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Deposit insurance in the European Union: in search of a third way

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Abstract

The paper addresses two of the main issues of contention in the debate of the establishment of a European System of Deposit Insurance, i.e. moral hazard and the danger of a “transfer Union”. First, a theoretical model is built to show that both issues can be solved by envisaging market-based private sector mechanisms of compulsory insurance and re-insurance, accompanied by a regulatory framework to ensure a minimum standard of deposits protection across the EU, and a public backstop at the EU level. Second, we review and compare the evolution of deposit insurance in the US and Italy in the last 150 years, highlighting how after an initial period in which private sector mechanisms prevailed, the systems later diverged in line with the diverging requirements of national consolidation. Both the model and the historical overview converge in pointing towards a holistic approach linking deposit insurance to supervision and resolution, breaking the doom loop between banks and sovereigns, and searching for a third way between centralised and decentralised, public and private mechanisms.

JEL classification: G01, G21, G22, G28, H12

Keywords: Deposit insurance, deposit guarantee, banking crises, moral hazard, liquidity risk, credit risk, fiscal backstop, financial supervision, economic governance.

1. Introduction and summary

There are two major objections to the establishment of a European System of Deposit Insurance Scheme (ESDI)¹, the main missing piece of the Banking Union (BU), and therefore the most critical aspect of the still fragile architecture of the Euro. First, such a system would create moral hazard and therefore incentives to excessive risk taking and instability. Second, by pooling and sharing risks across borders, a European system would amount to a “transfer union” between core and periphery countries, imposing tax burdens on the former to the benefit of the latter.

We would like to address both objections through the development of a theoretical model that is capable of 1. minimizing moral hazard, and 2. eliminating almost completely the recourse to taxpayers’ money and public finance, and therefore cross-subsidies among national government budgets. These objectives would be achieved by envisaging a market-based mechanism of deposit insurance and reinsurance, accompanied by an obligation for all banks to insure and a public backstop at EU level that would intervene in case of risks of instability and systemic crises.

We will show that a theoretical model along those lines is plausible and consistent with efficiency and equilibrium. We will also argue that such a framework suits better the flexibility and diversity requirements emanating from different contexts and business models, and that it corresponds more suitably to the history and the evolution of banking and financial markets in Europe, including the different forms that deposit guarantee schemes have taken in the past.

After briefly presenting our framework and its intended value added (#2), we review the academic literature showing conceptual gaps and dilemmas and highlighting the main lessons on which we draw for building our model (#3).

We proceed then to an historical reconstruction of the main stages of development of Deposit Insurance (DI) in the US and in Italy (#4 and 5), showing how after an initial period in which private sector mechanisms prevailed and the evolution followed rather similar patterns, later the two systems diverged radically for several reasons. While in the US nation-building meant the development of an integrated banking and financial market and the transfer of prerogatives – crisis after crisis- from the State to the Federal level, in Italy, and in Europe, national consolidation implied the strengthening of national markets and institutions and therefore European financial fragmentation and cross-country barriers. In the meantime, the role of the State as guarantor of the stability and performance of the banking sector became dominant. Only in the last thirty years, due to European integration, the single market, and later the BU, this trend was inverted (#6) giving way to a gradual liberalisation and

¹The acronym refers to a European System of Deposit Insurance (ESDI) and is different from the acronym most often used in the policy debate (EDIS), to make clear that what we discuss in this paper does not correspond to, and does not necessarily relate to the proposals for a European Deposit Insurance Scheme (EDIS) put forward by the European Commission and others.

integration of credit and financial markets, and circumscribing the perimeter of national Governments and their role in banking markets.

We develop then an analytical model (#6) which shows how with market insurance and re-insurance on a compulsory basis and a single regulatory framework, a competitive equilibrium can be established where risks are covered, premiums are freely determined on a risk-based assessment, and moral hazard is neutralized.

We conclude (#) pointing out what obstacles on the road to a fully-fledged BU remain to overcome, and under what conditions progress can be made.

DI is often thought of as the hard core of diverging interests and views that block the completion of the BU. We argue in this paper that such an opinion is unwarranted. DI's perceived intractable features can find a Pareto-efficient solution without unnecessary trauma. But at the same time, they provide an insightful perspective on what remains to be done and is truly divisive from the policy and the political perspectives. Besides, relying on a private market mechanism within a strong European framework enables to break the doom loop between banks and the sovereigns, which was the initial strong motivation for bringing about the BU. The comparison with the US experience shows how the development of a free fully integrated market of banking and financial services contributes to protect depositors and secure financial stability. It also shows the importance of putting DI in a holistic framework where it can be fully integrated and synergetic with the other two pillars of the BU, i.e. the Single Supervisory Mechanism (SSM) and the Single Resolution regime (SRM). If the benchmark is to be an authoritative, catalytic and independent institution, like the Federal Deposit Insurance Corporation (FDIC) in the US, why don't we put DI - together with SSM and SRM - under the umbrella of the European Central Bank (ECB)?

2. The conceptual framework

DI (explicit or implicit) represents a necessary ingredient of a banking system, as it provides for consumer protection and controls for the threat of a bank run in case of crisis. It is deemed therefore to contribute decisively to financial stability. DI works by maintaining depositors' confidence, which is the basis for banks to operate as intermediaries in collecting and managing savings. However, it is for this very function that the question of moral hazard arises. Moral hazard and other costs of liquidity regulation are inherent in any system of common guarantees and risk pooling. Moral hazard represents the other side of the coin of DI, and therefore cannot be underplayed or neglected. Any DI then works well if its benefits in terms of reducing liquidity risk outweigh significantly the costs determined by moral hazard and adverse selection. Its efficiency therefore depends on designing the features of the guarantee scheme in a way that prevents or reduces moral hazard and on foreseeing regulatory and supervisory mechanisms that remove cross subsidies and eliminate abuses by guaranteed banks (Kiriiazidis, 2017).

The view that DI and moral hazard are intrinsically linked, is not new. There is a vast literature on how to deal with this trade-off, and on what mechanisms can be applied to attain a reasonable balance between the two conflicting goals (e.g. experience rating).

An additional argument must be considered at the European level. An ESDI is generally regarded as the third fundamental pillar of the Banking Union, because it provides a uniform degree of insurance cover for retail depositors across the whole EU. One of its main objectives, in fact, is to ensure a level playing field for banks and depositors across the EU and overcome the vulnerability of specific - or national - DI schemes vis-à-vis large local shocks. In so doing, ESDI contributes to breaking the link between banks and their national sovereigns (the so called "doom loop") and alleviate cross-border obstacles such as the so-called "home bias problem" (Véron, 2017). The latter refers to the fact that banks can be led to excessively increase the purchase of their governments' debt. Véron argues that it is possible to weaken the link between a country and its banks, if bank restructuring can be managed without generating panic, and bank crises can be solved without automatically producing sovereign debt distress. Implementing EDIS without addressing the "home bias" problem would create inconsistencies, and possibly abuses. "Member states, especially those under financial stress, could exercise moral suasion over domestic banks, so that they buy large quantities of public debt, funded by deposits protected by EDIS" (ibid., p.12). Breaking the linkage between banks and sovereigns is a logical, and practical, condition for strengthening the bases of the European Monetary Union.

The approach we adopt in this paper takes a different path from the one currently followed. We assume that the DI can be provided by market participants in the private sector - within a regulated and standardized common European framework- without calling into question resources drawn from

national budgets, except for an ultimate backstop. Banks in other terms arrange and buy insurance, and reinsurance, in the market, at market conditions. Providers, both public and public, national or international, would operate in a competitive environment, and correspondingly premiums would be set based on a market evaluation of the underlying risks. This approach is in line with the opinion - generally held in the public debate - that funding of the deposit guarantees should be shouldered by the banks themselves, not by tax-payers' money. Why then not entrust to the market itself the demand and supply of insurance? The role of public policy would be that of making cover compulsory and defining the (minimum) standards of protection and operation that guarantee a Europe-wide level field. The choice of the provider and the underwriting of the insurance contract would remain voluntary, which enables existing schemes and available funds (the national or institutional protection mechanisms) to remain in operation responding to the specific protection requirements of different clients or constituencies. Minimum standards of protection however have to be defined at the European level. In sum, the system amounts to a free but compulsory insurance mechanism, like the one for motor car third party liability. Retail depositors would be protected on a fair standardized and comparable basis, while banks shop to find the most suitable arrangements and compete in offering their clients the best possible conditions in terms not only of cover but also of stability and profitability (market discipline).

3. Gaps and dilemmas: a literature review

Economic theories have traditionally modelled DI as part of the regulatory framework aimed at mitigating systemic risk through liquidity risk reduction (see Bowman 2014 for a literature review). The debate has intensified after the 2008 financial crisis, and for understandable reasons. The collapse of the interbank market and the severe strains on liquidity at the time increased the focus on liquidity risk, on top of the usual preoccupation for capital adequacy. As a result, Basel III introduced global liquidity standards, such as the Liquidity Coverage Ratio and the Net Stable Funding Ratio. Also, in reaction to the crisis, pressures built up to establish “explicit” deposit insurance mechanisms, rather than relying on the common practice for governments to guarantee demand depositors “implicitly” by intervening ex-post and bail out ailing banks. Bank liability insurance today is widely regarded as an essential feature of banking regulation, and as such endorsed by influential international institutions such as the IMF, the World Bank and the European Union. In the latter case, there is by-and-large consensus on the need to complete the institutional arrangements of the Banking Union with an ESDI providing a level-playing field and a common protection mechanism for depositors and breaking the doom-loop between banks and sovereigns.

However, the theoretical discussion in the literature is far from being uncontroversial and exhaustive. “Much more research is required in this area”, noted a recent survey (Allen and Gale 2017, p. 25). “With capital regulation there is a huge literature but little agreement on the optimal level of requirements. With liquidity regulation, we do not even know what to argue about (ibidem)”. Moreover, contributions do not provide unambiguous guidance to practitioners and policy makers, particularly with respect to the complex negotiations underway in Europe. An overview therefore of where we stand, and the various streams of thought, may be useful to identify the main gaps and dilemmas. We sum up the different contributions under **six headings**:

3.1 How to deal with the liquidity risk

Several factors prevent the “invisible hand” from providing liquidity where, and in the amount, required. Inter-bank markets imperfections, uncorrelated liquidity shocks across intermediaries, underinvestment in liquid assets and free-ride on the common pool of liquidity (due to the lower return liquid assets yield), asymmetric information and incomplete financial markets: those are the classic reasons why lending markets in a general equilibrium framework do not necessarily clear, banks do not provide by themselves liquidity insurance to depositors, and are unable to hedge against liquidity shocks.

Rochet (2004, 2008) illustrates why and how market failures justify liquidity regulation. The main factors are: potential problems in payment systems, moral hazard at the individual bank level due to opaqueness of assets, and moral hazard at the aggregate level due to expectations of a bailout in case of macro shocks.

