pulls aside the veil of ignorance that makes many of us believe that a certain state-sponsored institutional arrangement such as the FSCS can fund uncapped losses at no cost to us or the economy as a whole, or indeed that it provides effective insurance protection. Clearly this is an illusion. ADI represents simply the replacement of one form of insurance with another – reflecting inter alia a feature of many insurance markets that self-insurance can be cheaper and more effective than 3rd party insurance cover. It would be a simple, effective, politically powerful and economically beneficial initiative to stabilise the banking sector by reducing its leverage substantially in a way that involves minimal regulatory intervention and, therefore, the often questionable transgression of state authority into private commercial relationships.

Initially, ADI implementation should have four main components:

- a) The government announces that deposit insurance will cease to be available for retail and corporate depositors from a specified date in the future. This “ADI date” should be sufficiently far away to give everyone, in particular banking institutions, enough time to adjust and plan for. For instance,

the Basel 3 regime has a 7-year transition period (2013-19). A 2-year transition period for ADI would be adequate in light of the significant focus on regulatory reform and capital strengthening by banks in recent years. It could be argued that phasing in ADI would be sensible, for instance by reducing ADI in a number of stages from its current level to zero starting in two years. Many provisions of the Basel 3 regime are phased in (or out) in this way, for instance the capital conservation buffer or the liquidity coverage ratio. This could, it might be argued, cushion the impact on depositors and banks and be less “scary” than the overnight removal of a safety net. It would probably make ADI politically more palatable. However, there isn’t much merit in doing so: two years would give everyone plenty of time to plan, and a gradual elimination could be more confusing to depositors (“How much of my savings are still insured? Do I need to move £XX or £YY of my deposit at Bank X to Bank Y to remain fully insured for all my savings?”) than a clean, crisp end to the insurance regime. A gradual reduction in the insurance cover could also encourage unusual deposit offers and pricing behaviour by banks to attract more deposits during the transition regime. As the Basel 3 implementation shows, the announcement of an implementation date many years ahead encourages institutions to plan towards the new regime, and adopt its key provisions, far earlier than they would be required to. This is partly a response to demands from shareholders, domestic regulators and rating agencies who want to understand what a bank’s balance sheet strength would be *if* the new regime already applied today. This is a healthy and indeed desirable aspect of such a change in the regulatory regime and has meant, for instance, that all UK banks have already met the full Basel 3 provisions many years before they have to (on 1 January 2019). Basel 3’s

phase-in provisions have been far less important than the knowledge of the final rules (the end point) themselves. The author expects ADI with one clean implementation date to have a similar, and similarly beneficial, effect.

- b) ADI would be enshrined in law, i.e. primary legislation would be passed binding future governments to unconditional ADI. Unlike implicit deposit insurance available in countries such as Israel that do not have an explicit insurance scheme where depositors can nonetheless reasonably assume that the government would step in to protect them in times of crisis, in this case statute would prevent future governments from doing so. In the event of a bank failure, government would be barred from paying compensation to depositors. Enshrining the unavailability of sovereign insurance protection in statute ensures that ADI is dynamically consistent, i.e. has appropriate credibility to confirm to depositors, bank shareholders, creditors and executives that the government means what it says and ADI is therefore credible over time. Less discretion, less choice can be a good thing in this context – a point of view some of us may find heretical, but Messrs Kydland and Prescott demonstrated its usefulness very elegantly almost 40 years ago.⁷⁰
- c) Parliament amends part 2, section 13 of the Banking Reform Act 2013 to make *all* customer deposits (i.e. excluding interbank deposits), not just those balances that currently enjoy the FSCS protection, a preferential debt in an insolvency. As the vast majority of deposits are already below the FSCS compensation limit, this would not increase this senior funding source materially as a share of banks' total

⁷⁰ <https://minneapolisfed.org~/media/files/research/prescott/papers/rulesdiscr-etion.pdf?la=en>

funding. Depositor super-seniority would mean that realised and unrealised losses as a percentage of the assets of the main UK retail banks⁷¹ and all building societies would have to exceed c. 58% – the ratio of all non-deposit liabilities, including equity, to total assets as at 31 December 2014 – before depositors would be exposed to losses. This is 83% bigger than the biggest loss suffered by a major bank during the 2007-09 financial crisis (Anglo-Irish Bank).⁷² There is no precedent for losses of such magnitude – and it is not the remit of regulators to plan for, or protect against, losses of such magnitude in any event: risk cannot and should not be eliminated, it should be managed.

- d) Finally, the government would emphasize in a public announcement that deposit-taking institutions with a large loss-absorbing capital base will be significantly safer repositories of people's savings than weaker capitalised banks once ADI becomes effective. The announcement should encourage depositors to consider carefully whether to deposit their money with institutions that have a “low” capital base. Deposit-taking institutions would be required to publicise prominently and comprehensively their capital ratios, in particular their leverage ratio, including a comparison of their ratio against other banks.

There are two ways for how the importance and quantum of this bigger capital cushion could be established.

⁷¹ That is, RBS, LBG, Barclays, Santander UK, and HSBC Bank Plc.

⁷² Fig 4.4, ICB Final Report 2011, shows that Anglo-Irish Bank's cumulative realised and unrealised losses in the period 2007-10 were equal to 39% of 2007 RWA. Anglo-Irish Bank's RWA were equal to 81% of total assets in that year, i.e. cumulative losses of €30.7bn were equal to 31.7% of total assets in 2007. For UK retail banks and building societies such losses would have to reach 58% of total assets before depositors would be exposed to them.

- (i) First, the government could state explicitly what it would regard as an appropriate level of capitalisation for these purposes, and the presumption is that this would have to be significantly higher than the fully loaded Basel 3 / CRD IV requirements⁷³ as these reflect the existence of explicit or implicit insurance schemes. For instance, the Independent Commission on Banking in the UK recommended that banks should have a total loss-absorbing capacity of 17-20% of RWA, of which common equity tier 1 capital would represent 7-10% depending on the size of the relevant retail bank; it also recommended a minimum leverage ratio (tier 1 capital as % of total “exposures”, basically total assets plus off-balance sheet exposures) of 3.0-4.06%.⁷⁴ These ratios are somewhat, but not dramatically higher than under the Basel 2 regime (which did not have an explicit leverage target) – for instance, at the end of 2006 a sample of 89 banks had an average leverage ratio (albeit calculated without reference to off-balance sheet exposures, and therefore overstated for comparative purposes) of 3.89-4.19%.⁷⁵ They are also considerably lower than they have been at various points in history. For instance, equity as a % of

⁷³ As at 1 January 2019, banks will have to hold, as a percentage of risk-weighted assets, at least (i) 4.5% minimum common equity tier 1 (ii) a 2.5% capital conservation buffer (“CCB”) which must be funded by common equity (iii) tier 1 capital, excluding CCB, of 6% (i.e. tier 1 capital including CCB has to be 8.5% and additional tier 1 capital that is not common equity can represent up to 1.5% of the tier 1 capital ratio (iv) total capital, including tier 2 capital, of 8% and 10.5% including the CCB (i.e. tier 2 capital cannot be greater than 2% of RWA). They will also be subject to a minimum leverage ratio of 3.0%. See http://www.bis.org/bcbs/basel3/basel3_phase_in_arrangements.pdf

⁷⁴ ICB Report, para 4.57. As additional tier 1 capital can account for up to 25% of tier 1 capital (excluding CCB), a common equity tier 1 leverage ratio would have to be at least 2.25% - 3.05%.

⁷⁵ See Table 2, page 17, <http://www.bis.org/publ/bcbs180.pdf>

total assets of UK banks moved in a range of 5-15% between 1880 and 1920, and has been in excess of 5% for long periods of time since then. In the US bank leverage ratios have been consistently higher than in the UK and above 5% since 1880,⁷⁶ and this is also the main leverage target for large US and Canadian banks today. Other commentators have indeed argued for significantly higher capital ratios than the BIS or the ICB – e.g. Admati/Hellwig propose an equity-to-assets ratio of 20-30%. Under the Chicago plan it would in effect be 100%.

When choosing an appropriate target the government could take account of the following considerations:-

- the basic functions of banks as providers, indeed occasionally creators, of liquidity to the economy should be maintained, i.e. any target should avoid the need for a drastic, wholesale reconfiguration of all banks (ruling out Chicago-style capital ratios);
- estimates of the optimal ratio of common equity to RWA have ranged from 7% to 20%,⁷⁷ and the ICB recommended a target CET 1 ratio of 10% for the largest retail banks for a banking market with deposit insurance. Based on an average RWA / assets ratio of 30%,⁷⁸ this approximately corresponds to a 2.1-6.0%

⁷⁶ See Andrew Haldane, *Banking on the state* (2009), Chart 2.

⁷⁷ See Interim ICB Report, Annex 3.

⁷⁸ The 2014 average of Barclays Bank Plc, RBS, Lloyds Banking Group, Santander UK plc, HSBC Bank plc (i.e. not HSBC Group) and all building societies. Note that the range between different institutions is wide as the larger banks and building societies operate under the IRB approach for calculating capital requirements while smaller institutions use the standardised approach which produces substantially higher RWA and hence capital requirements.

equity-to-assets ratio (compared with a 4.7% Basel 3 weighted average for UK banks in Sep-15);⁷⁹

- household retail deposits represent a significant source of bank funding in the UK (accounting for 32% of liabilities by banks and building societies operating in the UK)⁸⁰ and represent a substantial portion of private sector wealth (ca 11%)⁸¹ as well as an essential component of the money supply. The protection of these critical functions should require substantially higher capital ratios than may be acceptable in a regime with deposit insurance;
- leverage ratios are on balance the more appropriate target as the selection of risk-weights is subject to huge discretion, leading to large variations in reported RWA for banks with similar risk characteristics. This trumps any possible negative consequences arising from a lack of differentiation between the riskiness of different types of assets, a difference that should in any event become less pronounced in the banking system post-ADI.

This author's sense is that these considerations justify a CET1 target of 20%, at the upper end of the 7-20% range

⁷⁹ Financial Stability Report, Dec 2015 – p.39 (<http://www.bankofengland.co.uk/publications/Documents/fsr/2015/dec.pdf>)

⁸⁰ See monthly data for monetary financial institutions' (incl. Central Bank) holdings of sterling deposits from the household sector, split by individuals, unincorporated businesses and non-profit institutions serving households (<http://www.bankofengland.co.uk/statistics/Pages/dl/default.aspx>) and Table B1.4 of Bankstats (<http://www.bankofengland.co.uk/statistics/pages/bankstats/current/default.aspx>)

⁸¹ Based on net household wealth of c £9.5trn in 2012 and household retail deposits of £1.1trn in the same year. Source: http://www.ons.gov.uk/ons/dcp171778_368612.pdf and Bank of England data series LPMB3SF.

discussed by the ICB, double the 10% target recommended by it for large UK retail banks and 8% higher than the actual CET1 ratio for UK banks as at September 2015.⁸² This is equivalent to a target leverage ratio of ca. 6.0%, and would represent an amount of capital that would have been enough to cover the losses of all banks, except Allied-Irish Bank, that suffered losses during the 2007-09 financial crisis.⁸³ It is critical to understand that these are losses suffered by *banks*, not *depositors*. When considering (a) the amount of wholesale / non-deposit funding of banks and (b) the senior ranking of depositors such capital levels should make it virtually impossible for depositors to lose money based on the range of historical experiences with banking crises. In any event, the main UK retail banks and all building societies would have to raise ca £125bn of additional common equity for their retail banking operations to comply with this requirement, 79% more CET1 capital than they had at year-end 2014.⁸⁴

- (ii) The alternative signalling device for the appropriate and expected capital ratios is much simpler and much less prescriptive than the first option, and therefore much better. It would simply involve the government announcing that National Savings & Investments (“NS&I” / www.nsandi.com), the state-owned savings bank established in 1861, would immediately (i.e. well before the ADI date) offer a comprehensive range of conventional

⁸² Financial Stability Report, December 2015, p.41 (<http://www.bankofengland.co.uk/publications/Documents/fsr/2015/dec.pdf>)

⁸³ ICB Report, Figure 4.4.

⁸⁴ Source: Author’s calculation based on disclosed financials in annual reports for 2014 for all building societies and the main UK retail banks.

savings products (alongside its existing product range) as well as current accounts for retail and corporate customers. By establishing – or, rather, making use of – an existing and popular state-backed financial institution for common banking purposes the government could create an approximate floor for the capital base a private-sector bank would have to hold to remain competitive. NS&I is already one of the biggest savings institutions in the UK with £123bn of investors' money as at 31 March 2015. Depositing funds with NS&I – i.e. investing in its products – involves lending to the government, and the presumption remains that this is “risk-free” as if NS&I was a bank whose assets have a probability of default (PD) of almost zero and a loss given default (LGD) of zero. Alternatively, NS&I could be thought of as a bank with positive PDs and LGDs but such a high loss-absorbing capital base (in the form of the HMT guarantee of its liabilities) that depositors would never realistically be exposed to loss even in the most severe stress scenarios. Instead of issuing directives or expressing opinions about what it thought “the right” capital ratio for banks should be, the government would simply state that individuals are welcome to use NS&I for their current accounts as well savings. The government would state that NS&I's asset management policy will reflect its remit of providing safe investment options to its customers. Unlike conventional banks, NS&I also has no liquidity risk, interest rate risk or FX risk.⁸⁵ It is for all intents and purposes a risk-free credit exposure for its customers. NS&I's superior risk profile could be highlighted by requiring banks to publish the following table on the

⁸⁵ P.124, NS&I Annual Report 2014-15.

cover of all marketing materials, annual reports and all pages on its website:-

Bank A	NS&I
Equity as % of assets: 10.0%	Equity as % of assets: ⁸⁶ 100.0%
<i>We therefore currently have 90% less capital to absorb losses than NS&I.</i>	

I believe it is likely that the public would respond very positively to such an announcement. NS&I experienced very substantial deposit inflows in 2008 when the financial crisis was at its most acute,⁸⁷ demonstrating how it was regarded as a “safe haven” by retail depositors. In 2014-15 NS&I's premium bonds offered to savers aged 65 and over became the biggest selling retail financial product in Britain's history, raising £2.3bn in its first three days in January 2014 and £13bn from over 1m savers by May 2014.⁸⁸ This is despite the comparatively low return offered by NS&I bonds and ISAs compared with other savings products. For instance, NS&I calculates that in 2014 it saved HMG £330m compared with raising an equivalent amount through the

⁸⁶ NS&I has an *effective* leverage ratio of 100% in that its “owner”, i.e. HMT, underwrites all losses on its investment holdings; it, of course, does not have an *actual* 100% leverage ratio as it also has substantial non-equity liabilities.

⁸⁷ NS&I raised £26bn of deposits in 2008 compared with £15.5bn in 2007 and £14.2bn in 2006. See Annual Report 2008, p.7.

⁸⁸ NS&I Annual Report 2014, p. 5 and 8. In total, NS&I's gross inflows from savers were £32.3bn in 2014-15 and £94.1bn since 2010.

gilt market,⁸⁹ an illustration also of the low interest rates it offers on its interest-bearing products (e.g. cash ISAs) given that gilt rates are a benchmark for inter-bank and hence other interest rates. While some NS&I products are tax free⁹⁰ they are so because of their general product features, not because they are issued by NS&I. There is no prima facie reason why NS&I could not be able to continue offering them as part of a diversified mix of products, in the same way it does today.

The government could consider a number of structural options to implement this “NS&I as a Deposit Bank” policy. For instance, NS&I could be preserved in its current form while all new deposit & current account activities are undertaken by a new entity which, like NS&I, is an agency of HMT. This would preserve the special status and product range of NS&I, and would not require a change to its framework agreement with HMT. Such a functional division of NS&I’s service range could be combined with a regional segmentation so that smaller NS&Is are set up to use their local knowledge to provide a more effective service to their customers. This would introduce an element of competition between different NS&I’s all of whom would continue to benefit from the central government covenant. Such smaller institutions would also almost certainly be administratively more efficient and less expensive than one large, monolithic and centrally managed organisation. They would

⁸⁹ *ibid*, p.9. Note that this does not include the 65+ bonds which were a specific budgetary measure and therefore costed separately.

⁹⁰ Children’s bonds, Direct ISA, Direct Saver and Premium Bonds were the tax-free products for sale as at 31-Mar-15. Fixed interest Savings Certificates and Index-linked Savings Certificates are also tax-free, but not currently for sale.

probably also be 'politically' more palatable to (regional) consumers.

On Day 1 of the new "ADI regime", therefore, the UK banking world would consist of all the existing banks and building societies operating without any deposit insurance and a "new" NS&I, offering all the retail savings and payment functions that the incumbent banks and building societies are also providing. What would be the consequences?

4. CONSEQUENCES

4.1 First Order Impact on the Banking Sector

On the basis that the large majority of retail deposit balances are lower than the £75k insurance limit, most of the £1.1trn of deposits held by individuals and unincorporated businesses with UK banks and building societies would now cease to be covered by deposit insurance. It should therefore be expected that depositors will review where they hold their money and leave only that portion of their deposit balances which they believe they can afford to lose (let's call these "Surplus Deposits") with institutions where the probability of loss is greater than zero. This does not mean that all the remaining balances – let's call these "Core Deposits" – will be moved to NS&I (or an equivalent risk-free repository), but it will mean that banks have to persuade depositors either that the probability of loss is in fact close to zero, or that, if not, the returns offered to depositors reflect the greater risk they are exposed to. As a perfectly representative bank customer – with one bank relationship that has remained unchanged for 20 years – the author would certainly move all his Core Deposits to an institution such as N&SI where he could be certain that his savings were safe; he would also move his current account to such a bank since this is the basis for all the

transactions, direct debits and standing orders that keep the day-to-day operation of his life and that of his family running, and he would not want to be exposed to any risk of disruption to these. For Surplus Deposits he would be perfectly happy to consider institutions which offer a higher deposit rate in compensation for an investment and/or lending strategy that generates positive expected losses on a portfolio basis, but from which depositors are likely to be protected by suitably high levels of loss-absorbing capital, and their senior position in a bank's capital structure.

The author would expect his simple behaviour to be not untypical for most users of banking services across all socio-economic and demographic population groups. While this expectation does not reduce the need for a well-designed government marketing programme to "sell" and explain the new regime competently and comprehensively, there is no reason to believe why poorer income groups should fundamentally be less capable to adjust to the new environment than richer ones. To the extent anyone, or any group of depositors, finds it difficult to decide what to do, NS&I offers an extremely simple and compelling proposition: *"Bank with us and your money will always be safe"*. If this offer is taken up primarily by people who, for instance, do not know much about banking, are not in a position to learn more, are not interested in, or capable of, undertaking the relevant risk assessments of different banks, so be it – that is why the NS&I offer exists in the first place. It means such individuals are not disadvantaged because they prefer to think about the answer to the ultimate question of life, the universe, and everything, run a farm or teach 5-year olds about phonemes and graphemes. Initiatives such as the Current Account Switch Service (CASS), which facilitates free and easy transfers of current accounts between banks, can then support customers in implementing the

decisions they have made with regard to their Core vs. Surplus Deposits.

The response to the abolition of compulsory annuitisation in 2014 so far does not suggest that any particular socio-economic group has systematically made “wrong” decisions; what has certainly changed, is behaviour – in this instance, cashing in pension pots rather than buying expensive and very restrictive annuities.⁹¹ Likewise, in retail banking depositors are being paid minimal interest rates despite exposure to non-trivial default risk by banks, and in addition have to pay for zero-cost (and zero interest) current accounts through a range of other fees and charges which are not clearly disclosed (or not at all). Under ADI depositors’ required rates of return (and banks’ requirement to pay them) would clearly change inasmuch as an individual might be satisfied to be paid no return on, and indeed to have to pay for, a payment & savings infrastructure which is risk-free in the same way as they pay for the provision of gas, electricity and wireless broadband connection. In this case their monthly fees cover providers’ fixed and variable costs plus a return on capital, and the same principle may well – should – establish itself in relation to these core transactional banking services that are/will be provided in relation to Core Deposits.

If, as is likely, the initial consumer decision is about minimising exposure to catastrophic loss, then banks will have to hold significantly higher levels of loss-absorbing capital than they do today. If some providers, e.g. NS&I, operate with capital ratios of

⁹¹ That annuities generally represented spectacularly bad value for money only supports this position of principle. Even plain-vanilla annuity providers earned IRRs well in excess of 20% on the capital deployed to underwrite them, often allowing them to earn all such capital back from reserve releases within 12-24 months. Returns on capital of providers of enhanced annuities – for impaired lives with shorter life expectancies – would naturally be even higher.

effectively 100%, then the capital adequacy threshold that commercial banks will have to satisfy to attract a sufficient volume of retail deposits will presumably be in some way comparable to this benchmark. This may mean that all Core Deposits end up at NS&I, or other new organisations with a similarly robust capital structure (the Deposit Banks), if consumers ultimately conclude that only an expected loss of zero is adequate as far as Core Deposits are concerned. Banks with effective capital ratios of less than 100%⁹² or a suitably comparable and high level, would then only be able to attract Surplus Deposits, for which they would have to offer higher rates of interest to compensate for the higher risk depositors (i.e. lenders to banks) are exposed to. In reality, it is unlikely that consumers will undertake such a draconian risk assessment because private banks will be able to make a perfectly credible (and correct) statement that with their “new” capital structure (involving higher loss-absorbing capital) the expected loss for depositors, considering in particular their reinforced super-seniority in the capital structure, is for all intents and purposes zero. Private banks will therefore end up holding a combination of Core Deposits and Surplus Deposits, even if they lose a considerable part of the former to NS&I.

The required rate of return on Core Deposits and Surplus Deposits must compensate customers for (a) the annualised expected loss from lending their funds to banks and non-bank lenders on a super-senior basis, i.e. ranking ahead of all other creditors, and (b) a liquidity risk premium. One could argue that, from a macro-economic point of view, the minimum “insurance premium” that depositors would have to be paid when they self-

⁹² Again, banks can't both have 100% capital ratios and hold non-shareholder deposits, i.e. this statement really means that banks' assets have an effective expected loss to depositors of zero.

insure would presumably have to be the premium currently being paid by members of the FSCS as this is designed to “capitalise” the FSCS with sufficient funds to make payments to beneficiaries who have lost money. However, as we have seen, these premia do not come close to being able to fund actual losses in an extreme crisis. Under ADI depositors would have to be very confident that very high losses in a low-probability event can be funded, at least *ex ante*, by returns received on deposits, where the expected loss is obviously a function of the size of the total loss-absorbing capital held by the relevant bank or lender. Banks with higher leverage ratios (i.e. a higher ratio of equity to assets) will be exposed to lower expected losses for a given mix of assets and credit risk and can therefore offer *lower* deposit rates than those with lower leverage ratios. There is widespread evidence that banks with better capitalisation have enjoyed lower funding costs than more thinly capitalised competitors. For instance, CDS premia for UK and EU banks have been inversely related to their capital ratios for some time now, i.e. the cost of buying insurance protection against default is lower for banks with higher capital ratios than for those with lower ones.⁹³ On the other hand, ADI should *increase* funding costs, other things equal, as sovereign protection against loss is removed, and this will affect retail depositors as well as wholesale funding providers. Depositor preference and the bail-in provisions in the EU Bank Recovery and Resolution Directive mean that senior and subordinated debt can now be “bailed in”, i.e. used to maintain the solvency of a bank under certain “gone concern” conditions.⁹⁴ ADI – whether it

⁹³ See Chart 3, p. 6 of <http://www.bankofengland.co.uk/publications/Documents/fsr/2012/fsrfull1206.pdf> and a more recent update confirming this finding in <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q4prereleasebankfundingcosts.pdf>. Chart A, p. 8.

⁹⁴ Transposed into UK law in The Bank Recovery and Resolution Order 2014 (SI 2014 No. 3329) which came into force in January 2015.

leads to rising retail deposit rates or not – should therefore increase the yield differential between the cost of wholesale funding as well as Tier 1/2 capital instruments and retail deposits to reflect the incremental subordination that ADI creates (due to the super-seniority of depositors) on top of these new regulations. Banks' overall funding preferences will therefore change, probably favouring deposit vs non-deposit funding.

Banks' point-in-time returns on equity (ROE) will be lower when they have to hold more equity against the same asset mix.⁹⁵ They will seek to compensate for this in part by increasing lending spreads although as equity investors' required rate of return also declines due to the lower risk associated with better capitalised banks, shareholders and banks will be satisfied with lower actual ROEs – which means lending spreads do not have to be raised by an amount that would restore current ROEs. This is a good thing as higher lending rates will attract some riskier borrowers and banks will want to manage this problem of adverse selection carefully in light of the overall lower appetite for risk.

There are therefore four different forces at play which will affect banks' funding costs, lending spreads and hence profitability:

- a) ADI itself will increase the deposit rates that banks will have to offer to attract depositors in competition with NS&I;
- b) Higher deposit funding costs increase the cost of wholesale and other non-deposit funding to reflect their subordination to depositors and the required adjustment to yield differentials between retail and non-retail funding costs which this entails;

⁹⁵ This is just an arithmetic necessity as illustrated further in Box 1. Across an economic cycle higher levels of equity capital are consistent with generating *higher*, not lower, average ROEs because losses in a downturn are lower when banks hold more equity.

- c) On the other hand, higher levels of equity will tend to reduce deposit and therefore other funding costs due to the lower risk of investing in banks across the capital structure;
- d) As higher levels of equity, i.e. higher leverage ratios, reduce the risk of bank investments the required rate of return of bank shareholders (i.e. investors) will also decline – i.e. banks' target ROEs will be lower than they are before ADI, making it easier for banks to meet shareholder expectations even if the overall profitability of banking were to decline.

These countervailing forces mean that a range of possible outcomes for banks' profitability, lending costs and deposit & funding rates is conceivable. Box 1. provides an illustration (i.e. not a prediction) of these dynamics. While the precise outputs in this illustration are only a function of the assumptions used, this scenario analysis shows how ADI might well increase average funding costs for banks – although it is likely that it would not do so by very much, for instance, because higher wholesale funding costs are offset by somewhat lower retail deposit costs. This could be the case because depositor super-seniority trumps the removal of deposit insurance – as indeed an analysis of the effective loss exposure of depositors given UK banks' funding mix suggests should be the case. There is certainly nothing in the experience in New Zealand since the (re-)abolition of deposit insurance in 2011 – in terms of movements in interest rates, for instance⁹⁶ – that would justify panic and gloomy predictions about economic peril in the event deposit insurance was abolished here.

⁹⁶ See <http://www.rbnz.govt.nz/statistics/> for a comprehensive set of statistics that confirms this.

Box 1. An Illustration of the Impact of ADI on Bank Profitability, Lending Rates & Funding Costs

Table 1. An Illustration of the Impact of ADI on Bank Returns & Average Funding Costs

	"Current"	10% Leverage			20% Leverage		
		A. ROE Impact	B. Yield Adjust.	C. Cost Adjust.	A. ROE Impact	B. Yield Adjust.	C. Cost Adjust.
Loan	100.0	100.0	100.0	100.0	100.0	100.0	
Equity	4.7	10.0	10.0	10.0	20.0	20.0	
Non-equity funding	95.3	90.0	90.0	90.0	80.0	80.0	
Target leverage ratio	4.7% (i)	10.0%	10.0%	10.0%	20.0%	20.0%	
Target ROE	12.0%	6.1%	8.0% (ii)	6.6% (vi)	3.4%	4.1% (vii)	
Lending rate (iii)	31%	31%	34% (iv)	34%	37% (v)	37%	
Cost / gross income	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	
Loss rate	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
Tax	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
Avg. funding rate (pre-tax) (iii)	1.01%	1.01%	1.01%	1.01%	1.01%	1.29% (viii)	
Interest spread (iii)	2.09%	2.09%	2.43%	2.26% (vii)	2.64%	2.37% (vii)	
Increase in avg. lending rate vs "Current" - in bps			34 bps			56 bps	
Increase in avg. funding cost "Current" - in bps			16 bps			27 bps	

Explanation

"Current" is an illustration of the returns to banks in the current regulatory regime which calculates the maximum funding cost that can be paid, given a leverage ratio of 4.7%, to achieve a target ROE of 12%.

The two other scenarios show what happens if banks increase their leverage ratios from 4.7% to 10% or 20%.

A. "ROE Impact" shows impact on ROE all other things equal.

B. "Yield Adjustment" shows to what level banks' lending rates have to rise to achieve the new ROE target, given unchanged funding costs.

C. "Cost Adjustment" then says: "banks must pass on higher interest income to funding providers, including depositors, to compensate them for the removal of the current subsidy". The target here is to share the increase in interest spread in Step B. - Yield Adjust. on a 50/50 basis between banks and funding providers.

Notes

(i) Actual for UK banks at Sep. 2015; see Financial Stability Report, December 2015.

(ii) Average secured lending rate for UK banks as at June 2015.

(iii) Spread over equivalent maturity swaps. Interest spread is lending rate less max funding rate (pre-tax).

(iv) Target ROE before any other cost adjustments that may be required in Step C, as required rates of returns are lower due to higher leverage ratios.

(v) Lending rate required, ceteris paribus, to achieve target ROE.

(vi) This ROE is achieved when the increase in "interest spread" between Step A. and Step B. is shared 50/50 with funding providers.

(vii) Average interest spread of Step A. ROE Impact and Step B. Yield Adjust.

(viii) Average funding rate in Step C, increases by an amount equal to the decline in interest spread between Step B. and Step C.

Sources: Author's calculations

Box 1. (continued)

- (i) Banks' ROE is lower when leverage ratios are higher, i.e. when they have to hold higher levels of equity capital relative to assets. For instance, a bank with a leverage ratio of 10% would earn an ROE of only 6.1% for the same asset mix and net yields as a bank that earns an ROE of 12% when its leverage ratio is only 4.7% (the UK bank average as of September 2015). This simply reflects the arithmetic result of dividing a fixed profit number by a smaller or larger equity value in the denominator.
- (ii) Banks will seek to increase lending rates⁹⁷ to recover some of this erosion in profitability: for instance, with a 10% leverage target lending rates would have to increase by ca 34bps to 3.4% (+11%) if banks now were to target, say, an ROE of 8% - i.e. lower than the original 12% because better capitalisation means required rates of ROE decline.
- (iii) Finally, banks may have to increase their average funding rates offered to retail and non-retail funding providers as a result of ADI as both counterparties' risk exposure to banks increases in the absence of deposit insurance and the deeper subordination of wholesale funders due to the super-seniority of depositors. The table shows by how much funding costs would have to increase if the incremental lending spread in Step (ii) is shared 50/50 with funding providers – e.g. in the 10% leverage scenario, having increased by 34bps from 2.09% in Step (i) to 2.43% in Step (ii), 50% of this 0.34% increase or 0.17% is paid to funding providers, increasing average funding costs to 1.18%. ROE is reduced to 6.8% – which, as it happens, is approximately equal to the long-term equity risk premium and could be an acceptable target ROE.