However, the literature does not convince in linking the exact nature of the market imperfections to appropriate corrections, and thus in providing a satisfactory rationale for the specific regulation and deposit guarantees. “What is the market failure they are designed to correct? Why is the provision of liquidity that the market provides insufficient?” (Allen and Gale, 2017, p. 1). In particular, “there is no clear analysis of whether liquidity should correspond to monetary instruments or short-term real assets ... [moreover] distorting the allocation of real assets through regulation may be socially costly” (Allen and Gale, 2017, p.24).

3.2 The role of the lender of last resort

Since Bagehot (1873), the responsibility of central banks as liquidity providers in times of crisis, and the principles they should follow to exercise that responsibility, have been recognized. This responsibility has robust undisputed theoretical foundations. It is remarkable that after 140 years Bagehot’s principles are still widely quoted and applied.

Repullo (2005) examines the role of a liquidity provider or lender of last resort (LLR). He models the strategic interaction between a bank, whose deposits are randomly withdrawn, and a LLR that bases its decision on supervisory information on the quality of the bank’s assets. He concludes that the existence of the LLR does not have any effect on the risk of accumulating illiquid portfolios, but simply reduces incentives to hold liquid assets. In other words, the LLR under certain conditions does not encourage excessive risk-taking, neither does it generate moral hazard.

Following the classic paper by Diamond and Dybvig (1983), Keister (2016) shows that without bailouts banks would invest excessively in short term assets, establishing in this way a sort of “private insurance mechanism” against runs. That is why we need fiscal backstops, and eventually bail-outs, i.e. to prevent short-termism in banks’ asset management. A similar formulation can be found in Farhi and Tirole (2012), where bailouts are assumed to reduce the cost of the fiscal adjustment to the crisis and represent a kind of non-conventional guarantee.

Bagehot’s fundamental rule of thumb, that lending should be granted only to solvent - albeit illiquid - banks, is very difficult to operationalize. Several authors have questioned its relevance, as “in modern interbank markets it cannot be the case that a solvent bank is illiquid” (Goodfriend and King 1988). The 2008 crisis however provided ample evidence to the contrary, revitalizing Bagehot’s predicament.

Other authors argued along similar lines (Rochet and Vives 2004, Diamond and Dybvig 1983), explaining how bank vulnerabilities are generated by coordination failures between depositors that trigger bank runs. The bottom line, and the crucial feature of an effective system, is that the LLR function must be well coordinated with bank recovery and resolution procedures and fiscal backstops. It is essential to have a clear allocation of responsibilities between the Central Bank, banking Supervisors and the public budget (see Rochet 2008). In the European framework, this aspect is

perceived as one of paramount importance, and several tools are foreseen to make it work in practice (e.g. the creation of a backstop to the Single Resolution Fund).

Buiter (2007) rightly states that “liquidity is a public good. It can be managed privately by hoarding inherently liquid assets, but it would be socially inefficient for private banks and other financial institutions to hold liquid assets on their balance sheets in amounts sufficient to tide them over when markets become disorderly”.

The standard objection to LLR is that it creates moral hazard increasing the incentives for banks to take on more risks. But several papers persuasively reject or at least circumscribe this objection (see Repullo, 2005). “There are few issues so subject to myth ... as is the subject of whether a Central Bank should act as an LLR” (Goodhart 1999, p.339). As we said, Repullo shows that moral hazard in relation to LLR is one of these myths.

3.3 The costs of DI: moral hazard and adverse selection

DI instead is a different case. It is undeniable it has intended benefits in terms of efficiency gains linked to liquidity risk reduction. But it has correspondingly also costs. The main ones are those linked to moral hazard and adverse selection. Both increase insolvency risks, either because of greater risk taking (moral hazard) or incentivizing incompetent management (adverse selection).

The moral hazard created by DI can be seen on both sides of the balance sheet. On the asset side, the knowledge that depositors will not suffer in the event of bank failure may encourage banks to pursue higher returns and more risky business strategies (e.g. Ioannidou and Penas, 2010). With DI banks do so more than they would otherwise (Macdonald, 1996), as their ability to attract deposits becomes decoupled from the risk of their asset portfolio. Government guarantees are intended to prevent the panic of banks’ creditors, but the possibility of moral hazard may affect their credibility. Demirgüç-Kunt and Detragiache (2002), using data for 61 countries covering the period 1980-1997, show that DI has ended up increasing banking fragility, rather than the opposite, suggesting that the moral hazard implications of DI have a dominant effect in a general equilibrium framework. They argue that generous DI increases moral hazard, and in turn the fragility of banks.

These effects interact directly and indirectly in a complex way. By removing the incentive for depositors to withdraw funds from banks exposed to a higher default risk, liquidity risk in the system is reduced; but at the same time, and for the same reason, the benefits associated with market discipline are also reduced, which leads to higher risk taking. Whether on balance the risks in the banking system are reduced or increased therefore is an empirical question. It depends on whether the benefits from mitigating liquidity risks are higher than the costs of adverse selection and moral hazard.

The regulatory system has a fundamental impact on the operation of this trade-off. With adequate specifications and calibrations, regulation constrains the above-mentioned net balance between increasing and decreasing risks ensuring that it comes out on the positive side. Supervision in fact limits the abuses of over-protected banks and to some extent substitutes for market discipline. This outcome however depends on the design features of DI, seen as a system that can be structured in such

a way as to prevent moral hazard and adverse selection. The final impact depends also on the attitudes and effectiveness of supervisors in removing implicit subsidies and abuses (Kiriazidis, 2017).

In Diamond and Dybvig (1983), the efficiency of regulators and supervisors in disciplining imprudent bankers is linked to the incentives provided by policy checks and balances. But this outcome depends on a few critical and restrictive assumptions: a) crises are only panic driven; b) neither the banks nor the government bear any cost in providing guarantees; c) the scheme is fully credible because governments could always raise the resources they need to pay for the guarantees; d) the absence of moral hazard (see also Leonello, 2017). Ultimately, the literature suggests that we should not count too much on the effectiveness of institutional checks and norms: regulators, and supervisors, in fact, are human beings and have less “skin in the game” than depositors in unprotected banks.

Calomiris and Jaremski (2016) conclude: “the evidence regarding the consequences of liability insurance shows that it has been associated with increases, rather than decreases, in systemic risk as a result of the removal of market discipline in the market for bank liabilities” (op.cit. p.36). They suggest that there are more effective alternatives to deposit insurance to protect banks and reduce liquidity risk. They call such alternatives “limited and conditional protection”, by which they mean a more ad hoc approach that puts emphasis on conditionality, leaves ex-post discretion over whether and how much to protect bank claimants, offers a safety net selectively, in a manner that does not eliminate market discipline. In sum, this literature shows that between unconditional public guarantees and unconditional laissez faire mechanisms, there can be a “third way”. We think this hint is quite promising and will build on it in our model.

3.4 The “political” theories of deposit insurance

The spread and success of DI in the last two to three decades cannot be explained - according to some authors - only by economic considerations. The purpose of DI in fact is not limited to economic efficiency or risk reduction. It is also linked to policy or political objectives. DI responds to the policy goal of expanding lending or subsidizing access to credit in favour of political constituencies that are considered as deserving, powerful or influential. It may be targeted therefore to increase, rather than decrease, risk taking, and promote thereby the financing of the real economy. Take for instance SME lending, or benefitting rural communities, or encouraging mortgages so to spread home ownership. Calomiris and Jaremski (2016) argue that “the empirical literature on bank liability insurance strongly favours the political approach over the economic approach as the potential economic efficiency gains of deposit insurance have been outweighed by its costs” (op.cit. p.3). DI has not only protected banks and depositors, but enabled banks to expand lending and support politically favoured groups, as part of an “industrial policy”. Some authors saw this political motivation as a negative factor with adverse and distortive consequences on market allocation and efficiency. Others interpret it as a form of support for “merit goods”, or as a measure of “financial inclusion”. It reflects therefore legitimate and commendable public policy objectives, provided they are transparent, effective and supported by the public opinion.

3.5 Banking and sovereign debt crises

DI costs for the taxpayer have raised concern over possible negative spill-over on public debt and sovereign's stability. The Eurozone crisis has shown how the provision of guarantees may affect the sustainability of public debt (the case of Ireland is often quoted in that context). This link in turn impacts on the credibility of the guarantees themselves in preventing banking crises. The sequence and interaction of spill-over effects, which has been labelled the "bank sovereign nexus" or doom-loop, has attracted attention in the academic and policy literature (see Bolton and Jeanne, 2008; Acharya et al. 2014).

Leonello (2017) shows the important role that DI plays in the bank sovereign nexus. Guarantees may become a triggering factor for sovereign and bank crises. The strategic complementarity of depositors' and sovereign creditors' actions generates coordination failures and interlinked withdrawal decisions. In a context where both banks and sovereigns are fragile and exposed to rollover risks, guarantees become themselves a source of systemic vulnerability and mistrust.

Four implications of this literature are of great relevance to policy discussion.

1. The design of the guarantee schemes -this applies in particular to the European case - is of fundamental importance in limiting the complementarity between bank and sovereign fragilities. Public funding should be organized in such a way that spill-overs are minimized, and the bank sovereign nexus neutralized.
2. Whether guarantees are beneficial or detrimental to financial, and sovereign, stability depends on the net balance between opposite effects, linked to direct and indirect interactions. Guarantees have a direct beneficial effect on financial stability and a direct negative effect on sovereign solvency. But they also have an indirect effect because the probability of a banking crisis and that of a sovereign default affect one another. Therefore, breaking the doom loop, and disintermediating national governments in the provision of DI is the only way to tackle both fragilities.
3. Naturally, environmental conditions have a decisive role in promoting virtuous, rather than vicious circles of interdependence. When the state of the national economy is healthy, public finance is under control and the financial sector is strong, the separate and combined risks of financial crisis and sovereign debt crisis can be managed and reduced in parallel.
4. Banks' holding of domestic sovereign bonds represents a complicating factor. But the inherent link between the two fragilities (bank and sovereign) has much broader and pervasive implications that can be addressed only by breaking the doom loop at its source. This perception emerged clearly in the aftermath of the Eurozone crisis, and became the basic rationale for establishing the Banking Union at the EU Council in 2012.

The significant bank bailouts that occurred in several EU countries at the peak of the 2008-2010 crisis have created a great reluctance from public opinion to put on taxpayers' shoulders the cost of any support for banks and bankers, including DI. Therefore bail-in was established as the European regime for bank resolution. Likewise, the various DI proposals under discussion at the European level

do not envisage funding coming from the public budget: the cost of DI must rest ultimately on banks themselves.

3.6 Deposit re-insurance

Several authors advocated the introduction of re-insurance as a complement to DI in order to avoid or reduce government bailouts (e.g. Plaut 1991, Sheehan 2003, and Madan and Unal 2008). Doherty and Smetters (2005) adopted a multi-period principal-agent configuration of the reinsurance transaction. Their model reduces moral hazard by defining the optimal premium as based on the operation of the traditional reinsurance market (as described by Holmström 1979). Their paper provides a description of the US framework for property liability reinsurance (on reinsurance in the US, see also Calomiris and Jaremski, 2016).

More recently Britz, Gersbach and Haller (2017) developed a comprehensive approach in a general equilibrium setting to show how a judicious combination of deposit insurance and re-insurance brings about an optimal or equilibrium allocation. Through reinsurance government bailouts in case of a banking crisis would not be necessary and DI-induced distortions would be eliminated. Let us follow their argument: when banks are required to pay an insurance premium to a deposit insurance fund, and this premium is used to reimburse bank depositors in case a bank fails to honour its obligations, such an arrangement, while having obvious benefits in protecting savers and preventing bank runs, determines also drawbacks. It encourages in fact excessive risk taking and balance-sheet expansion and tends in general to increase systemic risk, implying then eventually government subsidies or bailouts. If instead a re-insurance mechanism is introduced, either via the capital market or through reinsurance providers, distortions can be eliminated, and government intervention becomes unnecessary. The model refers to the vast literature on DI pricing that points out the difficulty of adequately pricing insurance in case of bank crises (see Pennacchi 2006, Acharya et al. 2010, Allen and Gale 2000). Actuarially fair premiums in fact are often inadequate and insufficient since bank crises tend to be highly correlated and systemic. “Systemic risk surcharges” must be added. Moreover, faced with the risk of widespread bank failures, fire sales and contagion, government bailouts are eventually envisaged. But if re-insurance is there, pricing becomes optimal, crises can be resolved quickly, and government intervention becomes unnecessary. “The re-insurance scheme can be viewed as a form of catastrophe bond. Since the risk of banking crises is notoriously difficult to assess, reinsurance of deposit insurance might need professional expertise.” (op.cit. p.37).

This literature provides an insightful hint: deposit insurance, coupled with re-insurance, may be provided as a fully-fledged market solution to the liquidity concerns and other challenges that normally justify the establishment of an EDIS. If the market can work, why not rely on the market? The public sector should then take on the task only of making it operational. In the European discussion, the concept of reinsurance has been introduced (see European Commission, 2016; European Central Bank, 2016) as a way to phase in gradually over several years the establishment of a centralized DI mechanism modelled after the US Federal Deposit Insurance (FDIC). Even though the term “re-insurance” has been used here in an ad-hoc and non-technical way, the concept has been ingenious in that it enabled to establish a link with an inspiring recent literature.

3.7 Lessons learned

The lines of research surveyed above provide useful insights that we use as building blocks for the idea modelled in the theoretical part of our paper. They can be summarized as follows:

- While there is in Europe a plethora of DI schemes catering for specific typologies of banks (e.g. credit unions) or national/local contexts (national DI schemes), we lack a common minimum cross-border standard of depositors' risk protection, capable of ensuring an equal treatment of "single market" depositors' and a level playing field across the Banking Union.
- DI has significant costs in terms of moral hazard and adverse selection. But it has also benefits: it provides for instance access to lending to social groups that would otherwise be excluded, such as SMEs and lower to middle class households. Between costs and benefits, we need to strike the right balance. We need in other terms a "third way" between publicly provided guarantees and free market solutions.
- The main costs and obstacles to an ESDI are the possible repercussions on the bank-sovereign nexus. There are several ways to alleviate possible negative spill-overs and contagion. But the best one, in order to break the doom loop, is to disintermediate national governments, and national budgets, altogether from DI.
- This can be achieved by relying on a market mechanisms of bank deposit insurance and re-insurance capable of eliminating distortions and making government intervention unnecessary at the national level. But we need to make it compulsory at the EU level and put it in a framework of common rules and standards. We also need an architecture of European regulators and supervisors empowered to preside over the operation of the market (both insurance and re-insurance) and supervise the various funds and schemes supplying insurance and re-insurance. Supervisors should be empowered to take corrective action, and ultimately trigger the intervention of a European LLR when the crisis becomes systemic.
- A European LLR function should be entrusted to the ECB and a European fiscal authority (a common backstop) with the objective of providing liquidity risk protection. Please note that we refer here to "systemic risk" or "last resort" triggers. The expectation is that banking crises of a systemic nature occur relatively rarely. After all, ultimately "liquidity is a public good", and if everything else fails, there should be a public mechanism empowered to step in.

4. A comparative perspective: the US experience

The discussion on DI in Europe has generally taken as its benchmark the US experience, centred around the set of institutions, such as the Federal Deposit Insurance Corporation (FDIC), which, established in the 1930's, have remained -albeit with significant modifications- operational until the present time. This benchmark is legitimate and not surprising. The US has the most efficient integrated and advanced banking and capital market in the world. It has shown remarkable resilience and adaptability in its response to the 2008 crisis, recovering more quickly and flexibly than elsewhere. The monetary policy transmission channels in the US and the interplay between the dollar and banking have been quite effective, particularly when compared with the structural weaknesses in the Eurozone.

However, an acritical importation of the US framework into the European debate may lead to confusion and misinterpretation. An excessive focus on FDIC neglects the DI experience in the US before the Great Crash of the 1930's, and ignores relevant European antecedents, such as the tradition of mutualism dating back to the XIX century. We would like to fill these gaps and show how both historical periods in the US, i.e. before and after the FDIC, should be taken into consideration as benchmarks when discussing DI in Europe.

The history of US DI before the FDIC can be divided into two distinct phases, the first one spacing from the origins to the rise of the public state-level guarantee schemes in the second half of the XIX century, and later a second one ending with the Emergency Banking Act in the midst of the Great Depression. It is generally recognized that "in contrast to the earlier state insurance systems ... [which] accomplished their purposes ..., those adopted from 1908 ... were generally unsuccessful" (FDIC 1998), and actually came to be considered themselves an explanatory factor of the financial crises of the 1930's.

4.1 The US experience before the FDIC

The early forms of DI were private arrangements, born out of the collaboration among the banks themselves, which agreed to provide mutual guarantees making them liable for one another's debts. Such arrangements were accompanied by penetrating mutual supervisory powers, aiming at safeguarding public confidence and encouraging credit expansion and healthy practices. These archetypal DI models were also called "obligations insurance" (OI), where the term "obligation" comprehended both deposits and notes issued by banks (or banknotes). As a matter of fact, the latter were prevalent, in relation to the liquidity and monetary functions of banks in those times. This

prevalence did not change until the beginning of the XX century, after the wave of monetary reforms that strengthened the role of the dollar as the single centrally controlled currency (see Seavoy, 2006).

The origin of OI in the US is linked to the default of the Farmers Bank of Gloucester in 1809 (The Boston Review, 1809, September; see also Gouge 1833; Klebaner 1979). This bank failure, followed five years later by others, paved the way to an increasing demand for banking reform (Golembe, 1955) to prevent the collapse of creditors' confidence. The first system designed with this objective in mind was set up in the State of New York in 1829. It was originally conceived by a Syracuse entrepreneur, Joshua Forman, who took inspiration from the mutual guarantee mechanism created by the Hong merchants in Canton, who were required to be mutually liable for one another's debts in respect to foreign counterparts (Grant 2014). This "ancestral" system contained already several features that had a deep influence on the evolution of DI: 1. an insurance fund to which all credit institutions would contribute, 2. a board of commissioners with incisive supervisory powers, in charge of the fund, 3. a regulatory framework restricting the kind of assets that banks can hold for the purpose of limiting risk taking. Following this first mechanism, in the years between 1831 and 1851 "obligation insurances" were established in five other states, namely Vermont (1831), Indiana (1834), Michigan (1836), Ohio (1845) and Iowa (1858; see FDIC, 1998). Although presenting many similarities, these schemes were tailor-made for specific groups and typologies of banks, and for different localities and states. From then onwards, OI developed in different forms and spread to several States.

These OI systems were generally considered to have worked well. Solidly built on mutual commitments, as "private" insurance mechanisms, they lasted for almost a century, which attests their widely recognized efficacy. The main reasons for their success were that they were: 1. tailor-made and flexible; 2. effective role of supervisors; 3. consistent with market discipline. Supervisory committees established by the guarantee schemes were mainly composed of expert bankers or traders, who were appointed by the same banks paying into the fund. Moreover, they had intrusive powers, arriving even at imposing bank closures in case of insolvency or mismanagement or noncompliance with their directives. Control therefore was exercised tightly from below, the banks themselves, rather than from above. We clearly see striking similarities between such schemes and the present day's forms of *cross-guarantee scheme* or *institutional protection scheme (IPS)*, widespread in Germany, Austria, Spain, and other European countries.

Eventually, OI systems declined and faded away, in the period before and after the turn of the 19th century, in connection with the fundamental changes that affected the institutional and economic environment of the time (industrialisation, internationalisation, urbanisation, etc.). More than any intrinsic flaw in OI operation, two reasons were pointed out for the decline and fall of OI (Kroszner & Melick, 2008, from now onwards KM). The first is associated with the spread of the so-called "free banks", i.e. banks that were not subject to entry restrictions, state charters or DI. Such banks were subject to some light state regulation (Kenneth, 1988), but of a general nature and not particularly intrusive. Second, the emergence of "national banks" with "national" charters, rather than local ones. The national banking system was strongly supported at the time of the Civil War and by the need to pay for it. This evolution ran in parallel with the creation of a single centrally controlled currency with seigniorage prerogatives, which meant inter alia that prohibitive taxes on state bank-notes were imposed. Free banks were required to secure their notes by yielding to state authorities certain eligible securities, such as state bonds, as a form of guarantee. This requirement created a kind of *doom loop*

between state public budgets and bank balance sheets, later contributing to many free banks' failures. Both "free banks" and "national" banks (centrally chartered and controlled) gradually grew in number and importance in relation to state banks. Correspondingly, banks dropped out of OI (see Rolnick & Weber, 1984), making the respective funds unsustainable (for a short history of bank regulation in the US, see Greenspan 1998).

State governments had then to step in and public DI mechanisms were created to replace OI. They were funded by the public budget and controlled by local Governments. The intention was that of protecting local banks and local depositors, but also to constrain the operation of free and national banks and create obstacles to branching.

4.2 The emergence of the "dual" banking system and the crisis of the State-funded DI

The great changes that took place at the beginning of the XX century saw a market-driven growing integration of banking and financial markets across State boundaries in line with the requirements of rapid industrialisation, technological advances, and the formation of large nation-wide conglomerates and cross border national infrastructures. This phase of intense and turbulent capitalist development was accompanied by social and political tensions that reverberated on banking monetary and financial institutions, including DI. Banking crises became more and more frequent and State-level DI mechanisms proved greatly inadequate to protect depositors and avoid bank runs and instability.