⁹⁷ Ultimately banks will think in terms of spreads, not absolute levels, but as Bank of England data provides average lending rates this analysis is undertaken in terms of rates rather than spreads.

Box 1. (continued)

- (iv) The additional impact of a 20% leverage target in this illustrative calculation is relatively minor: as required rates of return decline further due to even lower expected losses – say, to 5% – the incremental impact on lending rates and funding costs should be relatively small.^{98,99}
- (v) These calculations show an impact on average weighted funding costs as this is what matters to banks. An increase in this metric could therefore reflect higher wholesale funding costs (as spreads increase due to deeper subordination) and lower retail deposit costs, e.g. because depositor super-seniority has a greater marginal impact than the abolition of deposit insurance. Nonetheless, higher (and lower) deposit and wholesale costs are also consistent with this analysis.

For consumers, including SMEs, a somewhat higher cost of credit would probably reduce the demand for credit somewhat, i.e. first and second charge mortgages (£1.3trn as at July 2015), credit cards (£62bn) and other unsecured lending (£111bn), as well as loans to SMEs (£165bn), which together represent ca 95% of UK

⁹⁸ As required rates of return fall when equity increases as a % of total assets (i.e. leverage ratios rise), seeking to maintain current ROEs – e.g. 12% - by, for instance, increasing lending spreads significantly is not an equilibrium result (they would have to double in the 20% leverage scenario to achieve this): a competitor could reduce prices consistent with the lower return requirement in this banking world with much less overall leverage, making the pricing structure of a high-ROE bank unviable in the long run.

⁹⁹ Box 1. leaves provision rates (i.e. expected losses) unchanged across all scenarios. This is unlikely to be case if business mix changes due to a change, possibly an increase, in average funding costs as some “super-prime” borrowers with very low loss rates will withdraw from the market. This second-order effect will require its own pricing adjustment, and therefore affect the funding rates banks will have to offer to attract retail and wholesale funding.

GDP (£1.6trn).¹⁰⁰ Lending to larger corporates (£264bn) would presumably also be affected. But some other forms of credit will be unaffected by movements in average funding costs – e.g. subprime lending where the interest rate sensitivity of demand is already very low.

Should demand for bank credit be somewhat lower in aggregate, supply of bank credit will fall too – and lower supply will also reduce demand as credit availability is generally a more important determinant of credit demand than interest rates. Whatever the money-generating powers of fractional-reserve banks are, the withdrawal of a large part of their deposits by risk-averse customers who prefer to deposit their “Core Deposits” with e.g. NS&I or suitably well-capitalised Deposit Banks will leave banks with less liquidity to fund new lending. Over time, banks will be able to create new liabilities with which to fund lending activities, but higher capital ratios will make this itself a process of considerably less scope and magnitude than is possible today. The question is how big this deposit withdrawal could be. This is impossible to answer without understanding how banks will reconfigure their capital structure in response to ADI. For instance, if all banks decided to compete with NS&I on the basis of a comparable “fortress balance sheet” with effective 100%, or close to 100%, capital ratios, they might not lose any deposits. This is in reality unachievable, however, as it would require unrealistic amounts of additional capital or balance sheets reductions: common equity tier 1 capital of the main UK retail banks¹⁰¹ and building societies was £157bn at year-end 2014 compared with £4.7trn of assets: a 100% leverage ratio would

¹⁰⁰ For all of these data points see Bank of England, Money and Credit – July 2015 <http://www.bankofengland.co.uk/statistics/Pages/mc/2015/jul.aspx>

¹⁰¹ HSBC Bank Plc (i.e. the UK arm of HSBC Group), Barclays, Lloyds Banking Group, Santander UK plc, and RBS.

require more than £4.5trn of additional tier 1 capital; it would also have to refinance all depositors as the same assets can't be funded twice. This is not a viable proposition.¹⁰²

It is difficult to estimate what share of their savings and deposits consumers regard as “surplus”, but it is unlikely to be a large number. Average household gross financial assets are £46,600 in the UK, including current account balances of £2,600, savings balances of £16,400 and an average cash ISA value £17,300.¹⁰³ These are not large amounts and net of liabilities they will be lower still. Average values are also not representative of the actual financial wealth of most UK residents: *median* household financial wealth was only £8,100 in 2008/10.¹⁰⁴ This is consistent with the BBA findings that virtually all deposit balances are below the FSCS insurance limit. It seems likely therefore that the vast majority of retail deposits, i.e. more than 90%, are really Core Deposits rather than Surplus Deposits.

When the recent pension reforms came into force in April 2015, conventional annuity sales collapsed – the ABI reports that monthly annuity sales were £315m in April – May 2015 compared with £1.2bn per month in sales at the peak in 2012,¹⁰⁵ a 74% decline. At the same time, sales of income drawdown products (which give beneficiaries significantly more flexibility in how to accumulate and draw down pension savings) increased to £360m a month, 2.6x the monthly sales in 2012. Here the abolition of a statutory requirement (to use defined contribution pension

¹⁰² Nor is the alternative of reducing assets by more than £4.5trn.

¹⁰³ http://www.ons.gov.uk/ons/dcp171776_271544.pdf

¹⁰⁴ Median current account, savings and cash ISA balances were £900, £3,000 and £7,000, respectively.

¹⁰⁵ <https://www.abi.org.uk/News/News-releases/2015/07/100-days-of-pension-reforms>

pots to buy an annuity upon retirement) led to a very substantial change in customer behaviour. It isn't expected that ADI would do this on a similar scale as deposit insurance does not compel depositors to do anything, and its removal therefore does not create new degrees of freedom that didn't exist before. Banks can also counteract incentives to move money to other institutions by strengthening their capital ratios and reducing the riskiness of their business, and this should also mitigate the effect of ADI on deposit withdrawals. Nonetheless, it is expected that over a period of time, including in the run-up to the date of ADI implementation itself, maybe 20-30% of deposits – i.e. £230-340bn – could be moved out of “conventional” banks to other institutions, including NS&I that are perceived to be less risky, or even risk-free. This would be two thirds less than the shrinkage in new annuity sales post-reform (if anyone wants to use this as a benchmark) and still leave a large volume of Core Deposits – £685-800bn vs £1trn today – with conventional banks presumably because these banks are then perceived to be sufficiently strong and well capitalised following their own response to ADI. Of course, withdrawals could be larger and it would be expected that banks would plan for worst-case scenarios – which will encourage the robust approach to capital planning and general strategy that ADI seeks to stimulate.

4.2 NS&I

In this scenario analysis, NS&I (or an equivalent new “zero-risk” deposit taker, whether state-backed or not) would receive £230-340bn of new Core Deposits over a period of time following the announcement of ADI, increasing its balance sheet by a factor of 3-4x; it could conceivably grow over time by much more if bank depositors are more risk averse than assumed here.

At present, NS&I's mission is to provide cost effective retail financing to the government. It lends the proceeds of its savings

and investment products to the National Loans Fund (NLF) which is responsible for all government borrowing and lending activities.¹⁰⁶ NLF's total gross liabilities were £1.7trn as at March 2015 (approximately equal to the UK's public debt), comprising inter alia £1.5trn of gilts, the £123bn of NS&I liabilities and £137bn of other debts (to the IMF, T-bills issued for the Funding for Lending scheme, and other debt).¹⁰⁷

NS&I's net financing requirement for 2015-16 is £10bn compared with £13bn for 2014-15 (it actually raised £18.2bn in that year). This is only a small fraction of the £230-340bn deposit inflows that ADI could generate in the scenario discussed above, although these amounts will appear somewhat less forbidding when compared against the DMO's overall net financing requirement of £123.9bn for the 2015-16 year. If ADI deposit flows to NS&I were merely used to refinance existing NLF liabilities, the total stock of debt would in principle be large enough to absorb any reasonable volume of core deposit transfers from the banking sector to NS&I, albeit only over a period of time. Given the maturity profile of government debt – 20% (£343bn) has a maturity of less than 12 months¹⁰⁸ – a complete refinancing of short-term public debt with “new” NS&I Core Deposits, which will predominantly have very short maturities as well as on-demand features, would also be possible, but again any such refinancing activity at the short end would have to be spread out over a number of years.

In reality, the new NS&I Core Deposits would not have to be used to “finance” anything: NS&I could simply issue (electronic) scrips

¹⁰⁶ The Debt Management Office (“DMO”) is broadly responsible for NLF's wholesale financing requirements.

¹⁰⁷ P.15, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447412/National_Loans_Fund_201415.pdf

¹⁰⁸ P.29, *ibid.*

of paper for these new funds and deposit them in NS&I's reserve account at the Bank of England. Of course, NS&I could agree to use these reserve account balances to settle certain transactions in the same way as other banks use their reserve accounts at the Bank of England – and, if it did so, it would provide “finance”; but it does not have to do so although it might be desirable to, including lending some of it to the government. Precedents in other countries show that non-government asset classes can combine positive, indeed attractive rates of return with extremely low credit risk – the Danish covered bond market is a good example: since its creation in 1795 it has not suffered a single default.¹⁰⁹ Japan's Post Bank, which holds almost £1trn of retail deposits from 2m customers, also invests in a range of assets beyond its traditional holdings in Japanese government bonds.¹¹⁰ In principle, therefore, depositors could be offered a range of investment options to invest their savings balances in a low- or zero-risk way, but one that can yield positive returns.

Implementing a “core deposit” account capability at an institution such as NS&I would be a non-trivial task given the possible deposit and transaction volumes involved. The development of a robust and scalable current account infrastructure is generally complex and costly, and many banks have struggled when trying

¹⁰⁹ <https://www.danskebank.com/da-dk/ir/Documents/Other/Danish-Covered-Bond-Handbook-2013.pdf>

¹¹⁰ 45% of its assets were JGBs as at 30-Sep-15, with the remainder including cash/interbank/securities financing receivables (24%), municipal bonds (3%), corporate bonds (5%), foreign securities (20%), and loans (1%). Post Bank manages a “base portfolio” (72%) that is primarily invested in JGBs and holds assets to maturity to earn a small spread between long- and short-term interest rates; and a “satellite portfolio” (c 28%) which is funded by the base portfolio, with market-rate transfer pricing, and seeks to earn excess returns from a global portfolio of corporate and government securities and loans.

to do so; but it can be done and in the overall scheme of things would be one of the more minor issues that ADI would raise.

The low-risk characteristics of Core Deposits held at NS&I will mean that deposit rates will also be low. They could be zero depending on the portfolio mix of assets held and the yield earned on them – customers may even be asked to pay a fee to cover the fixed and variable servicing costs of the infrastructure to administer these deposits balances. This could be a result not only of the fundamental economic characteristics of NS&I Core Deposits – no counterparty risk, but substantial fixed costs to operate the deposit-taking infrastructures – but also the remit of NS&I which, inter alia, requires it to “*strike a balance between the needs of our savers, taxpayers and the stability of the broader financial services sector.*”¹¹¹ For instance, this requirement forced NS&I to reduce its deposit rates recently to reduce “*bumper inflows of cash*”, and post-ADI it would similarly be necessary to ensure that the cost of the service it provides is fully recharged to customers. It would certainly be logical to argue that customers who move their Core Deposits to NS&I should pay for the elimination of credit and counterparty risk. The lack – despite the ostensible desirability – of clear and transparent charges for personal current accounts (PCA) has been one of the *bête noires* of banking reformers for many years. At present, ca 75% of PCAs are free (or, at least, “free if in credit”/FIIC), but banks recover operating costs through surcharges such as fees for overdraft usage and foreign transaction fees that add up to revenues of £8.7bn.¹¹² On the other hand, customers repeatedly state that they

¹¹¹ <http://www.bbc.co.uk/news/business-34244958>

¹¹² CMA - Retail banking market investigation. Summary of provisional findings, 22-Oct-15, p. 7 (https://assets.digital.cabinet-office.gov.uk/media/5627b571e5274a1329000003/Banking_summary_of_PFs.pdf). The non-FIIC market segment consists of reward and packaged accounts which often charge annual or monthly fees for a wider service offering.

are satisfied with their PCA relationship, which is presumably the main reason why switching rates are so low (less than 3% p.a.) despite the introduction of the CASS in 2013 and the fact that most depositors would, it appears, benefit from doing so.¹¹³

NS&I could respond to these market features by offering very simple, transparent deposit rate and charging structures for its savings and PCA products, seeking to increase customer engagement and hence support switching decisions. At the same time, NS&I would need to take account of other PCA charging structures – if its pricing was systematically and materially inferior compared with other banks, it would presumably not attract many deposits. NS&I could therefore offer positive deposit rates *and* annual account fees, generating low, but clear net deposit and PCA rates. In contrast to conventional packaged accounts, where often rather spurious benefits-in-kind such as bundled insurance policies are offered in compensation for annual account fees, NS&I's "benefit" would be the positive interest rates it offers – which presumably could not be as high as they might be without account fees. A pure fee-based PCA may make its offering uncompetitive, whereas a combination of this with positive interest rates could be a valuable innovation. This could substantially increase competition in the PCA market, a perfectly desirable consequence of the proposals set out in this paper.

4.3 Second Order Impact on Banking Sector

If banks and building societies faced a 20-30% reduction in their deposit base (£230-340bn), somewhat higher funding costs and somewhat lower returns on higher levels of capital, it would be expected that this would have two fundamental consequences:-

¹¹³ Ibid, para 51 (c), p. 17.

- a) **Specialisation:** The asset mix which banks can hold for a given mix of Core and Surplus Deposits will change. It would be expected that institutions would specialise, e.g. by becoming either “Deposit Banks” that hold primarily Core Deposits, or “Lending Banks” which have a much larger base of Surplus Deposits. Deposit Banks would compete more directly with NS&I, charge customers for providing payment services and core deposit infrastructure and invest in assets with very low credit risk, e.g. government bonds, certain asset-backed bonds or central bank reserves. Lending Banks, on the other hand, could advertise themselves as investing specifically in “riskier” asset classes such as secured and unsecured credit, corporate loans and SME credit facilities. If deposit withdrawals are at the level discussed above, Lending Banks would still have a solid retail funding base, comprising either only Surplus Deposits or a mixture of Surplus & Core Deposits (unbeknown to them, of course), but probably no or only much reduced current account balances. As such they might be quite similar to some of the so-called “challenger banks” today.

A very appealing characteristic of ADI lies in the fact that any functional separation within the banking system would arise endogenously as a result of a fundamental re-assessment of individuals’ appetite for risk and the associated oversight requirements. Institutions would respond accordingly to protect their franchises, and this could involve specialisation in one or the other activity, a change to their capital structure, as well as new governance arrangements. In contrast to the Glass-Steagall separation of commercial and investment banking activities, or the retail ring-fence that is being erected in the UK following the recommendations of the Vickers Commission (as implemented in the Banking Reform Act 2013), no statutory instrument prescribing the precise

boundary between permitted activities and those that are not is required. The boundary will establish itself, guided by depositor behaviour, the investment policy of NS&I, and the reality of having to operate with higher levels of capital in order to attract and retain customers and business volumes.

There is a precedent in UK financial history for the “Deposit Banks” that might be a consequence of ADI: Trustee Savings Banks (TSBs). TSBs emerged in the early 19th century to provide, as it was described at the time, low-risk savings vehicles “*for the advantage of the labouring classes and the lower orders of society to encourage habits of industry, economy and sobriety among the poor and labouring population*”.¹¹⁴ The first English TSB appears to have been established in 1807¹¹⁵ but the Reverend Henry Duncan was the driving force with his pioneering TSB in Rutwell set up three years later.¹¹⁶ The Savings Bank (England) Act of 1817 (1817 Act) required trustees to deposit their funds, less amounts needed for day-to-day operations, in an account with the Bank of England administered by the Commissioners for the Reduction of the National Debt (in 1835 this law was extended to Scottish TSBs). Deposits were de facto, if not de jure, guaranteed by virtue of the fact that they were all held in government securities, which continued to be the case until 1976. Because they offered such essential services to the poorer sections of society “*the Imperial Legislature has thought fit to interfere in the details of management to such an extent as to make the [TSBs]*

¹¹⁴ <http://www.savings-banks.com/Who-we-are/History/Pages/HistoryUK.aspx>

¹¹⁵ O. Horne, A History of Savings Banks, Oxford University Press, 1948, review in Economic Journal, Vol 58, No 229 (March 1948), pp118-120 (http://www.jstor.org/stable/2226356?seq=1#page_scan_tab_contents)

¹¹⁶ https://mpra.ub.uni-muenchen.de/804/1/MPRA_paper_804.pdf, p. 5.

*virtually Government institutions.*¹¹⁷ The 1817 Act triggered a wave of new start-ups: 465 savings banks were in operation in 1818,¹¹⁸ and by 1861 there were 645 TSBs with 1.6m depositors and nearly £42m of balances, £92bn in today's money,¹¹⁹ i.e. a very substantial market share. The evolution of TSBs' market position was not without its difficulties: the launch of Post Office Savings Banks in the 1860s introduced a level of competition that slowed down their growth significantly prior to WW1, and a large-scale fraud at a TSB in Cardiff in 1886 undermined confidence in the sector for a time, leading to a greater amount of cooperation and internal supervision among TSBs through the creation of the Trustee Savings Bank Association in 1888. This, and wartime savings initiatives by the government, supported a recovery: by 1944, while the number of TSBs had declined to 88 after closures and mergers, they had 3.9m depositors and £591m of deposits (more than £108bn in today's value). After World War 2, TSBs continued to expand their national presence even as the number of TSBs declined (there were 75 in 1970) and, following the TSB Act of 1976 (1976 Act) (based on the recommendations of the Page Committee on National Savings of 1973), they were merged into 20 (later 17) regional institutions that could offer the same products as commercial banks. They had more than 10 million depositors and 34% of all savings balances held with banks.¹²⁰ These regional TSBs were overseen by a TSB Central Board, which took over the

¹¹⁷ <http://paperspast.natlib.govt.nz/cgi-bin/paperspast?a=d&d=OW18700910.2.2>

¹¹⁸ <http://www.savings-banks.com/Who-we-are/History/Pages/HistoryUK.aspx>

¹¹⁹ Calculated as the same % share of GDP. See http://www.measuringworth.com/ukcompare/result.php?year_source=1861&amount=42000000&year_result=2015#

¹²⁰ <http://hansard.millbanksystems.com/commons/1976/feb/17/trustee-savings-banks-bill-lords>

regulatory and supervisory powers previously overseen by the National Debt Commissioners and Inspection Committee. In 1983 16 TSBs merged into four groups which themselves were finally consolidated into TSB plc in 1986 ahead of its flotation that year.

Since 1817 TSBs had been subject to specific restrictions with regard to how they could invest their customers' deposit balances, with relevant oversight first being discharged by the National Debt Commissioners and then (after 1976) the TSB Central Board. Over time the services they could offer increased, most particularly in the wake of the 1976 Act, and the link between TSBs and the government was loosened¹²¹ and finally, after 1986, broken. In other words, from then on TSBs – or, rather, TSB plc as trustee savings banks had by then become – could invest in a wide range of assets, including loans, and came to resemble clearing banks in most respects, including their ability to offer current accounts. Their “death” was therefore not unnatural when TSB plc was acquired by one of the clearing banks, Lloyds Bank, under the leadership of (then) Brian Pitman.

It is not necessary to have a rose-tinted view of traditional savings banks or similar “mutually owned” financial institutions. They, like joint-stock banks with limited liability, have been subject to fraud and mismanagement over the years, and their track record during and after the recent financial crisis has not been as pristinely perfect as admirers of mutuals may wish: one need only think of the Co-op, or the Norwich & Peterborough, Chesham, Chelsea and Dunfermline building societies to disabuse oneself of such

¹²¹ Clause 12 of the 1976 Act removed the requirement to invest deposits in government bonds (that is, the oversight by National Debt Commissioners).

romantic sentiments. In many cases Deposit Banks would be limited liability companies rather than mutuals unless they are already a building society today. Of interest here is the possible similarity between the *business model* of TSBs, not their ownership structure, and Deposit Banks post-ADI: both would be ultra-save institutions with liquid balance sheets. Deposit Banks could still be run for the interest of their shareholders – this is also what building societies, theoretically if not always practically, do today even if they call the de facto shareholders “members”. Like a utility they would, however, generate low, stable returns from a stable customer base.

- b) **Consolidation:** Higher operating costs and/or thinner margins will increase the minimum efficient scale of production, and only larger banks will have the necessary scale to defray costs in a way that generates an adequate rate of return. This will trigger consolidation among smaller and medium-sized banks. A separation of the banking sector into Deposit Banks and Lending Banks will have a similar effect. Deposit Banks will provide a highly standardised, transaction management and payment service, as well as low-risk investment management, supported by high levels of capital generating low returns commensurate with the risk assumed. In such a commoditised market, the provider with the lowest average cost of production will be highly advantaged vs a higher-cost producer. Over time it will naturally acquire a larger market share which will make it less attractive or indeed unviable for smaller providers to continue to operate. While the complexity and capital intensity of a current account and payment infrastructure will constrain the number of active market participants, experience from other capital-intensive industries offering low (often regulated) returns – e.g. electricity generation, water supply – suggests that a

complete monopoly is unlikely. Instead, a relatively small number of players will likely establish themselves. Lending Banks would be exposed to similar pressures, although lower capital requirements and their greater scope for product differentiation (by choosing different business models & asset specialisations) will facilitate a greater degree of fragmentation and competition.

The dominance of NS&I in the Deposit Banking sector could become a source of concern over time, for instance, if private sector Deposit Banks found it difficult to compete with NS&I due to its state-backing. However, EU and UK competition law¹²² already provides detailed statutory rules for what does, and does not, constitute a permissible activity for a state-owned institution competing with private sector firms, and the proper enforcement of these provisions should secure a level playing field for all firms. The creation of regional NS&I's competing with each other could further provide an effective protection against unwanted dominance by a state-owned monolith.

4.4 Regulatory Consequences

The regulation of banks' capital structure and liquidity holdings is the price banks have to pay for deposit insurance.¹²³ By providing enough loss-absorbing capacity from shareholders the former protects depositors against investment losses, while the latter establishes liquid asset holdings that can be used to satisfy depositor "runs", for instance in response to rumours about losses a bank may be exposed to. Both these requirements had

¹²² Primarily in the Treaty on the Functioning of the European Union, e.g. articles 101, 102 and 107, and the UK Competition Act (1988).

¹²³ See, for instance, Stephen Buser et al, "Federal Deposit Insurance, Regulatory Policy, and Optimal Bank Capital", *The Journal of Finance*, Vol XXXV, No 1, March 1981 http://www.jstor.org/stable/2327463?seq=3#page_scan_tab_contents

to be satisfied at high “adequacy” levels when banks still operated under unlimited liability. However, when limited liability company structures emerged in the second half of the 19th century, no regulatory adjustment was put in place to cover the “insurance gap” that limited liability crystallized for bank creditors and depositors. It was not until the Basel Accord of 1988 (“Basel 1”) that regulators agreed to implement common bank capital standards internationally. The Basel 1 protocol can be traced back to the Herrstatt crisis and the collapse of a number of other financial institutions following the breakdown of Bretton Woods in 1973. This led to the formation of the Basel Committee on Banking Supervision in late 1974 as a forum for the G10 to discuss banking supervisory matters.¹²⁴ In hindsight Basel 1 was a very mechanical system for credit risk management (for instance, every corporate loan had the same 100% risk-weighting and hence capital requirement), and subsequent events have discredited its simplicity.

To be sure, a number of countries had their own individual regulatory requirements that affected banks’ leverage capacity, an example being the “asset-to-capital” rules introduced in Canada in the early 1980s. In the UK there was no statutory regulation of banking until the Banking Act 1979. However, banks had been supervised by the Bank of England for a very long time before then. Its key feature was that it was a qualitative regime based on judgement. In the words of the Bank, it rested on

first, on analysis of [a] company’s annual accounts followed generally by discussions with senior management about the character and quality of the business; and, secondly, on the Bank continuing to inform themselves about the reputation and quality of management. Experience has shown this

¹²⁴ <http://www.bis.org/bcbs/history.htm>

*latter to be a most important factor in the successful conduct of a banking business, where what matters crucially is enjoying and deserving the confidence of both bankers and the public.*¹²⁵

The main thrust of new UK legislation after World War 2 revolved around, not the establishment of minimum performance criteria for banks to be allowed to accept deposits, but the definition of, and legal categories involving banks. A number of such categories were defined through the Bank of England Act 1946, the Exchange Control Act 1948 and the Companies Act 1948 which in general established that as long as a deposit-raising entity was under the supervisory control of the Bank of England it was a bank. However, it was also possible to raise deposits as a non-bank, and in part this was encouraged to foster greater competition among banks. These institutions were outside the Bank's supervisory remit. As will be discussed below, confusion about what a "bank" was caused problems later, especially during the Secondary Banking Crisis in 1973-75.

The financial crisis of 2007-09 has led to a very comprehensive reorganisation of the regulatory infrastructure, culminating in the new Basel 3 regulatory regime for banks. In the EU it has been rolled out through the Capital Requirements Directive IV (CRD IV), a legislative package consisting of the Capital Requirements Directive (2013/36/EU) (CRD), which is implemented through national law, and the Capital Requirements Regulation (575/2013) (CRR), which is directly applicable to firms across the EU. CRD IV covers four main areas:¹²⁶

¹²⁵ <http://www.bankofengland.co.uk/archive/Documents/historicpubs/qb/1978/qb78q2230239.pdf>, p1.

¹²⁶ <http://www.bankofengland.co.uk/pru/Pages/crdiv/default.aspx> CRD IV also makes changes to rules on corporate governance, including remuneration,

- The quality and quantity of capital;
- Liquidity and leverage requirements;
- Rules for counterparty risk; and
- Macro-prudential standards including counter-cyclical capital buffers and capital buffers for systemically important institutions.

CRD IV is a voluminous piece of legislation. CRD consists of 165 articles and 99 pages, CRR comprises 521 articles and 337 pages. PS7/13, the PRA policy statement with which CRD IV was implemented in the UK, is 470 pages long, and this does not include a raft of detailed provisions, e.g. relating to capital buffers, certain elements of pillar 2 capital requirements, and remuneration that were only implemented in subsequent policy statements. PS11/15, which sets out the PRA's final liquidity rules (including for the Liquidity Coverage Ratio/LCR), is 49 pages long. These regulations mean that firms are subject to extremely detailed supervision in all aspects of their business. Anyone who has ever gone through an ICAAP process, or prepared an ILAA, knows how extremely complex, voluminous and time-consuming preparation of, and compliance with, these capital and liquidity requirements is. Those who then also have to deal with the detailed risk management, governance and remuneration rules, whose purpose is to constrain and manage risk – to which ultimately depositors and the state are exposed to – can't be faulted if they occasionally have a Bruce Chatwin moment: *What am I doing here?*. To be clear: no-one should feel too sorry for

and introduces standardised EU regulatory reporting – referred to as COREP and FINREP. These reporting requirements specify the information firms must report to supervisors in areas such as own funds, large exposures and financial information.

the protagonists in this dance. Bankers are well paid,¹²⁷ have presumably chosen their profession voluntarily and can (indeed, should) find themselves something else to do if they don't like their work environment. But high pay has been a reflection of, and has been permitted by, a regulatory regime which, until not so long ago, has allowed banks to operate at levels of profitability that are unusual for businesses of their size and maturity. The abolition of this regulatory regime would re-establish a more appropriate balance of power in the banking world, and in the process make everyone better off – except those individuals who were overpaid before, but even they won't suffer that much if they assess the value of their banking labour on a lifetime basis.

Under ADI banks would face the prospect of losing their deposits to Deposit Banks (including NS&I) unless they can show that the risk of loss to depositors is negligible. As argued above, this will encourage banks to hold substantially higher levels of capital than they do currently; if they do not, they could go out of business. In this environment the fundamental rationale for the current regulatory regime disappears: it is not necessary to enforce minimum levels of capital and liquidity holdings because the competitive dynamics established by at least one large provider operating with an effective 100% capital ratio will force all other banks to offer appropriately comparable levels of protection to depositors to remain viable. In the first instance, this will be inevitable for Deposit Banks who compete directly with NS&I. Ultimately, it will also force Lending Banks to reduce the riskiness of their business if they want to be able to attract sufficient Surplus Deposits for their lending and investment

¹²⁷ Anyone who has ever studied the way the contribution of the banking sector to Gross Value Added in the national income accounts is calculated will understand that high pay has nothing to do with high, risk-adjusted productivity.

operations. Higher capital levels will be the price banks have to pay for ceasing to pay premia to the state for insuring undercapitalisation.

This suggests that there is no substantive place for the Basel 3 / CRD IV regime post-ADI because the current regulations protect an insurance function provided by the state. If this is removed, the primary rationale for such regulation by the state disappears as well. Many will argue that this is completely reckless – does not ADI make regulation *more*, not less important? This overlooks the essential economic purpose of the ADI proposal: the pricing and allocation of risk in the financial system needs to be more effective, and prices paid for services provided should reflect long-term default risks. All protagonists in the banking world need to be incentivised to review fundamentally the way they evaluate, measure and price risk, and this applies to depositors as well as other bank counterparties and shareholders. The history of banking crises in the last few decades suggests that capital requirements under CRD IV may still be too low. No other policy will be as effective as ADI in forcing market players to review the capital structure of their operations in order to remain profitable, stable, going concern entities. Maintenance of CRD IV would unnecessarily restrict the range of possible outcomes, and might result in capital ratios that are *too low* compared to where a “free market” would establish them.