An illustration of the unsustainable tensions generated by modernisation and social conflict can be seen in the emergence of the "dual" banking system, which gradually evolved into a permanent feature of the US financial landscape. The dual system meant that two different kinds of banks coexisted in the market: i.e. "unit banks" and "branch banking". The former, later called "community banks" are small territorial banks providing services to local communities. The latter, "branch banking", are establishments connected to other banks, backed and controlled by larger financial institutions. Later developments, until now, and not only in the US, proved that the two types of bank can operate smoothly next to each other, adopting different business models, and catering for the needs of different constituencies of customers. The problem is that at that time State legislation and regulation often took an interventionist stand aimed at favouring one or the other kind of bank for policy, or even ideological reasons. Bank branching for a long time was seen unfavourably by State and federal legislators, which led to codify the prohibition of inter-state banking. Independent unit banks were viewed instead as being closer to local borrowers, particularly in farming states, and corresponding therefore more closely to "the democratic ideals". Consider that the McFadden Act of 1927, which prohibited branching, remained in force until 1994. The "philosophical" contrast between the two approaches to banking could be traced back to the American Constitution, and the conflict between the Hamiltonians, worried that the industrial revolution required large capitals and big size, and the Jeffersonians, protecting rural communities from competition. Much water has gone under the bridges since then, but the dualism between large international banks and small community banks has remained a permanent feature of the American banking and regulatory landscape.

How does DI feature in this picture? Kroszner and Melick (2008) and Golembe (1955) establish a strict linkage: the “prevalence of unit banking in the US provides an additional rationale for DI” (Kroszner and Melick, p.6). The politics of favouring unit banking prompted a fragile banking system prone to crises and bank failures and requiring therefore DI. Forman, the architect of the first bank OI scheme (New York 1829) stated that DI “is on the whole a more ample security to the public, than that of a general bank with branches”. Steagall, the main force behind the 1933 DI legislation, is quoted (KM, p.7) as saying that “this bill will preserve independent, dual banking in the US ... This is what this bill is intended to do” (Golembe 1960, p.189). Opposition to DI argued instead in favour of branching, large financial institutions and risk diversification: “A general guaranty of bank deposits is the very antithesis of bank branching” (Cole 1932, quoted *ibidem*, p.7).

Bank dualism generated inherent tensions and conflicts in the supervisory framework, which had an impact on DI. It meant in fact the uneasy coexistence of State versus federal or “national” regulation and supervision. Inconsistencies overlap and duplications have often been considered flaws of the dual system. Paul Volcker has often pointed out how the two levels generate fragmentation and market inefficiency: an “archaic and unduly complicated regulatory system, a structure that is itself acting as an impediment to efficient and stable markets” (Volcker, 2017). However, there were, and still are, strong supporters of such a “dual” structure: state banks were deemed by some to provide “creativity” and “innovation”, as they are closer to local clients. Greenspan stretches this argument to its limit: “the dual banking system offers protection against overzealousness in regulation by permitting banks to have a choice ... in selecting a state or a federal charter” (Greenspan, *op.cit.* p.5). Regulatory arbitrage and fragmentation – according to this view- would contribute to the stability of the banking system (*sic*). Nevertheless, at the turn of the XX century, the prevailing views were critical, tending to coalesce around the complaint for the lack of a “national” DI system. Note that between 1866 and 1933 not less than 150 proposals for a federal insurance system were presented in Congress (FDIC, 1998). They reflected a widespread and long-lasting aspiration to overcome state resistance and transfer regulatory prerogatives from the state to the national level, thus mutualizing bank failures risks.

Another source of tension concerned the integrity of banking services, the prevention of fraud and the sensitive sometimes incestuous relationships between bankers, industrialists, regulators and legislators. As a matter of fact, free banking emerged in the US in reaction to the perceived “politicisation” of bank credit and the spread of cosy arrangements between local politicians, influential borrowers and boards of financial institutions (see Greenspan p.2). The history of financial crises and bank runs in the US has been marked by several episodes of corruption, malpractice, and political bribery. The first Comptroller of the Currency in 1863 (quoted by Greenspan) proposed that the National Bank Act “...be so amended that the failure of a national bank be declared *prima facie* fraudulent, and that the officers and directors, under whose administration such insolvency shall occur, be made personally liable for the debts of the bank, and be punished criminally ... “ (p.51). This draconian prescription went obviously too far and did not go through. But it witnessed a widespread sentiment of suspicion and mistrust. Certainly, the names of tycoons such as W.L. Norton in Oklahoma at the beginning of the last century, and later Marvin L. Warner in Ohio at the time of the Savings and Loans crisis, remained impressed in the public view of banking determining serious repercussions on the reputation of the sector.

4.3 Bank crises and regulatory failures in the early 20th century's America

It was in this context of tension build-up, recurrent bank crises, erosion of public confidence that at and after the turn of the XX century, the failure of public State-level DI matured. The paper by Kroszner and Melick (KM, 2008) establishes an interesting nexus between DI and the nature of bank crises. DI is intended to “contain banking panics and crises and protect small and naïve depositors”. Therefore, the starting point of any DI scheme should be an analysis of what makes financial intermediaries prone to panics and failure, and why. Following Calomiris and Gorton (1991), KM distinguish two patterns of bank failure. The first one is based on **imperfect or asymmetric information**. Uninformed depositors, not knowing whether a bank is close to insolvency, withdraw indiscriminately from all banks, generating the panic. In this case, as information gradually improves, solvent banks are eventually sorted out from the insolvent ones, leading to the normalisation of the situation. The second case is based on random withdrawals and is quite different. Depositors know that if for whatever reasons a run starts, they would be caught in a situation of first-in-line first-to-withdraw constraint. In this case, the crisis is determined by random events, “perhaps even a sunspot”, which generate a panic situation. In other terms, panics can arise simply out of self-fulfilling fear. KM call the first case a “separation equilibrium”, where the crisis enables depositors to move from unhealthy to healthy banks, and in so doing it enforces market discipline. The second case of indiscriminate random runs on all banks is instead called a “pooling equilibrium”. Naturally DI plays a different role in the two cases: in the latter its benefits are maximum, while in the first case of separation equilibrium its drawbacks are more evident, as it creates moral hazard, adverse selection, support to unhealthy banks, and therefore ultimately incentives to successive bank failures and instability. The optimal design of a DI scheme hinges on the nature of bank crises and an in-depth analysis the specific circumstances of the past and prospective banking market.

According to KM, in the US experience of the early XX century, pooling equilibria and random withdrawals “were relatively rare”. Crises were mostly triggered, rather than by market failures (imperfect information), by policy interference and state failures. For instance, KM quote the excessive recourse to state-wide bank holidays that politicians in those days were too willing to declare. Most bank runs were determined by idiosyncratic crises due to the vulnerability or misconduct of specific banks or localities. For instance, the panic of 1907 came about and was essentially targeted to a few national banks in New York City, controlled by speculators who were trying to manipulate the copper market. In fact, the crisis then did not spread to other banks. Later, panic addressed trust companies and was motivated by “the risk of trust portfolios, the lack of direct access to the clearinghouse, and lower reserves against deposits” (Moen Tallman 1992, p.628). Similarly, during the Great Depression the panic outbursts “were almost always associated with regionally concentrated withdrawals from particular types of banks or banks known to be insolvent” (KM, p. 4), in other terms fell clearly in the pattern of “separation equilibria”. The panic of February-March 1933 had its origin in Detroit linked to the impending collapse of the Guardian Group of banks that was caused by their large exposure to real estate; this specific crisis became systemic only because “of the precipitating action of state bank officials declaring a rolling wave of bank holidays” (KM, p.5). “It was not depositor runs on the banks in the classic sense that prompted such drastic measures. Rather it was an unwillingness on the part of state officials to stand idly while depositors attempted to transfer funds to surrounding states where deposit restrictions were not in effect” (Wicker 1996, pp. 127-128). This crisis was the one that

determined the panic leading to President Roosevelt's declaration of a national bank holiday in March 1933. Once again, the finger should be pointed towards the mistakes of state policymakers and politicians, rather than contagion and systemic failure. It is not surprising then that DI in those circumstances was not and could not effectively play their stabilisation function. As Calomiris and Mason note, in relation to this situation, "if private interbank cooperation, buttressed by liquidity assistance from the monetary authority (like the assistance provided by the RFC [Reconstruction Finance Corporation] to the Chicago clearinghouse), were adequate to preserve systemic stability, then a far less ambitious deferral safety net would be desirable (Calomiris and Mason 1997, p.881)". This comment in our view takes on a prophetic value in relation to today's debate.

Another important point that KM make is that the fragility of certain banking situations was "enormously magnified" by regulatory failures, like "restrictions on branching and lines of service that impede the diversification of an institution's portfolio" (KM, p. 1). They refer here in particular to the unit banking legislation, or – in their words- the "populist concerns over the concentration of power in "money trusts" [which] led to widespread prohibitions on branching by financial intermediaries in the US (KM, p.2)". Other relevant, and damaging restrictions in that context were the requirement that Savings and Loans (SL) institutions engage only in mortgage lending, and the separation of commercial and investment banking (introduced in 1933), which left the former exposed to real estate shocks and the latter with less diversified assets. The point here is that the ineffectiveness of DI in preventing and responding to bank panics should be evaluated in relation to the effectiveness of different regulatory and policy frameworks. When regulation and supervision are inconsistent with one another, contradictory, fragmented, and incapable of eliminating obstacles to cross-border risk sharing, DI cannot work.

In the period we are considering, i.e. the beginning of the XX century, the literature provides ample evidence of regulatory failures contributing to bank crises and the demise of the DI of the time. Please note that those DI mechanisms sponsored by state governments had a semi-public nature, because no state "explicitly" assured to repay deposits with taxpayers' money. State legislation required banks to participate in an insurance fund, which would take charge of depositors' loss protection. They were basically financed by banks' contributions (assessments) set by law. Perhaps the greatest deficiency of these second-generation schemes, can be attributed to the lax and inefficient role of supervision. Differently from the prevailing modalities of co-regulation and mutual supervision inherent to the previous period's OI, *ad hoc* state-level public authorities were created to supervise banks, but their supervision proved to be of very poor quality (see Warburton, 1959).

Two basic reasons are given for this supervision failure. First, authorities had far less penetrating powers than those given to the old "committees of bankers". The toughest sanction authorities could impose was the removal of a manager. Moreover, supervisors were recruited mostly from the state administration or directly from politics, had lower skills than those of the privately designated members of previous committees, and could be easily thwarted and eluded by the superior ability of bank accountants. Their independence, and sometimes integrity, were also often questioned. Cases of oversensitivity of public officials to banks *desiderata* and capture by stakeholders were not unusual. In some cases, there emerged documented acts of supervisors' corruption, as in Oklahoma after 1919 (Robb, 1921; Dehejia et Lleras-Muney, 2007). Misconduct in supervision was also a factor behind the rise of risk-taking in banks' balance sheets throughout the 1910's, which made banks vulnerable and

unable to cope with the shocks of the following decade. The sharp rise in risk was also due to the boom of deposits in rural areas driven by the surge in agricultural commodity prices. The subsequent bust in the rural sector had a strong impact on bank intermediation, engendering withdrawals to sustain losses. Under such volatile conditions, bank-runs became more and more frequent, making it hard for DI funds to cover losses. Finally, state level DI created adverse selection: sounder banks preferred to switch their charter to avoid the rise in assessments imposed by the DI funds, whereas riskier banks remained willing to pay contributions. It has been estimated (Calomiris, 1989) that the failure rate for state banks in the 1920's was 35.6%, nearly five times bigger than the corresponding rate for federal or "national" banks (7.6%).