Depositor preference, which was introduced in the Banking Reform Act 2013, is an important component of ADI. While the rationale for its introduction was that the FSCS should rank preferentially in an insolvency hierarchy to maximise recoveries, the same rationale applies when deposit insurance is abolished – i.e. when depositors individually insure themselves. Indeed, depositor preference can be used by banks to argue that their capital ratios should be “lower” than NS&I’s or some other

“extremely well capitalised” competitor because it increases the loss-absorbing capacity available to depositors very substantially vis-a-vis other creditors. Clearly this will increase wholesale funding costs, especially for senior unsecured debt, but the elimination of cross-subsidies to other, uninsured depositors is one of the reasons ADI is such commendable scheme.¹²⁸ One other advantage of depositor preference, and therefore a reason to maintain it, is that it secures the continuous functioning of the payment system – as depositors can be paid out early, rather than at the end of an insolvency proceeding, this will provide the liquidity necessary to translate a given stock of money in an economy into transaction volumes that support production and growth.

ADI should also not affect *disclosure requirements* and indeed the current system would be much clearer if public disclosure requirements for banks were more stringent and clearer.¹²⁹ The clear disclosure of banks’ capitalisation and the size of their liquidity buffers or LCRs would become much more important than it already is today as it will serve as an important device for customers to form appropriate risk assessments of the banks they are considering engaging with. For instance, and as argued

¹²⁸ The government’s impact assessment suggested that “*the aggregate private cost of depositor preference to UK banks will be in the range of £200-380m p.a.*”, hardly earth-shattering amounts. See para 59, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/271115/Final_IA_-_ring-fencing_and_depositor_preference.pdf

¹²⁹ For instance, banks are not required to disclose publicly their Individual Capital Guidance (ICG) uplift, which can range from 100-200%+ of Pillar 1 requirements and are set by the PRA on an entirely discretionary basis. The size of this ICG uplift means that it can comprise a very large proportion of the total capital requirement of a bank. For some reason, however, banks are legally prevented from disclosing it. The PRA has recently reviewed Pillar 2 capital adequacy rules and a new regime has come into force in January 2016, but it does not involve public disclosure of ICG uplifts. See <http://www.bankofengland.co.uk/pr/Pages/publications/ps/2015/ps1715.aspx>

above, disclosure of banks' leverage ratios should become much more prominent, and banks will find that disclosure of other key performance metrics, demonstrating the strength of the institution, will become helpful in attracting and retaining customers on economically attractive terms. This incentive will likely become sufficiently powerful to replicate the purpose of the current regulatory regime without that regime remaining in force.

These considerations culminate in two fundamental observations:

- 1) While the existing regulatory regime should cease to remain legally binding (whether directly in statute or via the PRA's Handbook), banks and firms currently covered by it can, and probably will, chose to continue applying its calculations and disclosure regime. This will be necessary to provide adequate assurance to customers and counterparties that they are dealing with a healthy institution.
- 2) The incentive for banks then to re-create and re-apply a new (or, indeed, the current) regulatory regime as part of a mutual guarantee scheme (the "Mutual Guarantee Scheme" or MGS) whereby they insure each other's deposit liabilities subject to certain membership rules is likely to be very strong. Such a scheme could provide additional comfort to customers that banks are financially sound, thereby reducing the funding costs to banks as well as, possibly, the levels of capital they have to hold at all times. Access to a larger pool of loss-bearing capital would permit participating banks and their customers to benefit from higher levels of "insurance protection" than is available from their individual capital bases only. In return, member banks would have a very strong interest to ensure that all other participants in the guarantee

scheme “behave well” by running their businesses prudently with high levels of capital and liquidity.

Our current experience dictates that deposit insurance must be a state-backed arrangement. However, some of the most successful early insurance programmes were not state-backed at all, but mutual guarantee schemes – like the original Canton Guarantee System. Most notably this was the case in three US states in the mid-19th century: Indiana (1834-64), Ohio (1845-67) and Iowa (1858-65).¹³⁰

In Indiana liabilities of failed banks that were not covered by their own assets were redeemable in full by surviving banks. The system was supervised by a board of bankers with broad powers to investigate member banks (at least once every six months) and close them with a two thirds board majority, without recourse to the courts. The board could also impose limits on the volume of members’ assets relative to capital, i.e. impose a minimum leverage ratio in today’s parlance. While self-governance by participating banks provided a strong incentive for enforcing good behaviour, there were additional regulatory restrictions that applied to member banks. For instance, dividend payments, loans to directors and bank executives, interest rates, and large exposures (loans in excess of \$500) were all regulated. In the event of bank losses, shareholders were liable for exposures up to twice the amount of paid-in capital, and officers and directors of banks were assumed to be guilty of fraud unless proven

¹³⁰ See Charles Calomiris (1989), “*Deposit insurance: Lessons from the record*”, at www.chicagofed.org for a detailed discussion of these and other successful and unsuccessful deposit insurance schemes, and the following paragraphs draw on this analysis.

innocent – and if proven guilty faced unlimited liability. As Calomiris concludes:¹³¹

The Indiana system was well conceived. Its coverage was thorough (until 1851) and credible. It established strong supervisory authority to eliminate the problem of moral hazard, and gave that authority to the banks themselves, which (because of mutual liability) had an incentive to implement it properly. The board was quick to take disciplinary action to enforce compliance and corrected problems before they threatened bank solvency. [The] system was extraordinarily successful. During its thirty years of operation no insured bank failed, and only one was briefly suspended at the behest of the board in response to perceived irregularities in its loan portfolio. [It] weathered the Panic of 1837¹³² admirably even though the Panic came only three years after the system was created. The mutual-guarantee provision removed the dependence on pre-existing funds that proved fatal [for other systems, such as Michigan's].[...] When the regional panic of 1854-1855¹³³ hit, the insured banks all survived without suspending convertibility, while 55 of Indiana's 94 newly created free banks [not benefiting from a similar mutual insurance arrangement] failed.

Ohio's mutual insurance scheme was equally successful thanks to its very capable management by a State Board of Control which had virtually unlimited power. Member banks were subject

¹³¹ Ibid., p.16.

¹³² A banking crisis that triggered a recession in the US that lasted until the mid-1840s.

¹³³ A crash mainly in the Midwest brought about by rapid growth & subsequent collapse in money supply generated by private banks printing their own currencies backed by state bonds.

to minimum liquidity requirements (30% of outstanding notes), minimum capital requirements (70% of outstanding notes) and had to deposit assets equal to 10% of their outstanding notes with the Board as a “safety fund”. The Board could compel banks to reduce their balance sheet, close or recapitalise banks or force them to support each other in times of crisis. It did so to great effect during the Panic of 1857 which was triggered by the fraudulent collapse of the Ohio Life Insurance and Trust Company and threatened a run on other Ohio banks (and did lead to a run on some banks in New York). The Board arranged a series of mutually guaranteed interbank transfers, backed by collateral, which kept the payment system open. Even uninsured banks were offered this assistance. Only one bank failed during the crisis, an outcome made more impressive by the fact that many Ohio banks had kept substantial deposits with Ohio Life. The Board intervened here directly by ordering the transfer of assets from Ohio Life to its depositor banks to protect their exposures, and some of these were then liquidated to keep banks afloat during the crisis.

Iowa’s bank insurance legislation, enacted in 1858, was the last such scheme in the pre-Civil War period in the US and had many of the same features as Ohio’s. It was the most comprehensive scheme with full coverage of all banks. During its 7 years’ of operation no bank failed.¹³⁴

The natural incentives for UK banks to establish a MGS post-ADI are likely to be extremely strong for the same reasons that once

¹³⁴ The origins of the Danish covered bond market are themselves an illustration of the value of “mutual insurance” – the mortgage association formed by Danish lenders to provide funding to rebuild Copenhagen after the devastating fire in 1795 operated on the basis of joint and several liability. This secured the basis for a very tight risk management framework for the benefit of bond investors.

suggested that sovereign deposit insurance is a good idea. A contagious bank run could prove catastrophic for perfectly healthy banks, who would therefore want to minimise their exposure to such an eventuality. This will best be done by imposing a certain financial and commercial discipline on other banks through a system of mutual insurance and supervision. Banks will find that this would help establish a level of trust in the financial solvency of banks that is important for a smooth operation of the inter bank market and the settlement function that deposits perform in it. The importance of this function of insured deposits has sometimes been used as an argument against the abolition of deposit insurance.¹³⁵ A MGS, and the performance requirements and supervisory powers that would go with it, would be a natural device to deal with this issue post-ADI. The government could force banks to roll out such a scheme, but this should not be necessary. It would suffice, in this author's view, to suggest to the British Bankers Association, which has more than 200 members that together include 80% of global systemically important banks, to develop a scheme – maybe with some indication that if they don't, the government will ask them with a little bit more insistence.

What form such a MGS should take, what rights it should award to its board and what specific requirements it should impose on its members need not concern us here, but three key points are worth making:

- It would be surprising if Deposit Banks permitted Lending Banks to join their MGS unless their risk profile was equivalent to that of the other members. In other words it is likely that there would be at least two MGS', one for Deposit Banks and one for Lending Banks (and possibly others). This would be a

¹³⁵ See, for instance, Independent Commission on Banking, Final Report, p.101.

perfectly manageable state of affairs and would mean that all of an individual's deposits would benefit from some, but not identical mutual insurance. It would then need to be ascertained, with the help of the simple, clear disclosures that ADI encourages, what the value of such insurance is.

- MGS members need to be liable for losses on a joint and several basis, i.e. members are exposed to unlimited liability in the event of a crisis.¹³⁶ This is required as limited liability would recreate, albeit on a larger scale, some of the limitations of deposit insurance as currently operating in many countries, including the UK, given the way insurance premia are funded.
- Partly because of joint and several liability, MGS' would impose a range of operational and financial requirements on its members, and these may well be very similar to the current regulatory regime. Indeed, the MGS could simply take the existing rulebook and make it the rulebook of the MGS if it so wished. This could be reassuring to customers, financial markets counterparties and the government. The MGS for Deposit Banks would probably have to have more stringent quantitative restrictions than the MGS for Lending Banks, e.g. an outright prohibition on certain (all?) types of unsecured or certain types of secured lending, etc. so as to provide adequate protection for Core Deposits. Competition with NS&I will establish the requirements for this. Deposit Banks that are found to be in (persistent?) breach of such quantitative restrictions would cease to be members of the MGS for Deposit Banks, and could become members of the MGS for Lending Banks. No bank would want to be expelled in this way as it could trigger a potentially disastrous crisis of

¹³⁶ Liability is unlimited for the institution, not its shareholders of course.

confidence, i.e. one would expect MGS membership to be a powerful incentive for prudent commercial behaviour.

The board of an MGS for Deposit Banks may well remind the older generation of UK depositors of the TSB Central Board that was established by the 1976 Act. This Central Board had wide powers. It could “*give directions of a general character to the trustee savings banks as to the carrying on by [them] of their activities*” and “*give directions [...] to be adopted by them in the operation of banking services, the manner in which funds are to be raised, expended, allocated to reserve and invested and the rates of interest to be paid on deposits*”. It could remove trustees, force a winding-up of a member bank, approve mergers and inspect each member’s accounts. Generally it could “*carry on all such activities as may appear to them to be requisite, advantageous or convenient for them to carry on for or in connection with the discharge of their powers and duties*”.¹³⁷ The Central Board was not explicitly set up to “bail out” member banks, or generally to perform the functions that a central bank may perform today, e.g. a Lender of Last Resort (LOLR) role. It is clear though that the wide-ranging general powers it had would have permitted it to intervene aggressively in the affairs of a particular, possibly impaired bank. Nonetheless, without its own capital base, it would presumably not have been able to do anything other than close a failing bank and, pursuant to clause 65 of the 1976 Act, distribute “*any surplus moneys remaining in the hands of the trustees, after providing for the sums due to depositors [...] among such other trustee banks as the Central Board think fit*.” This was a reasonable set of provisions, but falls short of the kind of cross-guarantee that we have in mind via an MGS. Depositors did not enjoy *insurance cover* through the

¹³⁷ Part 1.5, Trustee Savings Banks Act 1976. http://www.legislation.gov.uk/ukpga/1976/4/pdfs/ukpga_19760004_en.pdf

Central Board, and TSBs did not face joint and several liability in respect of other TSBs' losses. Depositors had a first claim on certain "closed funds" held in TSBs, but these were limited and not replenished on a regular basis. The Central Board could have imposed requirements on members banks to create such an insurance scheme, or capitalise themselves in such a way as to make it unnecessary. Crucially, the restrictions imposed on the assets that TSBs could invest their customers' deposits in (as set out, for instance, in Schedule 3 of the 1976 Act) made such capital requirements less – if not un- – important than if such restrictions had not existed. In this way the regulatory framework as set out in the 1976 Act, and the role played by the Central Board, was not dissimilar to what an MGS might seek to achieve.

Mutual Guarantee Schemes would be an elegant and effective solution to many issues that cause a lot of people across all branches of the political spectrum various forms of aggravation: they would force banks to hold a lot more capital; they would make those running the "system" responsible for its solvency with no recourse to the state and taxpayers; they would curtail the influence of government and what is often perceived to be a capricious regulatory apparatus; they would increase risk awareness among all stakeholders, and spread risk and rewards equitably across the industry (i.e. borne by those who make the associated investment decisions); they permit a wide range of evolutionary developments in the banking sector, with all of these being a function of what banks and their customers deem sensible; and, last but not least, they could support a spirit of engagement and responsibility that is more likely to emerge in an environment where losses are highly personal experiences of "member banks" and their customers rather than abstract book entries in the national income accounts and the government's balance sheet whose ultimate pain is borne by some invisible person in, say, the North of England or South Wales.

MGS' would develop their own membership rules which have to be satisfied by all members. Capital adequacy rules will be one important set of such membership requirements, but there would be many more. Applicants for membership – whether existing or new banks – would have to demonstrate that they can satisfy these requirements at all times. This means that new bank authorisations would cease to be the responsibility of the PRA¹³⁸ and become that of the MGS, consistent with the perfectly obvious principle that the membership committee in charge of drafting the rules should also oversee admission (and expulsion) of (new) members. Thus, some existing supervisory rules would only survive if adopted by the MGS'. For instance, the PRA's remuneration rules for all "material risk takers"¹³⁹ would have to become those of the MGS, but be disapplied otherwise as the risk exposure of the relevant regulator would be that of the MGS, not the Bank of England / PRA. It could make sense, however, for the Bank of England to participate in MGS' *qualitative* assessment of whether bank executives and shareholders are "fit and proper". This regime was replaced by the "approved persons" regime in July 2015¹⁴⁰ and currently requires firms to obtain regulatory approval for senior executive and non-executive appointments. It is similar in intent, if not in form, to the way the Bank of England used to assess "*the reputation and quality of management*" of banks, raising its institutional eyebrows if necessary. Such a non-technical assessment and approval process could be an important counterweight to the technical evaluation of MGS members by the boards of MGS'. If MGS' adopt such a review and approval process, Bank of England participation

¹³⁸ <http://www.bankofengland.co.uk/pr/Pages/authorisations/newfirm/default.aspx>

¹³⁹ <http://www.bankofengland.co.uk/pr/Pages/publications/ps/2015/ps1215.aspx>

¹⁴⁰ <http://www.bankofengland.co.uk/pr/Documents/publications/ps/2015/ps1615.pdf>

in it could ensure that the regulatory regime overall is politically acceptable and robust: i.e. by requiring a consensual approval of individual managers and non-executives by an MGS and the Bank of England, the Bank of England could retain a useful substantive involvement in the post-ADI supervisory regime without interfering in or undermining (i) the principle of ADI, (ii) the responsibility of banks to look after their own affairs, and (iii) the responsibility of MGS' to police their members. It does not have to be this way – a world could be imagined in which the Bank of England would not be involved in this qualitative oversight – but it seems to be a sensible thing to consider.

Other elements of the current regulatory regimes can survive ADI. For instance, consumer protection rules and the areas of supervision controlled by the Financial Conduct Authority (FCA) can continue to apply as they do today.¹⁴¹ In principle, the protection provided by the FSCS to customers of insurers, insurance brokers, investment firms, pension providers and other such firms that are in default can continue, if this is deemed desirable. The Bank of England could remain responsible for the supervision of markets and financial market infrastructure, i.e. recognised payment systems, securities settlement systems and central counterparties. As these functions are critical for the operation of all market participants, whether members of an MGS or not, it makes sense for the Bank of England to remain responsible for their smooth operation.

The Bank of England's 'Lender of Last Resort' function should in general remain unaffected by ADI, or the development of MGS among UK banks. It would remain just that – the lender that banks could approach if all else fails as it were. Bagehot's rule of "*lending*

¹⁴¹ One day they would probably benefit from a comprehensive review as well, but this is outside the scope of this paper.

early and freely (i.e. without limit), to solvent firms, against good collateral, and at high rates” should remain in operation and indeed the financial crisis has shown that occasionally it makes a lot of sense to extend the pool of eligible collateral. This LOLR function would be truly last-resort nonetheless, and it would be straightforward to adapt the Bank of England’s LOLR policy to accommodate a first-loss exposure / first-LOLR responsibility by a new MGS. In other words, the Bank of England LOLR responsibility would become a ‘LOVLR’ responsibility – “*Lender of Very Last Resort*” – as the MGS would assume primary LOLR functions.

The Bank of England’s regime for the resolution of failing banks and building societies¹⁴² can in principle also survive. To be sure, a number of its provisions would have to be amended e.g. to ensure recourse to a depositor insurance scheme ceases to be available or certain other functions are only exercised by the PRA (or the Bank of England), if at all, once the MGS has exhausted the steps it is entitled and required to take to resolve a failing member bank. But the basic structure of a resolution regime can remain; it is the allocation of responsibilities that would change in that the current resolution regime would be a final, last resort scheme, i.e. it could and would only be used once all other resolution regimes have been exhausted. This is merely another way of saying that the boards of the MGS’ would find it beneficial to adopt their own resolution regimes for failing member banks.

One structural reform programme that would become redundant post-ADI is the ringfencing of core financial services and facilities (by banks with deposits of more than £25bn) as recommended by the Vickers commission and implemented by the Banking Reform

¹⁴² <http://www.bankofengland.co.uk/financialstability/Documents/resolution/apr231014.pdf>, implementing the EU’s Bank Recovery and Resolution Directive (“BRRD”) from 1 January 2015.

Act 2013. The purpose of ringfencing is to “protect [banks] from shocks that originate in the rest of their banking group or the financial system in order to minimise disruption to the continuity of the provision of core services....and to ensure that [ring-fenced institutions] can be resolved in an orderly manner with minimal disruption to the provision of core services.”¹⁴³ These core services, as defined by the Banking Reform Act 2013, are:-

- facilities for the accepting of deposits or other payments into an account which is provided in the course of carrying on the core activity of accepting deposits;
- facilities for withdrawing money or making payments from such an account; and
- overdraft facilities in connection with such an account.

These would be the core services provided by a “new” NS&I post-ADI and other Deposit Banks; they would include overdraft facilities up to limits which are compatible with the low-risk approach to asset and investment management that characterises Deposit Banks such as NS&I (and bank losses on overdrafts have historically been minimal and covered by overdraft fees). The separation of core from non-core banking services, and the low-risk, or even risk-free provision of the former, will be a natural consequence of the ADI scheme proposed here. It could mean, for instance, that the “ringfencing” of Barclays’ UK retail banking activities will be completed in order to create a Deposit Bank, although this could then require a complete spin-off of these operations. Nonetheless, the implementation of ringfencing as currently conceived would become unnecessary.

¹⁴³ <http://www.bankofengland.co.uk/prd/Pages/supervision/structuralreform/default.aspx>

Macro-prudential supervision is another regulatory remit that would change somewhat. The Financial Policy Committee (“FPC”) was established in April 2013 with the “*primary objective of identifying, monitoring and taking action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system*”.¹⁴⁴ Subject to that, it has a secondary objective of supporting the economic policy of the government. The FPC has been responsible for implementing a new framework for the leverage ratio for UK banks and building societies, can set sectoral capital (countercyclical capital buffers) and liquidity requirements, and impose volume, price and underwriting restrictions on various forms of bank lending.¹⁴⁵ For instance, it issued such guidance with respect to mortgage affordability stress tests in June 2014. It is also monitoring activities and potential systemic risks in the non-bank financial system (e.g. hedge funds, insurers, etc.) and non-financial risks to financial stability.¹⁴⁶ Post-ADI the FPC could simply add the board of MGS’ to the list of bodies to whom it can issue recommendations, whether on a ‘comply or explain’ basis or not. This would ensure that oversight and supervision of the banking system remains with the relevant authority (the MGS), while the FPC can intervene if macro-prudential considerations warrant it. However, the MGS should have primary responsibility for setting any particular capital requirements for individual member banks.

¹⁴⁴ <http://www.bankofengland.co.uk/financialstability/Pages/fpc/default.aspx>

¹⁴⁵ Generally, it can (i) give *directions* to the PRA or FCA (ii) make *recommendations* to other bodies, e.g. industry representative bodies such as the BBA, to take certain measures on a “comply or explain” basis or (iii) make such recommendations without a ‘comply or explain’ basis. See <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2013/qb130301.pdf>, p. 4.

¹⁴⁶ <http://www.bankofengland.co.uk/financialstability/Documents/fpc/letters/governorletter110815.pdf>, p.4.

To the casual, and possibly non-casual reader as well, the “abolition of the Basel 3 / CRD IV regulatory regime for banks” may appear to be a manifestation of complete madness. Did not a lack of regulation contribute to the banking crisis in 2007-09, and indeed earlier ones such as the Secondary Banking Crisis of 1973-75 or the S&L crisis in the US in the 1980s? Without regulation, will banks – and, indeed, “shadow banks” – not go off the rails completely, causing more crashes and higher economic volatility generally? How does it address the “too-big-to-fail” problem? Most fundamentally, why does ADI have to involve the abolition of the current regulatory regime – does not the absence of deposit insurance make it even more important that banks are well regulated and well capitalised? And, finally, abolishing CRD IV would require a change in EU law and is therefore realistically impossible.

The author would respond to these points as follows:

- 1) Regulatory failure did indeed contribute to the 2007-09 crash and earlier banking crises. The Secondary Banking crisis in 1973-75 was caused by an unclear definition of “banks”, which were subject to Bank of England supervision, and other deposit-taking institutions that were not subject to such supervision and therefore, for regulatory purposes not banks, even if the public perceived them as such.¹⁴⁷ This permitted

¹⁴⁷ These so-called “Section 123” or “secondary” banks derived their name from Section 123 of the Companies Act 1967 which enabled the Board of Trade to certify certain companies as bona fide carrying out the business of banking without it being empowered, however, to regulate them. In a system where admission as a “bank” under the Bank of England’s supervisory remit was based on judgemental tests of quality and repute, the purely functional rather than qualitative definition of a bank under Section 123 of the 1967 Companies Act allowed smaller, weaker firms to be categorised as banks when the Bank of England would never have done so. See <http://www.bankofengland.co.uk/archive/Documents/historicpubs/qb/1978/qb78q2230239.pdf> for a detailed summary of the crisis and its regulatory origins. Today (since the Banking Act 1987) only “authorised institutions” are permitted to accept deposits, and this

explosive growth by these fringe institutions, which ultimately led to their failure, causing tremors among banks proper some of whom had built up significant exposures to these fringe banks. Likewise, Basel 2 was a poorly designed regulatory system, and in particular in the securitisation and structured finance markets it was exploited, quite understandably if not always ethically, by profit-seeking individuals and institutions in search of the last £1 of profit. ADI, by contrast, applies one of the main lessons of the crisis: the best protection against expensive banking crashes stems from a combination of high levels of loss-absorbing capital and better risk management by all bank stakeholders, including their management teams and customers. This is what ADI will encourage. It does not eliminate regulation but shifts it, via MGS', to the banks themselves who have sole joint liability with respect to the failure of a member institution. Competition from NS&I will exert a powerful force over other banks' financial and regulatory incentives. This will create a stronger, more resilient financial system.

- 2) John Kay's narrow banking proposal (and Laurence Kotlikoff's 'limited purpose banking' scheme) has been criticised, inter alia, for exacerbating the volatility in the supply of credit to the real economy¹⁴⁸ as credit would have to be funded through the wholesale and securitisation markets (all retail deposits are in narrow banks and backed entirely by "genuinely safe liquid assets" and therefore not available to fund credit),¹⁴⁹ and

makes a repeat of the Secondary Banking Crisis basically impossible - but see further in the text for a discussion of the shadow banking market. Investor confusion about what really a bank is remains possible, of course.

¹⁴⁸ Adair Turner being a main critic along those lines. See e.g. https://www.cass.cit.ac.uk/_data/assets/pdf_file/0006/77136/Adair-Turner-March-2011.pdf

¹⁴⁹ See John Kay, <http://www.johnkay.com/wp-content/uploads/2009/12/JK-Narrow-Banking.pdf>, p.58.

wholesale funding markets are highly volatile, as shown in the 2007-09 crisis. In an ADI world, by contrast, the higher capital base that Lending Banks would have to have in order to attract and retain deposit, or act as a credible counterparty in the interbank and wholesale markets, should make lending less volatile, not more. There is nothing intrinsic in “wholesale funding” that makes it more fickle than retail funding – except that, to the extent it involves more knowledgeable investors, they may respond to a heightened prospect of default earlier than the average retail punter. But this merely shifts “the problem” to retail investors without eliminating it. Unlike narrow banking proposals, ADI does not prescribe how deposits shall be “backed”, and any form of lending can continue, and continue to be funded in a variety of ways, provided the relevant institution has the confidence of its customers and counterparties. Lending Banks would continue to have deposit funding, but clearly a greater share of lending activities would be funded in the wholesale markets than today (at least in the UK). If in such an ADI world lending volumes are on occasion “volatile”, as they undoubtedly will be, then so be it: ADI cannot, nor does it seek to, end the economic cycle or credit supply volatilities. Increases and declines in lending volumes will reflect evolving risk premia which should be more accurately set than they are under the current regime.¹⁵⁰ Furthermore, since in aggregate total lending volumes, leverage and lending growth may be lower post-ADI, any volatility in lending should have less amplitude and smaller economic consequences than is the case today or pre-ADI.

¹⁵⁰ CDS spreads for major banks reached historic lows in the summer of 2007 just before the crisis erupted. This mis-pricing of default risk should be substantially mitigated, if not eliminated, post-ADI.

- 3) A related “fear” is the systemic risk posed by shadow banks – post-ADI, these would include, commercially if not necessarily regulatorily, Lending Banks, as well as non-bank lenders. The shadow banking sector was a critical player in the 2007-09 financial crisis, and has grown significantly since then as banks have retrenched and other institutions such as insurers and asset managers have launched direct lending businesses. However, provided capital levels in shadow banks are appropriately high (and maturity mismatches are manageable), they should not constitute a significant systemic risk whether or not they are technically “banks”. ADI is designed to encourage these levels of capitalisation, and it will do this more effectively than the current regime with deposit insurance by establishing minimum levels of acceptable capital and acceptable asset compositions in one part of the system that is a direct competitor with shadow banks.¹⁵¹ While it is true that high(er) capital levels do not necessarily eliminate linkages between shadow and “real” banks, or, in an ADI world, between Lending Banks and other lending institutions and Deposit Banks, the competitive dynamics that Deposit Banks will face should make such linkages expensive as direct exposures to non-Deposit Banks will be capital intensive. This should discourage the development of extensive linkages (although without eliminating them entirely), in contrast to the pre-2007 period when a large number of “shadow banks” were sponsored by banks, and folded back into them when the first signs of troubles emerged – indeed this is what propagated the crisis so catastrophically into the banking system due to

¹⁵¹ Many central banks are, of course, considering much tighter regulation of shadow banks, a process coordinated internationally by the Financial Stability Board – see e.g. <http://www.financialstabilityboard.org/2015/11/transferring-shadow-banking-into-resilient-market-based-finance-an-overview-of-progress>.

what then turned out to be its undercapitalisation. Post-ADI, there can still be a melt-down in the shadow banking world, but if the linkages to the deposit-holding part of the system are limited and higher capital levels reduce the expected loss of propagation across different segments of the system, then the economic consequences should be a lot less painful.

- 4) In November 2015 the FSB published a set of policy measures to deal with the risk of failure by G-SIBs which in particular established a new minimum standard for total loss-absorbing capacity of 16-18% of RWA,¹⁵² reflecting each G-SIBs' recovery and resolution plans, their systemic importance, business model, risk profile and organisational structure. European G-SIBs also have to satisfy EU minimum requirements of own funds and eligible liabilities (MREL) in line with BRRD requirements and the EBA's regulatory technical standards, and these have to be consistent with TLAC standards, but are ultimately set by the EBA on a firm-by-firm basis reflecting institutions' of a specific resolution plans. The jury is out whether these comprehensive and complex measures will solve the too-big-to fail (TBTF) problem. The answer to this question is likely both yes and no: yes because the capital requirements for G-SIBs are very substantial and significantly higher than under CRD IV; no because only a very small number of banking groups are classified as G-SIBs (30 at the last count in November 2014);¹⁵³ there is a large number of large, non-G-SIBs – think of the Nationwide Building Society as an example – whose failure could have extremely serious

¹⁵² The minimum Pillar 1 TLAC requirement; this does not include additional (Pillar 2) regulatory capital buffers. See <http://www.financialstabilityboard.org/wp-content/uploads/TLAC-Principles-and-Term-Sheet-for-publication-final.pdf>

¹⁵³ <http://www.financialstabilityboard.org/2014/11/2014-update-of-list-of-global-systemically-important-banks/>

ramifications and which would almost certainly not be permitted by the authorities: NABBSTBTF – not as big but still too big to fail.

Theoretically ADI eliminates the TBTF problem by ruling out interventions by the authorities to prevent depositor losses. This strict, narrow interpretation of the scope for permissible interventions would conclude that institutions are allowed to fail even if they are very big. In reality, the government could, however, always rely on some other rationale – e.g. to protect systemic stability – to justify such an intervention, and hence some institutions may remain too big to fail even if the law permits depositors to make substantial losses. ADI, by stimulating a sharp increase in capital levels across all banks, including but not restricted to G-SIBs, could therefore ameliorate this residual TBTF problem. ADI also creates intermediate resolution authorities – the Mutual Guarantee Schemes – which, if operating well, could again make TBTF a theoretical problem only.