In conclusion, contrary to OI, the State-level public DI mechanisms of this period proved to be unsuccessful. Regulatory failures, the politicisation of bank credit, and weak federal governance (no support to failing local banks and to local depositors was provided by the federal level) were the main reasons for their failure. They were not able to prevent or respond to bank crises. They did not protect depositors and bring calm and confidence in the market. None of them survived the turbulent 1920's. The first to cease activities was in 1921 the Washington Fund. Between 1921 and 1929, about 600 banks a year failed on average (FDIC, 1998). By 1930 no state insurance fund was in existence anymore.

4.4 The birth of FDIC

The unfolding of events leading to the establishment of a brand-new body at the federal level, the FDIC, in the course of the Great Crash, is well known. It will be reviewed here with two objectives in mind: 1. show the devastating impact of macroeconomic mismanagement, particularly monetary policy, which no deposit insurance, of whatever kind, can contain nor redress; and 2. highlight the importance of the LLR function as a complement and backstop to DI.

FDIC was introduced in the heat of the panic, under the haste and hustle of emergency conditions, more as a palliative to calm the high fever of public opinion, than as a structural problem-solving response. It aimed above all at giving a strong signal at the national level that depositors' protection was a priority for the country as a whole, restoring therefore confidence in banks, all banks, the banking system, and trust in the federal government, and in government as a whole. "After all - said F.D. Roosevelt in his first "fireside chat" on 12 March 1933 - there is an element in the readjustment of our financial system more important than currency, more important than gold, and that is the confidence of the people".

Defaults at the beginning of the crisis, in the 1920's, did not receive much public attention, as they mainly affected small rural banks, considered (or prejudiced to be) inefficient and badly managed. But the situation changed dramatically after 1930, when crises began to involve commercial banks and depositors rushed to convert their savings into cash. What precipitated the crisis was the macroeconomic environment. Banks reduced credit and liquidated assets in response to an increasing demand for cash. But the credit crunch that followed forced firms and savers to run for more liquidity. And in the end, as more and more banks were unable to repay deposits, the overall confidence in the banking system collapsed making the crisis systemic and overwhelming.

After closing the National Credit Corporation, a lender created by bankers to provide liquidity to distressed banks, the Hoover Administration launched two measures: 1. The Reconstruction Finance Corporation (RFC) was established and tasked to make advances to banks; and 2. The conditions under which banks could borrow from the Federal Reserve were eased. By the end 1932 RFC had authorized almost \$900 million (FDIC, 1998) in support of over 4,000 banks. But this measure proved utterly ineffective. In fact, many banks perceived receiving assistance from RFC, accompanied by the compulsory disclosure of borrowers on a public list, as a stigma. It negatively affected their reputation and signalled a critical situation to markets. The main worry of the Fed in the meanwhile was to preserve the position of the dollar against other currencies, rather than facing domestic liquidity gaps (Friedman et Schwartz, 1963). When the Fed eventually decided to step in, its intervention was insufficient to bring under control the liquidity shortage. So, when in November 1932, Franklin Delano Roosevelt was elected, he had to immediately declare a nationwide bank holiday and propose new legislation to cope with the crisis. In a record time the draft legislation was approved by Congress. On 9 March, Henry B. Steagall, Chairman of the Committee on Banking and Currency, triumphantly entered the Chamber, waiving a copy over his head (FDIC, 1998) and screaming “Here’s the bill. Let’s pass it” (see Moley, 1966). The so-called *Emergency Banking Act* was approved after only 40 minutes of debate, with no amendments permitted.

The Act enlarged the RFC’s powers, authorizing it to invest in stocks and make secured loans to individual banks (FDIC, 1998). The Fed was instructed to abandon its restrictive monetary policy and issue Notes, backed by the Government, to banks, even without sufficient collateral. Finally, the Secretary of the Treasury was charged to authorize the reopening of banks, upon the recommendation of the Federal Reserve, the National Bank Examiner and the Comptroller of the Currency.

The Emergency Act did its job. It showed that authorities were in control and restored a minimum of public confidence in the banking system. But it was not perceived as decisive for the achievement of financial stability. It was at this stage that the idea of a federal deposit insurance mechanism resurfaced, and it was again Steagall to raise and become the main referent for the new project.

Not unsurprisingly however, the idea aroused a lot of scepticism. For instance, a strong opponent of the proposal was the American Bankers Association, whose President branded it as “unsound, unscientific and dangerous” (*The N.Y. Times*, June 16, 1933, p. 14). Opposed were also President Roosevelt himself, the Secretary of the Treasury and the Chairman of the Senate Banking and Currency Committee, Carter Glass, who later would become one of the sponsors of the Banking Reform Act. The main argument against the adoption of the new measure was the unsuccessful track record of the previous state-insurance experience. Glass eventually capitulated making a gesture of political realism: he admitted in fact (*Business Week*, April 12, 1933, p. 3) that this measure was strongly desired by the wide majority of the electorate, and it would be impolitic to resist it. The bill was later amended to include a “temporary fund”, as proposed by Senator Arthur Vandenberg². In his idea, the need for liquidity would not be adequately met simply by mechanisms of institutional cooperation. The

² Precisely Senator Vandenberg said that “the need is greater in the next year than for the next hundred years.” see *Bank Bill Debate to Open in Senate*, *The New York Times*, May 19, 1933, p. 4.

amendment was adopted the same day of its presentation³ and provided coverage up to \$2,500 deposits. With this, the FDIC was ready to start operating as of 1 July 1934.

The initial capital of the fund was provided by the Treasury and the Federal Reserve Banks, contributing respectively \$150 million and one-half of their surplus. The Board was composed of three members, of which one was the Comptroller of the Currency and⁴ the other two appointed by the President. They would remain in charge for six years. One of the two directors chosen by the Government, would serve as Chairman of the Board. It is interesting to note that the “permanent plan” envisaged in the law never came into force, as it was later replaced by a new framework set in the 1935 Banking Act. However, many of the characteristics of the FDIC remained those contained in the temporary plan, such as the limit of \$2,500 protection for each depositor, and the contribution fixed for each bank at 0.5% of covered deposits, of which a 0.25% had to be disbursed *ex ante*. The insurance was compulsory for all the banks under the Federal Reserve System.

Thrift banks chartered at state level were exempted. They were perceived as being less risky, and less subject to liquidity shortfalls (Schisgall, 1975). But this did not stop them from accessing the Insurance scheme. Among the 12,987 institutions that entered the fund on the 1 January 1934, 214 were mutual savings institutions. Nevertheless, given the possibility for these banks, to come out of the arrangement, 169 withdrew their contributions, as they did not accept to pay the same assessment rate of commercial banks. Moreover, while the depositors’ protection level of commercial banks increased to \$5,000, it remained fixed at \$2,500 for the majority of mutuals, unless the FDIC itself decided to set the same level of protection as that of major banks. Finally, a separate Fund for thrifts was set up.

4.5 The secret of FDIC success resilience and longevity

The establishment of the FDIC appeared to produce its expected outcome, public confidence, but it was decidedly helped by the change in macroeconomic conditions. Deposits grew in 1934 by 22%, reaching the value of about 7.2 billion, nearly half of the amount of losses incurred in the previous three years. Liquid assets in bank portfolios also increased considerably, reflecting a more prudent banks’ behaviour. Just nine insured banks failed in 1934, of which eight were small institutions. But, as outlined in the first FDIC Annual Report (FDIC, 1934), the decisive role was played by the financial assistance provided by government or government-sponsored agencies, as well as the recovery of the real economy.

From then onwards, throughout the course of the XX century until the present time, FDIC evolved, adapted, changed, but continued to inspire confidence in the banking system. In the eyes of the public, its existence guaranteed that bank deposits are protected, bank failures do not bring with them the impoverishment of savers, and tax-payers’ money is used wisely, not to enrich bankers or speculators.

³ see FDIC, 1998: “On the day Vandenberg introduced his proposal, Vice President Garner [N.B.: Garner had been a strong supporter of deposit insurance since the first days of Roosevelt’s election] was presiding over the Senate, which was sitting as a court of impeachment in the trial of a district judge. Garner had heard that Vandenberg had formulated a deposit insurance plan that would accomplish the same goals as those contained in an insurance bill which Garner had pushed through the House in 1932. Desiring that deposit insurance be implemented as soon as possible, Garner therefore approached Vandenberg during the impeachment proceedings and inquired whether he had the deposit insurance amendment in his possession. After Vandenberg responded affirmatively, Garner instructed him to introduce the amendment when signaled. Several minutes later, Garner suspended the court proceedings and ordered the Senate into regular session to consider more banking legislation. With Garner sitting by his side, Vandenberg then offered his deposit insurance amendment, which was overwhelmingly adopted”.

⁴ The surplus they reported in January 1933.

In other terms, it proved able to become and remain an integral and unquestioned component of the US banking system. This is mainly due to its growing authority, professionalism and independence.

This does not mean there were no criticisms nor missteps. “Some have argued at different points in time that there have been too few bank failures because deposit insurance, that it undermines market discipline, that the current coverage limit is too high, and that it amounts to a federal subsidy for banking companies” (FDIC 1998). Moreover, even though the severity and trauma of the 1930’s banking crisis has not been repeated, FDIC could not prevent the occurrence of later financial crises. “Bank insurance was harshly tested in the late 1980’s and early 1990’s”, at the time of the Savings and Loans (SL) crisis, and more recently in the 2008-09 perfect storm. “The system emerged battered but sound” and was able to adjust to the more volatile higher risk financial environment of to-day, continuing to enjoy broad public support.

One of the main reasons for its popularity is that the insurance function of the FDIC is only part of its assignments, not necessarily the most important one. The agency serves also as the “primary federal supervisor for state-chartered non-member banks and has backup supervisory authority over all other insured depository institutions”. Moreover, the FDIC “manages the receiverships of failed insured banks and thrifts”, the latter after 1989, because of the legislation that resolved the SL crisis. FDIC is therefore part of the comprehensive and complex US system of bank regulation and supervision and performs important tasks in bank resolution and liquidation. The secret of its success has to be found in three basic principles underlying its operation: 1. “financing the federal DI fund through assessments”, i.e. specific risk-based contributions; 2. “the use of rigorous bank examination and supervision to limit the exposure of the fund”; and 3. define “standards for failed-bank payoffs and liquidations, manage receiverships and other elements intended to minimize the economic disruptions caused by bank failures” (all quotes from FDIC 1998).