- 5) It is true that ADI does not *require* the abolition of CRD IV and Basel 3: the government could just say that they will continue to apply to the MGS'. However, the ADI proposal set out here, including the creation of a full deposit-taking infrastructure at NS&I, represents a unique opportunity to a) encourage the banking system to accumulate significantly higher levels of capital than it has to hold under CRD IV and b) establish one or more Mutual Guarantee Schemes that are funded and managed by banks in the knowledge that a zero-risk infrastructure for holding Core Deposits is available to its customers (at least, its current customers – many of them may well cease to be customers post-ADI). Abolition of CRD IV would move the supervisory responsibility to those institutions and its customers who have a direct financial interest in its

success and support the emergence of a stronger, not a weaker banking system. As discussed, the MGS' may well decide that the only viable course of action available to them is to enforce compliance with CRD IV among its members, for instance because public investors from the UK and abroad demand it in a world of – still – relatively unrestricted capital flows. The important point remains though: it must be up to the banks to establish a system that gives depositors adequate confidence that their deposits are safe. If they cannot do that, depositors will always be able to move all their Core Deposits, and more, to NS&I and other Deposit Banks with similarly robust capital structures.

- 6) The ADI proposal presented in this paper is certainly ambitious from a purely political point of view – it is indeed currently unlikely that after many years of getting CRD IV agreed, politicians in EU member states would suddenly decide to ditch the whole thing. But there we are: this is a paper setting out a proposal that could, if attractive to sufficiently many people, be adopted across the EU one day; or not, if not.

The state would play a central role in the banking system post-ADI, but it would be very different from its role today. It would essentially leverage its balance sheet to offer a zero-risk, low-cost service to everyone. Its role in providing guidance, prescriptions, interventions, rules, legislative directions and, last not least, subsidies to the various protagonists in the banking sector would be very significantly reduced. This subsidy is substantial, especially for large banks – the Bank of England's most recent estimate is that it amounted to £30-50bn in 2010.¹⁵⁴ It is hard not to

¹⁵⁴ http://www.bankofengland.co.uk/financialstability/Documents/fpc/fspapers/fs_paper15.pdf, Chart 6. Earlier estimates and other methodologies have put the cost at over £100bn. Various approaches have different merits, but the £30-50bn range for a more “normal” year like 2010 appears reasonable.

welcome this as a positive development. Non-government agents in the banking and lending world would find their freedom to act enhanced subject only to the requirements of remaining viable, going concern entities. It will be customer behaviour, in particular the comparative risk assessments of products from different providers, that will establish what is necessary to ensure commercial viability. This, too, is a positive development.

Nonetheless some might get concerned about the influence of a large, state-owned institution such as NS&I, or the collection of smaller regional NS&Is that will emerge post-ADI; but one couldn't argue that the role of the state in this world was the result of a cloak-and-dagger plot by some overly ambitious politician to nationalise an industry and establish "the state" as the dominant economic force in the country. Rather, the state's role would be the result of the collective action of a large number of people; the state would undertake exactly that role which all NS&I's customers would want it to: no more, no less. Whatever libertarian – or socialist – a priori dispositions some of us may have, it is very hard to criticise the emergence of such government participation in the banking industry on a point of principle.

4.5 Economic Impact

In its consultation paper "Strengthening capital standards: implementing CRD IV"¹⁵⁵ the PRA argued that the *"benefits from CRD IV accrue largely from the reduction in the probability that a crisis occurs as [...] deposit-takers raise the proportion of capital on their balance sheets"*.¹⁵⁶ It calculated that all prudential measures implemented since the crisis would cost £7bn (including £4.5bn from CRD IV) but generate a gross economic benefit of more than

¹⁵⁵ <http://www.bankofengland.co.uk/pradocuments/publications/cp/2013/cp513.pdf>

¹⁵⁶ *Ibid.*, p. 49.

£15bn, i.e. a net benefit of £8bn, or 0.5% of GDP. Higher capital ratios are therefore generally welfare-enhancing, confirming findings from many commentators as well as the simple observation, clear to anyone who does not operate from inside the Miller-Modigliani prison cell, that too high leverage and too much debt are economically perilous.¹⁵⁷

My assessment is that the ADI proposal set out in this paper will lead to:

- (i) a greater segmentation of “risk capital” in the economy, and greater risk awareness when dealing with credit intermediaries;
- (ii) lower leverage in the banking system and the economy as a whole;
- (iii) a structural reconfiguration of the banking system;
- (iv) consumer willingness to pay for basic utility-style banking and payment services, thereby supporting the economic foundation of Deposit Banks; and
- (v) slower growth, and in some asset classes, reductions in bank lending volumes – for instance, capital-intensive commercial real estate lending is likely to become less profitable at the margin or, put differently, require lower advance rates to ensure access to funding markets can be maintained at given funding costs.

Some might voice concerns about the economic impact of lower lending to the economy caused by higher capital requirements. The theoretical basis for such arguments has been comprehensively demolished by Anat Admati, Martin Hellwig and

¹⁵⁷ See e.g. the BIS at http://www.financialstabilityboard.org/wp-content/uploads/r_100818a.pdf?page_moved=1.

others who have reminded those that need reminding that an appropriate through-the-cycle analysis of banks' lending behaviour, and a full reflection of risk in banks' cost of capital calculations, demonstrate that better capitalised banks will in general be able to lend more, not less than banks with lower equity capital.¹⁵⁸ This conclusion is certainly supported by the sharp reduction in bank lending that took place in the wake of the 2007-09 financial crisis which was caused by banks having too little equity, not too much. It is the basis for the positive net benefits that the PRA, and other regulators, expect to flow from higher capital requirements.

A presumption that underlies many such claims about the poisonous consequences of "lower" lending volumes is that current lending volumes are optimal. But how do we know? It may very well be that a lower level of debt and credit is also "optimal". It is just not plausible to argue that the evolution of private sector indebtedness over the last 40 years during which it has grown from less than 150% of GDP in 1975 to more than 350% today (with a peak of close to 450% in 2009)¹⁵⁹ reflects metronomic upward shifts, year-in, year-out, in the level of "optimality" as applied to the total quantum of debt held by the private sector – the movements have been so large, especially in the financial sector, that any particular "leverage vintage" – say the year 2007 – would have to question the rationality of the vintage 5-10 years earlier (i.e. the year

¹⁵⁸ See <http://bankersnewclothes.com/wp-content/uploads/2014/10/Parade-continues-October.pdf> for an amusing "list of flawed claims" that Admati/Hellwig then go on to debunk, although in some cases I am not sure they fully appreciate the way banks calculate marginal ROE on a product basis – and hence how lower marginal returns will reduce their appetite for lending in certain asset classes if equity requirements increase.

¹⁵⁹ These numbers include financial sector debt. See <http://www.3spoken.co.uk/2014/10/uk-private-debt-levels-q2-2014.html> and https://docs.google.com/spreadsheets/d/1UivlvdzlGIIGOSs2SYTf_rsfKLFp1rHPyvQwazKIV-w/edit?pli=1#gid=10&vpid=B3

group 1997 or 2002). For instance, in the decade up to Q3 2007 financial sector debt increased from 100% to 212% of GDP.¹⁶⁰ Can this really be the result of the maximisation of the same utility function, or can the utility function have changed that much during such a relatively short period of time to make such widely different levels of leverage “optimal”? Or to put it differently, can it really be argued that the (unlevered) returns on new loans were demonstrably double the annual rate of GDP growth during this period – making it therefore rational to extend so many of them? Hardly. The truth is that the growth in leverage over the past 40 years is primarily attributable to the institutional development of British banking and financial markets since the 1970s which has facilitated access to credit for a much wider share of British consumers and businesses, and encouraged the extension of new loans by a much more diverse range of lenders.¹⁶¹ This institutional development was itself caused by regulatory change – the abolition of exchange controls, the liberalisation of the British economy in the 1980s, including Big Bang in 1986 – and the global economic developments following the fall of the Berlin Wall in 1989. Institutions, like individuals, responded to the incentives presented to them, especially as leverage permitted a multiplication of returns that would have been somewhat pedestrian without it. They will do so again when incentives change following ADI. Those who argue that the current capital structure of the UK economy is optimal on the basis that it reflects the independent choices of

¹⁶⁰ Ibid.

¹⁶¹ The Economist's 1979 survey of retail banking in the UK noted that “[t]he banks argue that there is a puritanical resistance to overspending in Britain, especially among lower income earners [...]they argue that the British are reluctant to borrow except to buy their own homes and certain key durables, such as cars, television sets and washing machines.[...] The British are certainly less inclined to run up ordinary debts than, say, their American counterparts.” How times have changed. Source: *Retail Banking Survey*, The Economist, 8 December, 1979.

multiple agents must believe that any new “equilibrium” post-ADI is also optimal as it will have been brought about by exactly the same – in fact significantly enhanced – forces of independent action by consumers and companies, unaffected, unpolluted by the distortions of an extremely expensive and inefficient subsidy. If they do not, they have to explain and quantify in what way the current level of debt, leverage or loan composition in the UK economy is optimal. They will not be able to do that.

It is also important to be specific about *whose* lending we are talking about when dissecting concerns about the “lower lending” that a reform like ADI might bring about. Focusing on banks alone has always excluded more than half of corporate lending that is provided by other lenders and non-banks, especially but not only in the US. This disintermediation of banks has significantly accelerated in recent years. It has been driven by (i) the requirement of banks to recapitalise themselves following the financial crisis, (ii) the emergence of a very large number of direct lenders backed and funded by institutional asset managers, hedge funds, other investments firms and permanent capital vehicles, and (iii) the explosive growth in peer-to-peer or “market-place” lending. In the US ca 25% of SME loans come from 60-odd business developments companies that have raised more than \$65bn from equity investors to make subordinated loans to smaller companies.¹⁶² US P2P platforms made more than \$5.5bn of loans in 2014 and PwC predicts that this will rise to \$150bn by 2025,¹⁶³ possibly representing more than 5% of all consumer and commercial/industrial loans by then compared with less than 0.5% today.¹⁶⁴ In the UK P2P lenders have lent a cumulative total of

¹⁶² <https://next.ft.com/content/cbba1ff2-65cf-11e5-a28b-50226830d644>

¹⁶³ <http://www.pwc.com/us/en/consumer-finance/publications/assets/peer-to-peer-lending.pdf>

¹⁶⁴ This assumes average annual growth in lending volumes of 2.5%.

£5.1bn as at November 2015, almost half of which has been originated in the last year,¹⁶⁵ and may well make £30-50bn of loans over the next 5-7 years (in the region of 7-12% of all consumer & SME credit compared with c 1.5% today).¹⁶⁶ The direct, user-friendly access by borrowers and lenders to these platforms and alternative lending channels, the competitive returns offered by them, inter alia supported by a sophisticated underwriting infrastructure, as well as the general dissatisfaction by many customers with banks' service offering means that these non-bank credit channels will become significantly more important in the future. Already since 2006 banks' market share of corporate lending has declined significantly in many countries – by 3% to 32% in the UK, and as much as 18% in Spain (Figure 1). If ADI accelerates this disintermediation of banks, then it is merely riding on the coat-tails of a development that is already well under way. It is difficult to think of a coherent philosophical or practical argument against such a development, especially as ADI should encourage higher levels of capital for banks as well as non-banks. Of course, it *could* mean that bank credit or even aggregate credit volumes decline relative to what they would otherwise have been, or even, heaven forbid, relative to where they are today – but, as discussed, this need not necessarily be welfare-reducing: ask the next first-time property buyer you meet, trying to buy a house valued 9.6 times more than her earnings (the ratio in London in Q3 2015, an all-time high).¹⁶⁷ What is certain is that borrowers with attractive credit propositions will continue to get funding on reasonable terms – it would be economically irrational, and very unlikely, for projects with attractive risk-return characteristics

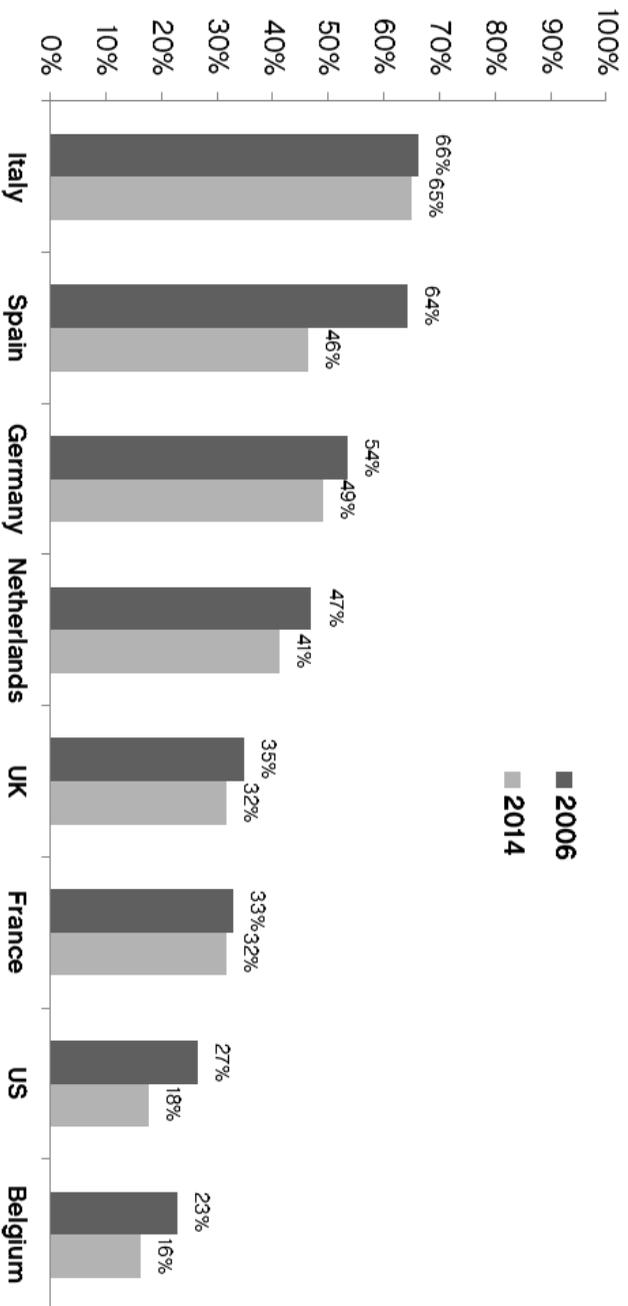
¹⁶⁵ <http://www.altfi.com/data/indices/UKvolume>

¹⁶⁶ <https://www.archover.com/wp-content/uploads/2015/02/UK-P2P-Finance-February-2015.pdf>

¹⁶⁷ Source: Nationwide Building Society.

persistently to fail to raise funding from the plethora of debt (and equity) providers that already exist, and whose multitude is likely to proliferate further in the coming years. Such funding may currently be provided by a bank (in only one in three cases it appears); in future it may come from some other institution, but the funding will not disappear. Borrowers who are raising money for projects that do not offer the right risk/return trade-off shouldn't get funding anyway – if they do now because the banking system is prepared to waste its subsidy on economically worthless projects, then the sooner this practice comes to an end the better.

Figure 1. Corporate Lending – Banks' Market Share (% of total)



Source: <https://next.ft.com/content/1cbb0df12-65cf-11e5-a28b-50226830d644> Excludes corporate bonds.