4.6 The role of FDIC in the US system of DI

The role that FDIC played in the 2008 financial crisis shows both its strengths and weaknesses, which are the strengths and weaknesses of the US system. FDIC confirmed its ability to carve out for itself a position in the US regulatory space that is flexible, resilient, and unchallenged. When the level of the Fund began declining in 2008 and became negative in 2009, due to both an increase in coverage during the crisis and a surge in bank failures, Congress promptly intervened providing extra-funds, while FDIC took corrective actions. These consisted in: an increase of FDIC line of credit from the US Treasury; an improvement of the risk-based insurance pricing, adopting standard market approaches to underwriting and risk management; an increase in assessments aimed at restoring the Fund to its pre-crisis levels; measures to encourage liquidity in the banking system; etc. Similar measures were taken by the National Credit Union Administration (NCUA) that charters and supervises federal credit unions, in response to their crises and growing failures. Please note that now the NCUA not only charters and supervises credit unions, but also liquidates failed banks, provides deposit insurance, and provides LLR liquidity to solvent institutions via its discount window. For commercial banks, the three functions are provided instead by three distinct agencies: FDIC, the Comptroller of the Currency and the Federal Reserve.

FDIC was also critically tested by the Trump Administration's sweeping program of regulatory reform. Not surprisingly - in the light of what we said - FDIC was hardly mentioned there and was left by-and-large unscathed. The Core Principles of the reform, issued in mid- 2017, aim at i) empowering Americans to make informed financial choices; ii) prevent taxpayers-funded bail-outs; iii) fostering economic growth; and iv) advancing American interests in international negotiations. These principles were then spelled out in four Treasury reports (banks and credit unions, capital markets, asset management and insurance, non-bank and financial innovation). Recommendations covered basically two areas of interest for DI: 1. reducing the regulatory burden and decreasing un-necessary complexity; 2. addressing regulatory fragmentation overlap and duplication. We might have thought that these recommendations involved re-visiting one or another aspect of the DI organisation. But nothing specific instead on DI we find in the Treasury reports and in the legislation passed with bipartisan support in 2018. The latter aimed at rolling back financial regulation and easing restrictions on small lenders. Thus, FDIC was spared major overhauls and continue to enjoy big and wide-spread support.

Can we say that FDIC makes the US DI system “centralized”, as the discussion in Europe seems to imply? Certainly, the agency throughout its long history has contributed to transfer DI prerogatives from the State to the federal level. It has also played a catalytic role for broader reforms in bank regulation and supervision, as it managed to pool together supervisory and recovery responsibilities together with DI. Its close and respected relationships with the Treasury and the Fed contributed to improve the macroeconomic management of the bank crises, through liquidity provision and sound fiscal and monetary policies.

But the American system remains basically “dualistic” and pluralistic, or one might say, fragmented. It embodies the “dualism” between the State and the federal level, the community banks and the large financial institutions, the public functions and the private responsibilities, the protection of depositors and the accountability towards tax-payers, the enforcement of market discipline and the safeguarding of the public confidence in savings (for a description of the public-private nature, and origin, of FDIC and also the Fed, see Gelpern and Véron 2018). Sitting in-between those evolving and conflicting positions may become uncomfortable and at times ambiguous. But it has probably also stimulated professionalism and authority, and guaranteed independence. The quintessence of a “third way”.

4.7 Lessons for Europe

The case of DI in Europe is different, because its Banking Union started at the European level under the push of the sovereign debt crisis. It emerged from a clean slate and did not have the “benefit” (sic) of a long secular evolution marked by failures crises trials and errors. Moreover, it probably cannot afford to, and should not wait until it learns from future disasters. What lessons can we learn from this historical excursus? They can be summed up as follows:

5. The experience of the first century of DI in the US, characterized by private mechanisms of mutual support and local schemes, based on the principles of mutualism and bank cooperation shows that under certain conditions the insurance market can work effectively providing guarantees consistent with competition, effective – albeit implicit- monitoring and market discipline.

6. Publicly funded schemes, particularly those at state or local level, have strong unintended consequences and disincentive effects in terms of moral hazard and adverse selection. They must be accompanied by efficient and strict supervisory mechanisms and remain independent of party politics.
7. The drawbacks of public DI schemes are maximum when there are fragmented incoherent and distortionary regulatory frameworks or regulatory obstacles to cross-border activities and risk diversification.
8. Particularly damaging is the fragmentation induced by concurrent levels of Government (as shown by the US “dual” system). The doom loop between public debt and bank vulnerability basically originates from there. Hayek’s argument on the “denationalisation” of money and banking, applied to state or local level, has significant implications for our discussion (Hayek 1976).
9. A fundamental role is played by the LLR, and its ability to intervene in a flexible and timely way. This is the task of the Central Bank in the provision of liquidity for solvent intermediaries, and the fiscal authorities providing a backstop to face up to the insurance market imperfections. When a crisis risks becoming systemic, because of for instance micro- or macro-economic mismanagement, asymmetric information, lack of leadership, geopolitical complications, etc. DI becomes a “public good” and must be supplied by the policymakers.
10. The FDIC case provides a benchmark for reflecting on the most effective “institutional architecture” of supervision, regulation, resolution, and fiscal backstops for DI. An appropriate mix of centralisation and decentralisation, public oversight and private discipline, protection of savings and fiscal accountability has proved successful in the US experience.

5. Historical precedents: the case of Italy

The case of Italy provides a good illustration of the inherent links between DI, the different stages of development of banking and finance, and the underlying economic and political situation. In a snapshot, we can identify three stages of DI evolution in Italy. Please note that there are striking similarities with developments in the US. The first stage registers a prominent role of private arrangements following the spread of mutualism and collaborative efforts among the lending institutions; the second stage is characterized by the growing role of public authorities to correct the instability and distortions generated by market imperfections; and finally the State takes over as the main and eventually the only player in a world of public monopolies and corporatist institutions (the interwar period). Those three stages correspond to the different stages of capitalist development in Italy: the 19th century liberal economic development, the explosion of foreign trade and investment in the globalisation wave at the turn of the XX century, and the retrenchment in protectionism and nationalism in the interwar period. We will see how getting out of the confines of state monopoly capitalism has taken the Italian financial sector (with ups and downs) a great part of the 20th century.

5.1 From mutualism to the mixed economy: the State as deposit guarantor

Italy in facing up to the challenges of its unification and the industrial revolution relied on three basic streams of banking tradition and philosophy: 1. The merchant or private banking that had started in Renaissance Italy but was later strengthened and further developed by the Dutch and the English “financial revolutions” of the 17th century, with fractional reserve banking and the stock exchange; 2. The role of the State in promoting and guaranteeing savings with *Cassa Depositi e Prestiti*, dating back to the Napoleonic times, and the *Istituti di emissione* (issuing institutions), i.e. Government banks linked to the pre-Union sovereigns; 3. The parallel circuit of rural and cooperative banks linked to the Catholic and socialist movements to cater for lending to working class households, SMEs and farmers that for various reasons did not have access to the other banking channels. To these three streams we see that there correspond three models of deposit guarantees, provided either by the market, or by the Government, or by the collaboration among financial institutions themselves.

In the first period the three models co-existed but more in competition/conflict with one another than in a systemic accommodation. Issuing banks of the pre-unification Italian Kingdoms and Statelets remained in existence despite monetary unification after 1860 (and up to 1926), but their role was gradually eroded by the increasingly dominant position of the Bank of Italy. Through these banks, state funds were channelled to bail out small banks in crisis (e.g. the Banca Nazionale was authorized to issue legal currency well beyond the statutory constraints in time of banking crises). CDP, thanks to the provision of State guarantees on its deposits, expanded its balance sheet. On the eve of the First

World War CDP deposits amounted to one third of all deposits. Gradually private deposit banks and stock exchanges that were virtually absent at the beginning of the period grew and spread their function, but this progress was marked by disorderly bail outs, moral hazard, political interference, which were at the root of many banking crises. Only around the turn of the 19th century, thanks mostly to European capital, there emerged in Italy the so called “mixed banks”, or universal banks, which had a fundamental role in financing private industry, infrastructure, export and foreign investment in the tumultuous phase of industrial and infrastructure development of the turn of the century.

Banking crises gave rise to recurrent and systematic bailouts, accompanied by moral hazard corruption and political influence. Maffeo Pantaleoni spoke of an “immense moral crisis”, culminating in the collapse of Banca Romana (the former issuing Bank of the *Stato Pontificio*) and Credito Mobiliare in 1893: “from now onwards it can become a good speculative behaviour to do badly our business and then claim loudly the help of emission banks (G. Ferraris, as quoted in Onado)”. From local bailouts the response to the crises later climbed up to the national level and national bailouts. The waves of banking crises at the beginning of the 20th century were equally devastating. They were addressed by the creation of banking consortia led by the Bank of Italy. Einaudi was very critical of this system of intervention. He spoke of “clutches” freely provided to the private sector and stigmatized the pervasive conflicts of interest, i.e. the systematic entrance of industrial capital into banks’ capital, the breach of the “separateness principle”, alongside the “persistent degeneracy of the Italian stock exchange”. Bailouts became part of a wider strategy, amounting to a “wholesale bail-out of the industrial sector”, namely the iron industry and the banks that financed it. It had sweeping and long-lasting effects on the industrial and financial structures. The Banking Reform of 1913 failed to address the real causes of instability, i.e. lack of prudential supervision and a lender of last resort. It introduced instead rigid demarcations inspired by the “bills only” doctrine and the separation between short-term and medium-term lending. It left the “mixed banks” arbiters of capital markets and the financing needs of industry. This vulnerable framework remained operational in practise until the 1990’s.

It is interesting to note the role of the “*Consorzio sovvenzioni su valori industriali*”, led by the Bank of Italy, created in 1914 by the collaboration of the main private banks and industries to fund the bailout of banks and industry, and to manage pre-war industrialisation and post-war-restructuring. This new institution intended to provide a bridge between the banks and their main clients, the industrial sector. But it also provided “the port of entry for the unavoidable third actor of the Italian scene”, i.e. the State (Onado, op.cit.). Consortia are voluntary arrangements for entrepreneurial collaboration regulated by civil law that can bring together both private and public players in a private market framework. They became however instrumental in favouring the progressive shift from private collaboration to the establishment of public bodies financed by the State.

As far as DI is concerned, the underlying philosophy throughout the period was that the best way to safeguard depositors is to prevent bank failures, and industrial failures, and that the best preventative measure is bailing out the ailing institution. When private collaboration was not able, nor willing, or sufficient, to intervene, then the State had to step in. Gradually, step by step, in line with the progressive shift towards corporatism and fascism, the argument took root according to which since the market is inherently unstable, dominated by industrial and financial monopolies, it would be better to replace it with public monopolies. This is how the strong role of the Entrepreneurial State and the Banker-Insurer State emerged and got established. Market imperfections and financial crises became

then the precondition, and the pretext, for doing away with the market altogether and putting the State at the helm of the industrial and the financial complex. No market, no crisis. No competition implied then no need for DI.

5.2 “Banche Popolari” and Cooperatives: an alternative circuit

Throughout this long period, an extraordinary development took place: the emergence and gaining ground of a parallel circuit of grass-root lending institutions, i.e. savings banks, “banche popolari” and cooperative banks.

Following a pattern common to several European countries, this development responded to a deeply felt aspiration to establish alternative and independent mechanisms for providing finance and funding. Finance “from below”, capable to benefit country farmers, the urban peripheries, the industrial working classes, people overall excluded from access to the standard lending mechanisms. Several factors concurred to create a strong self-perception of a separate and tailor-made identity for those lending institutions: different philosophies, different ownership structures, strong ties with local and underprivileged communities, ideological connotations, linked to Catholic social teaching or the fledgling Socialist and Trade Union movement. These defining traits were emblematically summed up in the three S’s of the motto adopted by Franz Hermann Theodor Schulze-Delitzsch, the organiser of the first credit unions, and by Luigi Luzzatti, the Italian initiator: Self-help, Self-responsibility, Self-governance. In post-unification Italy, this sense of separateness was reinforced by the political ostracism vis-à-vis Socialism and the labour movement, and by the self-imposed exclusion of Catholics from politics due to the conflict with the Papacy brought about by the military occupation of the Saint Siege’s territory by Italian troops (from 1870 onwards).

Please note that for this family of lending institutions, “the bond of association” is of paramount importance, being at the root of the identity itself of the institutions. Within this “bond” there are two aspects that are inherently linked to DI: 1. the mutual obligation to help each other in case of difficulty, and 2. the responsibility of mutually controlling, monitoring, informing and intervening in case of mismanagement and vulnerability. DI, therefore, through the bond of association of the collaborative players, which felt all members of a community, entered explicitly and visibly in the “business model” and in the operation itself of the lenders. Better DI appears to be in the DNA of cooperative lending or credit unions. This historical legacy helps to explain why until now credit unions in Europe are strongly opposed to see other players, the Government, or a centralised DI Fund, etc. interfere with their arrangements and voluntary stipulations. On this, the basic difference is only in relation to the respective communities, the cooperative banks being typically engaged in the countryside with rural communities, and the *banche popolari*, dealing originally with industrial labour. This difference, which concerns basically the modality of providing the assurance of solidarity, gave rise to a heated controversy: while the *popolari* envisaged the unlimited liability of their members, with no requirement of collateral, the former provided for a limited responsibility accompanied by the need to pledge collateral. In both cases what mattered was the legal and moral obligation to provide mutual support. This was considered inherent in the specific lending model of these intermediaries, and essential to maintain the confidence of depositors/lenders. It amounted to a fundamental ethical requirement. That is why Pope Francis (and his predecessors) have often expressed support for

cooperative lending. The “Coop Pope” (this is how Pope Francis has been called) recently stated: “in a cooperative a failure is half a failure”.

Throughout the different phases of the Italian financial history, *banche popolari* and cooperatives have followed a separate and parallel track developing autonomous forms of DI, establishing close links with local business communities, following what has often been called the “relationship banking model”. It is well known that it is inherent in this business model the risk of cosy relationships between industrial customers and local bankers, pervasive political influence, and sometimes even malpractice and corruption. But it would be wrong to assume that territorial relationship banking did not provide effective forms of lending and investing to the benefit of local communities. Moreover, lending practises and operations were subject to local checks and balances and gave rise to wide-spread support. When something wrong happened (in the case for instance of Monte dei Paschi di Siena or other bank crises), this gave rise to waves of resentment and rejection, but it never led to question the model of relationship banking and the close linkages that it nurtured between lending and local communities. Throughout the whole period and the different phases of the Italian banking history, and despite bank crises and failures, savings banks (later transformed into *Fondazioni bancarie*), *banche popolari* and cooperatives enjoyed wide support from the public opinion and represented an unquestioned component of the Italian financial landscape.

5.3 Conclusions on the Italian case

The Italian experience with bank DI reflects the specificity of the institutional mechanisms at play in the Bel Paese, the different features and phases of the Italian economic financial and political history. But, compared with the US, it also shows remarkable similarities that are worth highlighting and can be significant in the perspective of European and global financial markets integration. The pattern that seems to emerge from the comparison is the following: the pendulum of DI started with the establishment of private market arrangements based on the voluntary collaboration of banks themselves, accompanied by effective- albeit often informal- mechanisms of peer control and supervision. The inherent fragility and instability of these initial conditions gave rise to crisis and failures bringing about losses for depositors and consequently calls for government intervention implying public funding and the expenditure of taxpayer’s money. This in turn generated moral hazard and political interference. It led also to collusion and cosy relationships between lenders and borrowers. In other terms from “market failure” DI shifted to “state failure”. The pendulum swung then in the direction of institutional reform to strengthen regulation and supervision and establish control of funding at national level.

This pendulum finds several analogies in the US banking history. But, looking deeper inside, sharp differences appear. In the US, institutional reforms went overall in the direction of market liberalisation (big bang) and financial cross-border integration, gradual centralisation of market supervision and DI funding, Italy went in the opposite direction with the virtual “nationalisation” of banking, the wiping out of private markets and competition, and their replacement with an overwhelming role of the State at the national level, and local politics at the territorial level. The Banking Reform of 1936 was enacted in a political climate profoundly hostile to markets, competition and the private sector, as part of a package that laid the foundations of the so-called “mixed economy”

model. This model implied that the State would take over the ownership of the main industrial and financial companies but manage them with private market tools. In this framework, credit would be “subordinated” to the policy, and political, requirements of industrial and development strategies, be they the administration of interest rates incentives for SME, the support for the underdeveloped part of the country, the Mezzogiorno, and investment in “strategic” sectors (widely defined). “Lending represented then the dependent unknown of an equation whose variables were the unresolved issues of the Italian society (Onado, op.cit.)”.

It is interesting to note that even if this model climaxed during the Fascist period its underlying philosophy permeated, with various modifications but surprising continuity, almost a century of Italian banking and financial history, until the reforms and liberalisations (Amato-Ciampi laws) of the 1990’s, the liquidation of IRI (the emblem and mega-corporation of the Italian “mixed economy”) and the privatisation of banks. Also note that the legacy of the “mixed economy” culture has important consequences on the concept and meaning itself of bailout. Bailouts in fact can mean different things. A bail-out and a nationalisation can represent the inevitable price that the Government must pay to manage a banking crisis and protect depositors. The Government, as guarantor of last resort, intervenes to maintain public confidence, enable restructuring, and then return the market to its normal functioning. But it can also mean that, vis-à-vis the failures of the market economy and market imperfections, the State must step in to manage lending and investment “in the public – rather than private- interest” and with maximum protection of savers. In the latter case, the State as “banker”, i.e. in its role of collecting and allocating savings and financial assets, is viewed as superior to the market and to profit-seeking private investors or “speculators”. In the Italian XX century’s “economic culture”, this approach has enjoyed considerable appeal. Up to the present time.

Finally, note that while “nationalism” in the US was a strong driver for the market integration of the whole North American continent and for strengthening federal-level mechanisms and institutions (such as the FDIC), nationalism in Italy, and in general in Europe, pushed towards institutional fragmentation and obstacles to continental market integration. Whereas Europe in the post-war period aimed at becoming an open and integrated market and an effective single currency, Europe is not – and does not intend to be – a “single nation”, nor a “national State”. The American civil war was a national or secession war and represented the building block of the process of US nation-building, while the two European “civil wars” of the 20th century were “global wars”, which marked the beginning of the dissolution of the model of the “nation state” in Europe and the process of supra-national integration of the continent. Two completely different historical frameworks, and cultural mind-sets.

6. On the road to the ESDI: the third way takes shape

In the last thirty years there were two major drivers of DI development in Europe: the EU single market, namely the single market for financial services, and the financial crises that highlighted the issue of depositors' protection and bank recovery and resolution. These two drivers interacted in various ways sometimes setting off virtuous circles of post- and pre-crisis reforms, some other times alternating stop and go, progress and backlash, and correspondingly generating expectations and frustration.

In the 1990's, efforts towards establishing the EU single market for financial services enabled significant advancement. The 1994 Regulation on DI schemes defined minimum harmonisation criteria, adopted the principle of "mutual recognition" and made affiliation to a DI scheme mandatory for all banks.

But in the following decade an unprecedentedly severe global financial crisis erupted, exposing pitilessly the gaps and vulnerabilities of existing arrangements. The response was energetic and swift, but at the same time it unveiled the "original sin": it was couched purely in "national" terms. Therefore, it crystallized the fragmentation and non-convergence of DI schemes, and with it the perception of unfairness and unlevel playing field, as part of the wider fragmentation of European banking and financial markets. When later the slump took a second dip and turned into a sovereign debt and Euro crisis, the European dimension came to the fore and elicited a European response. The Banking Union (BU) was then launched with the ambitious objective of breaking the bank-sovereign nexus. In the design of the BU, depositors' protection figures prominently as one of the three corners of the triangle, i.e. single supervision, single resolution and a centralized common DI scheme (EDIS). But when implementation started, the neatness of the original geometry evaporated, and considerable doubts crept in tarnishing the whole picture. Basically, for two reasons: first, the original plan proved to be too simple and naïf; second, and above all, the resistance to centralisation brought together two concerns: the "nationalist" opposition to all transfers of prerogatives from the national Government to European institutions, and the risk of "one size fits all", the wiping out of all the varied and rich set of business social and institutional experience that has characterized the European financial landscape.

In the case of banking supervision, resistance to centralisation was neutralized using two arguments: 1. That a "single market" can be managed by an "integrated system" of institutions (national and local) rather than by a monocratic centralized unit, as it is the case of the ECB (the European System of Central Banks), and the FED; 2. That the "principle of proportionality" should apply, which implies that local actions responsibilities and institutions should prevail whenever they work better. Proportionality and subsidiarity are inscribed in the EU Treaties and provide a "rational" approach to the "federalist dilemma" in the BU, which is probably a superior alternative vis-à-vis the "dual" system of the American banking tradition. But naturally translating those principles in practice ignite

inevitably tensions that -as we have seen in the American experience- only with time pragmatism and compromise can be accommodated.

It is generally recognized that as far as the first pillar of the BU is concerned, i.e. supervision, a satisfactory arrangement has been found by placing supervision under the umbrella of an authoritative credible and independent institution like the ECB. This is not the case of the second pillar (resolution) of the BU and the third (DI), where we are still in search of a suitable solution, and frankly are still quite far away from it.

The second pillar of the BU aims at building an integrated approach to bank crisis management, i.e. a unitary regime to handle bank failures. This is necessary to ensure consistency in the treatment of creditors, shareholders and stakeholders across the EU, an orderly manner to provide support in case of bank crisis and /or wind up activities, a common approach to deal with mergers and acquisitions so that national barriers and other distortions do not affect the efficiency of market decisions. The creation of the Single Resolution Mechanism (SRM), which includes the SR Board and the SR Fund, the establishment of a common backstop to the SRF (placed in the ESM), and the pragmatic and cooperative approach to dealing with the recent bank crises by the many and diverse institutions involved, both at national and European level, represent a significant progress that was accomplished in a relatively short period of time.