Whatever the intricacies of the impact on lending volumes in the short-, medium- and long-term might be: the fundamental point is that the economic logic for ADI is really incontrovertible – it makes no sense to continue subsidising banks to provide protection to depositors that is called upon far too often because the subsidy incentivises the creation of a capital structure that makes (expensive) protection necessary. The elimination of the subsidy, by removing this price and risk distortion, will make everyone better off – whether or not they can get the same mortgage or working capital facility on the same terms and as often as today.

The economic environment today seems capable of weathering the introduction of ADI: the world has recovered from the depth of the Great Recession, and UK banks are healthier and better capitalised than they have been for many years. Economic performance, while not stellar, is robust and consumer confidence is strong. The ongoing, probably accelerating, disintermediation of banks' role in the economy means that insofar as ADI could have any negative short-term adjustments costs, their quantitative impact should be small. With the benefits so obvious, and the costs unclear and probably small, it's as good a time as any to grasp the nettle.

5. THE FUTURE

It is worth speculating about the longer-term structural changes in the banking industry that ADI could stimulate. The crystallisation of risk involved in holding plain-vanilla deposits could spur interesting technological innovations to mitigate and, possibly, eliminate this risk, and these innovations could have transformational consequences for conventional retail (and wholesale) banking. Potentially the most promising innovation that could be applied in this field is the blockchain pioneered in the creation of the Bitcoin digital currency, the most revolutionary technology emerging from the internet ether in the last 15 years. The blockchain is a decentralised digital ledger where each participating “node”, i.e. a computer operated by a user, can with a very high level of certainty and at close to zero marginal cost¹⁶⁸ confirm the validity, accuracy and uniqueness of certain transactions in such a way that the complete “ledger” of all valid, confirmed and time-stamped transactions is available to all users in real-time without the need of a central processing authority. As it is effectively impossible to corrupt the ledger, e.g. by duplicating transactions (the so-called “double spending

¹⁶⁸ The fixed costs involved in creating the necessary processing power to verify the blocks in the blockchain is anything but marginal.

problem”), the system is trustworthy and usage therefore multiplies. These characteristics make it an extremely attractive proposition for many applications that involve a large number of transactions which are currently effected at high cost, often at considerable delays involving manual verification and in batches rather than on an individual transaction-by-transaction basis. Areas beyond the Bitcoin universe in which the blockchain concept has been developed and adapted include (foreign-exchange) payment services (e.g. www.ripple.com creating the “SMTP protocol for money” but doing so in a slightly different way than the Bitcoin blockchain technology),¹⁶⁹ the internet’s domain name system (www.namecoin.com) or document verification (<https://proofofexistence.com>). Wall Street banks have clubbed together to explore a wide range of applications, mainly in post-trade settlement and other administrative areas,¹⁷⁰ an area in which there has been considerable blockchain activity – viz. e.g. <http://digitalasset.com> and Goldman Sachs’ recent patent filing for the “SETLcoin” cryptocurrency settlement system.¹⁷¹

Using a distributed ledger technology to record transactions in conventional deposit balances – and, by doing so, confirming in a robust, verifiable and secure way holdings of deposit balances by individual users of the system – is an obvious, possibly quite straightforward extension of the Bitcoin concept. Of course, many have done this already by “investing” their deposit balances in Bitcoins, in the process taking these deposits out of the banking

¹⁶⁹ <http://www.paymentsource.com/news/technology/a-very-public-confluct-over-private-blockchains-3021831-1.html?pg=2>: “Ripple doesn’t require consensus nodes to carry the whole ledger of all transactions that ever happened. Instead, nodes only need to use the “last closed ledger” to come to agreement on the changes to the present ledger”

¹⁷⁰ See <http://r3cev.com/press/2015/9/29/r3s-distributed-ledger-initiative-adds-13-additional-bank-members>

¹⁷¹ <http://www.freepatentsonline.com/20150332395.pdf>

system and into an alternative “money system”. The great volatility of Bitcoins has made it rather unsuitable as a store of value even if it has been used as a medium of exchange and, in its own fairly narrow universe, a unit account. Can therefore an alternative blockchain application be developed which is not subject to the huge swings in value typical of Bitcoins, but which still permits access to the other two essential features of money? In such a system a user would deposit her savings, and receive her salary, in “accounts” held in a sophisticated, large network without counterparty credit risk to a bank, other users of this digital currency or third parties. The funds thus deposited would be controlled exclusively by their owner, and not be available for the various exercises in maturity transformation which would remain the purview of conventional banks.

JP Koning and others¹⁷² have written about a system along those lines, calling the resulting money “Fedcoins”. In this system the Federal Reserve, or any other central bank, creates its own blockchain called Fedcoin, or something equivalent. Fedcoins would be issued by the central bank whenever other types of money – paper currency held by individuals or reserves held by commercial banks – are converted into Fedcoins. This means both that the central bank cannot control the issuance of Fedcoins and that overall money supply is unaffected as any creation of Fedcoins (or destruction) is matched by an equal destruction (or creation) of paper currency or reserves. It would affect the stock of money held as bank deposits. This is, of course, exactly what the ADI proposal as set out here would achieve, except that under ADI the recipient of these deposits is NS&I (and other Deposit Banks) rather than the Fedcoin blockchain. Banks could in theory be permitted to issue their own

¹⁷² <http://jpkoning.blogspot.co.uk/2014/10/fedcoin.html>

competing copy of Fedcoins – call it *RBSCoin*¹⁷³ – and these would be part of the same monetary system, and trade at the same 1:1 exchange rate with respect to each other as Fedcoins do to paper currency and reserves provided they are always and without restrictions convertible into Fedcoins. However, it is unlikely a central bank would permit the issue of multiple, competing digital currencies of this kind, and so there is in principle nothing to prevent banks disappearing altogether – if, that is, the public converts not 20-25% of its (core) deposits into Fedcoins, but 100%.

It is more likely that Fedcoins would only absorb a portion of the current money supply: individuals tend to prefer a range of alternatives for storing and using their money, and outsourcing some, or even many, investment and management decisions concerning their money holdings to third parties is often preferable to making the relevant decisions oneself. One would in fact expect a Fedcoin system to develop a somewhat similar institutional “banking” infrastructure over time. The pool of money in the Fedcoin blockchain would effectively consist of as many 100% “Fedcoin”-backed banks (“reserve-backed” in Chicago plan language, digitally adjusted) as there are depositors, each Fedcoin holder in effect controlling her own bank.¹⁷⁴ So it might be, as more Fedcoin users realise that lending surplus Fedcoins to borrowers can generate positive net returns, that they club together to pool some of their Fedcoin balances for this purpose. These *Fedcoin Funds* would then receive pooled Fedcoins, assess credit risk, lend money, service receivables – in other words do all those things that banks currently do, or e.g. mutual

¹⁷³ JP Koning calls them *Wells Fargo Coins* in his post, *ibid*.

¹⁷⁴ See <http://tannutuva.org/blog/2014/7/21/will-bitcoins-ever-become-money-a-path-to-decentralized-central-banking> for a discussion of “Bitcoin banks”, a similar idea to the one expressed here.

funds in Kotlikoff's limited purpose banking world. The benefits of an appropriate amount of such lending activities, permitted by an appropriate level of maturity transformation are such that it is very likely, in this author's view, that this activity would survive both under ADI and "*in the future*", the world where a system of Fedcoins, or equivalent blockchain monies, operates alongside with, and as a substitute for, paper currency and bank reserves. NS&I and Deposit Banks are merely an analogue equivalent of this digital innovation in the monetary system.

6. CONCLUSION

The ADI proposal set out in this paper combines

- (i) a new law: banning compensation payments to depositors;
- (ii) the amendment of an existing law, in particular the provisions for depositor preference in the Banking Reform Act 2013;
- (iii) the abolition of a law / regulatory regime, namely CRD IV and the instruments with which it has been implemented in the UK, with
- (iv) a policy announcement: NS&I to offer savings and current accounts.

This proposal is effective and elegant. *Effective* because it would bring about substantial and positive changes in the way banking systems and, more generally, the infrastructure for creating, holding and investing money operate; *elegant* because it would do so endogenously without a lot of prescriptive guidance by “regulatory authorities”, but mainly as a result of the heightened risk assessment by all protagonists in the system.

To the extent regulatory oversight is required, it would itself be created by some of the protagonists, for instance via Mutual Guarantee Schemes. Otherwise, individual agents would be free to do as they please in an environment in which the probability of loss – that is, in a macroeconomic context, large, expensive recessions – is sharply reduced compared with what it is today. *Elegant* is really another word for *radical* except that it does not require, as most “radical” proposals to reform international banking do, a sophisticated ex-ante identification of optimal, utility-maximising market structure. The Bank of England would remain lender of very last resort, and maintain other key, qualitative prudential oversight functions.

The revealed preferences of bank customers will, when the options of risk-free and risky savings and investment alternatives are presented to them, create a more robust, better capitalised and less volatile financial system than the one we have had in the past 45 years. The role of the state in this arrangement is both critical and limited – it uses its balance sheet to eliminate risk for those who want risk to be eliminated, while leaving it open to others to seek riskier alternatives that offer a higher rate of return. Private sector competitors are free to challenge NS&I and, if they develop a product that is appealing to customers, they will be able to establish profitable niche operations. At the same time, private sector companies (i.e. Lending Banks) will be challenged by NS&I, and comparable (private) Deposit Banks. The market structure that emerges should be robust (i.e. endowed with high and higher levels of loss-absorbing capital), flexible (for the same reason), competitive and responsive to consumer demands and, therefore, less susceptible to political interference or intervention.

GLOSSARY

1817 Act	The Savings Bank (England) Act 1817
1976 Act	Trustee Savings Bank Act 1976
ABCP	Asset-backed commercial paper
AT1	Additional Tier 1
Banking Reform Act 2013	Financial Services Act 2013
BARD 1	The Bard Accord of 1988
BBA	British Bankers' Association
BRRD	Bank Recovery and Resolution Directive
CASS	Current Account Switch Service
CDS	Credit default swaps
CET1	Common Equity Tier 1 Capital
CRD IV	Capital Requirements Directive IV
CRR	Capital Requirements Regulation
DMO	Debt Management Office
EBA	European Banking Authority
EL	Expected loss
FCA	Financial Conduct Authority
FPC	Financial Policy Committee
FIIC	Free if in Credit

FSCS	Financial Services Compensation Scheme
G-SIBs	Global systemically important banks
ICAAP	Internal capital adequacy assessment process
ILAA	Individual liquidity adequacy assessment
IMF	International Monetary Fund
IRR	Internal Rate of Return
LCR	Liquidity coverage ratio
Leverage ratio	Tier 1 capital divided by total assets (approx.)
LGD	Loss given default
LOLR	Lender of last resort
LOVLR	Lender of very last resort
MGS	Mutual Guarantee Scheme
MREL	Minimum requirements of own funds and eligible liabilities
NLF	National Loans Fund
NS&I	National Savings & Investments
OBR	Open Bank Resolution, the bank resolution regime for failed banks in New Zealand
P2P	Peer-to-peer
PCA	Personal current accounts
PRA	Prudential Regulatory Authority
ROE	Return on equity
RWA	Risk-weighted assets
S&Ls	Savings & Loans Associations
SIV	Structured investment vehicle
TBTF	Too-big-to fail
TLAC	Total loss-absorbing capacity
TSBs	Trustee Savings Banks

APPENDIX

Case Study: New Zealand – Life without Deposit Insurance

New Zealand did not have retail deposit insurance prior to the 2007-09 crisis, and closed a temporary retail deposit guarantee scheme in 2011, three years after it was introduced in October 2008. It is one of a very small number of sizable western economies to have explicitly rejected deposit insurance. Bill English, the Minister of Finance, observed in 2011: *“The government does not favour compulsory deposit insurance. This is difficult to price and blunts incentives for both financial institutions and depositors to monitor and manage risks properly.”*¹⁷⁵ The same sentiment was conveyed by Grant Spencer, Deputy Governor of the Reserve Bank of New Zealand, in 2013: *“The New Zealand Government has looked hard at deposit insurance schemes and concluded that they blunt the incentives for investors and banks to properly manage risks, and may even increase the chance of bank failure. Deposit insurance is widely used in Europe [...] but hasn’t prevented banking failures, as we saw during the Global Financial Crisis.”* He went on to state explicitly that *“if their bank fails, depositors have*

¹⁷⁵ <http://www.beehive.govt.nz/release/maintaining-confidence-financial-system>

always needed to understand that deposits are not guaranteed".¹⁷⁶

The abolition of the (temporary) insurance system in New Zealand went hand in hand with (i) the implementation of a rapid resolution system to deal with bank failures, the "Open Bank Resolution" policy (OBR) and (ii) the adoption of the Basel 3 regulatory regime for banks. OBR allows banks to be open for full-scale or limited business on the next business day after being placed under statutory management (as a result of, for example, an insolvency event). This means that customers will be able to gain full or partial access to their accounts and other bank services, whilst an appropriate long-term solution to the bank's failure is identified. OBR therefore provides liquidity to customers while the resolution of the failed bank is being worked out; it does not require bailouts of failing firms. Losses are first borne by shareholders and *"in addition, a portion of depositors' and other unsecured creditors' funds will be frozen to bear any remaining losses. To the extent that these funds are not required to cover losses as a more detailed assessment of the position of the bank is completed, these funds will be released to depositors."* The quid pro quo in this insurance-free world is that depositors maintain access to a large part of their balances throughout this resolution process. These non-frozen deposits are government-guaranteed at this stage to ensure the payment system involving the failed bank can operate smoothly. Furthermore, frozen deposits are not written off, i.e. customers retain their legal claim against the institution such that if the ultimate contribution from

¹⁷⁶ <http://www.rbnz.govt.nz/news/2013/5191943.html>

creditors is less than the value of claims initially “frozen”, the balance is returned to depositors (and other creditors).¹⁷⁷

New Zealand’s banking sector is dominated by four large subsidiaries of Australian banks (ANZ, Westpac, ABS Bank and Bank of New Zealand), which account for ca 90% of total sector assets and 95% of residential mortgages.¹⁷⁸ This ownership structure would make it difficult to assess the impact of the abolition of deposit insurance on their capital structure and balance sheet composition as intra-group financial assistance can augment loss-protection provided by these banks’ own capital bases and liquidity buffers, and hence depositor perception is likely to be affected by this. The second tier of NZ banks, the four main savings banks Kiwibank, TSB Bank, SBS Bank and Heartland Bank, probably represent a better interim gauge for the impact of the abolition of deposit insurance – it is a pretty limited gauge, to be sure, as only a long timeframe can establish whether the incidence and severity of banking crises is reduced. So far the evolution of these savings banks’ balance sheets suggests that customers have been very happy to use these institutions as the guardians of their savings: from 2011 to mid-2015 deposits have grown by 25% while net assets have increased by 62%, resulting in a 2% increase in the simple leverage ratio from 5.3% in 2011 to 7.3% in June 2015.¹⁷⁹ Improving leverage ratios are clearly affected, possibly even mainly driven, by the adoption of Basel 3 rules, but it is certainly not possible to conclude at this stage that the end to deposit insurance has destabilised the retail banking market in New Zealand.

¹⁷⁷ http://www.rbnz.govt.nz/regulation_and_supervision/banks/policy/4368385.html

¹⁷⁸ P.6, <http://www.imf.org/external/pubs/ft/wp/2013/wp1307.pdf>

¹⁷⁹ Source: Author’s calculation based on published annual reports.



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