But much remains to be done. First, different bank crisis management frameworks co-exist, and whereas resolution is dealt with at EU level all other frameworks (e.g. liquidation) are subject to widely different national procedures. Second, resolution, which represent the EU standard mechanism, has been -and is likely to be- applied very rarely. The main responsibility for dealing with bank crises remains with national Governments, which makes the threat of the doom loop quite stringent as national bank insolvency procedures diverge widely. In 2019 the Bank Recovery and Resolution Directive (BRRD) was amended to clarify that failing or likely to fail banks, which do not enter resolution, should be wound up in an orderly manner under national legislation. Third, the common backstop must be made operational. Moreover, such backstop to work as a lender of last resort from the fiscal point of view, should be linked to the EU budget and fully integrated into EU legislation rather than to an ad-hoc intergovernmental mechanism.

The conclusion is that failing or likely to fail banks find themselves between a rock and a hard place, i.e. between the European institutions that are unable, or even unwilling, to intervene, and the national governments that with their interventions distort competition, create barriers to cross border operations (ring-fencing), set up an unlevel playing field in the balance between bail-in and bail-out and fall deeply in the doom loop trap. Once again, we need a third way to escape from the resolution/liquidation deadlock.

6.1 Horizontal subsidiarity between centralisation and decentralisation.

In the dilemma between centralisation and decentralisation, the missing link - we find- is in the concept of horizontal subsidiarity (HS), i.e. the principle that attributes the priority role to market mechanisms whenever it is possible, and leaves to public policy the task of making it possible.

In relation to bank crisis management, there are two examples of an application of HS we may reflect upon.

6.1.1 Intragroup support agreements.

The fact that safety nets for banks have remained mostly national has meant a drop in cross-border banking and fragmentation, preventing the BU from playing its essential shock absorption and risk sharing function. In order to enhance the role of cross-border banking groups, it has been proposed (see Enria 2020) to promote intragroup financial support agreements stipulating that, when difficulties arise, parent and subsidiary companies provide each other with liquidity support. Such agreements could be linked to recovery plans, which would also enable supervisors to play an encouraging role. They are private sector arrangements that, even pending the introduction of a fully-fledged cross-border DI system, would undermine the need for ring-fencing and provide reassurance to stakeholders. The public sector would have to provide adequate incentives and safeguards for such intra-group agreements, even without recourse to legal requirements. That is how a HS mechanism works.

6.1.2 The secondary market for NPLs

All crises affect banks' capital and asset quality by creating a legacy of NPLs or UTP. The latter has a negative impact on new lending and profitability and may trigger a credit crunch that weakens and delays the recovery. This has been the case after the 2008 financial crisis and is also the case of the pandemic crisis. Banks must cleanse their balance sheets in an orderly and efficient manner, which requires a comprehensive strategy. A critical aspect is the performance of the secondary market for NPLs constrained by several market imperfections that public policy should address. Wide-ranging reforms are needed to cope with the information asymmetries and other structural issues, such as the efficiency of banks' internal procedure, the efficiency of the judicial system and the insolvency procedures, the quality and comparability of data on loans, debtors and collateral, the valuation methodologies, etc. The secondary NPL market should be part of the single European market, which requires European standards, harmonisation, and convergence on best practice. But this takes time and much effort, whereas often the post-crisis recovery cannot wait, and conditions must be established swiftly to accelerate the transition. A useful shortcut has been to create public asset management companies (also called "bad banks"): This has worked well and made the difference for the countries concerned. That is why proposals for the establishment of a European bad bank have been made in the past (see Enria 2017). Ideally the best approach, in line with the BU and the single market would be to have a single European AMC. But this has raised concern about excessive centralisation, possible mutualisation of risks, and moral hazard. The solution has been found in proposing the setting up of a common European blueprint for local or national AMCs (*ibidem*), which would operate at the local level. This seems to fit neatly into what we call the "third way" between centralisation and decentralisation, based on the HS principle. The end is in fact to make the secondary market work better through an enabling intervention of a public mechanism.

6.2 DI and the completion of the BU: a comprehensive approach

Is an ESDI the only missing piece of the BU? From what we discussed, clearly this is not the case, despite widespread perceptions. In the process to building the BU, there are multiple gaps inconsistencies and delays, which often interact with one another. Therefore, a comprehensive and systematic approach is needed, where all the components and the obstacles are considered and dealt with. Rather than a simple three pillars affairs, of which DI is the only missing element, BU is a complex geodesic cobweb that the baroque architecture of European decision making and the lack of trust in intergovernmental relations have pains in knitting together. The diverging DI arrangements, the lack of standards, the different regimes, represent a major obstacle that enters several of the crucial characteristics of the cobweb and the “non-system”. For instance, as long as DI – and bank crisis management -, remain national, Member States will have an incentive to ring-fence and prevent cross border interactions. But building an effective safety net for depositors is not a matter for a single instrument or a quick fix. It requires instead a comprehensive toolbox of different mechanisms that operate in a well-balanced and calibrated way. We might even say that ultimately depositors are protected if financial intermediaries are healthy, well capitalized, profitable, and responsive to customers’ requirements. Here is a listing of the main components of such a comprehensive depositors’ protection system:

1. A resolution authority with strong supervisory and intervention powers, sufficient resources, a proactive stance, and the flexibility of using discretion in specific situations.
2. A liquidity buffer within individual banks, or better bank holdings, since SIFIs of sufficient size and scope have clearly an advantage here. In other terms, a mechanism of self-insurance should be in place, requiring the accumulation of sufficient bail-inable or secondary debt that can be easily transformed into equity (see Gordon & Ringe 2015).
3. Last resort liquidity provision, credibly managed by the Central Bank and last resort support mechanisms paid out of the European public budget, like fiscal backstops for emergency intervention and a Resolution Fund endowed with sufficient resources.
4. Finally, a European Deposit Insurance System that is based on common standards and safeguards and harmonizes the different arrangements and mechanisms so that depositors are compensated for losses incurred due to resolution and liquidation in a fair and uniform way.

DI therefore must be seen in the context of a comprehensive safety net, made up of different components. Not only these different components can take different forms, but they interact with one another in different ways. Their impact, in terms of relative costs and benefits, must therefore be evaluated as part of the overall system, considering their net cumulative effects and trade-offs.

Let me explain and expand. DI and emergency bailouts or liquidity provision has undoubtedly moral hazard and adverse selection costs. That is why bail-in and self-insurance mechanisms are set in place. The latter however have costs in terms of profitability and contagion risks (see the Lehman case). Moreover, systemic impact and the public confidence reaction are difficult to judge ex-ante and do not lend themselves to rigid and general a priori prescriptions.

When recourse is made to public funding (e.g. bailouts), fiscal costs enter the picture and the loop with excessive debts and instability can generate apprehension in the markets. But public debt is not the only cost. The other relevant costs are “political” in terms of consensus gained (by the constituencies that benefit) and consensus lost (by taxpayers fearing wasteful transfers and moral hazard). These costs should not be neglected or undervalued. The politics of depositors’ protection is further complicated by national bias, or even prejudice and discrimination. In different political jurisdictions, depositors’ rights and interests may be perceived differently. Even though in a single market it should be fair that depositors benefit of the same degree of protection independently of their location nationality or other, in practice it is quite common that the protection of local or national depositors is accepted and defended, while the protection of foreign depositors is stigmatized. The principle of equal treatment for depositors across the whole single market is considered inherent in a fair safety net; but it generally remains just a matter of principle and is only paid lip service to. It is generally recognized that bank supervision and resolution should be closely coordinated, as early intervention can be a cost saving measure. An effective depositors’ protection system should provide opportunities for coordination and synergy between supervisors and resolution authorities. Indeed, the two should operate as one, in a consistent framework, and apply the least cost principle in dealing with failing banks. Academic research has unambiguously shown that bank stability is greater in countries where deposit insurers have supervisory power and the power to intervene in failing banks (see Beck and Laeven 2006, as quoted in Gerhardt and Lannoo 2011). One of the major reforms of the Dodd-Frank Act in the US was to give more responsibility to FDIC in bank examination and resolution processes, for instance by transferring to the agency receivership authority over failing institutions (*ibidem*, p.4).

To conclude, what are the real blockages on the road to establishing an effective ESDI, and move onwards to complete the BU? And how to go about it? Summing up, we would say two: 1. The simplistic idea that wiping out the complexity and variety of existing arrangements, and establishing a single centralized DI Fund is a necessary and sufficient condition; and 2. The resistance to transfer prerogatives from the State to the European level, and from the public to the private sphere (i.e. subsidiarity). Both obstacles should be overcome if we want a truly “single” market for banking services, and we want to break the diabolic doom loop between government debt and financial stability. The comparison with the US and the adoption of FDIC as a benchmark in this context is a useful exercise, provided that we are capable to draw the right lessons from history- as we have shown. FDIC has a strong reputation of professionalism and independence, It benefits of a long tradition (it was created in the thirties) of continuity, flexibility and adjustment to varying conditions. It has played a fundamental role in the long and complex journey towards the BU in the US. It has the desirable characteristics of being rather centralized and of bringing together supervision resolution and DI. But it is only one element of the complex architecture of the American safety net for banks and depositors. What explains the superior performance of the US system is in my view 1. The capacity of institutional mechanisms to extend and improve the operation of the market and the private players, balancing protection and market discipline (horizontal subsidiarity); and 2. The close links with fiscal policy (the US Treasury) and the Central Bank (the FED) that has provided liquidity and support matching the nature and the extent of the risks and the crises. Experience has shown that the issue of moral hazard is biting and should be addressed, but that through self-insurance and appropriate insurance and re-insurance mechanisms, it can be brought under control. Our historical description and comparison

has shown that there is a panoply of private sector arrangements we inherited from the past reflecting the specific conditions of the different markets that can be relied upon for responding to the safety needs of depositors while preserving the right incentive structure and market discipline. Besides, the risk of mutualisation of national protection schemes and impacting on public finance (transfer union) has been overestimated (see Boccuzzi and De Lisa 2016, p. 15). “Embedding the financial safety net and its different components in the banking community can reduce principal-agent problems by making banks the managers and owners of the safety net (Beck 2003, as quoted in Gerhardt and Lannoo, 2011 p. 5)”.

7. A Theoretical Framework

7.1 Objectives and basic features of the model

Now we develop a formal framework to test the consistency and the logics of the working hypotheses illustrated above. We would like to verify whether a public-private DI framework of the kind we have been discussing would find equilibrium solutions, and under what conditions, in a model that minimizes liquidity risks and moral hazard. We wish also to check whether a comprehensive insurance and re-insurance system would work better than a more conventional public scheme based on the payment of fixed contributions. Finally, we investigate what role do risk- and market-based premiums and monitoring of asset quality and portfolio choices by banks and deposit insurers play in enforcing market discipline, in an environment characterized by competition and asymmetric information.

We follow the simple model architecture proposed in Holmström (1979), and adopt a formal structure with the following basic features:

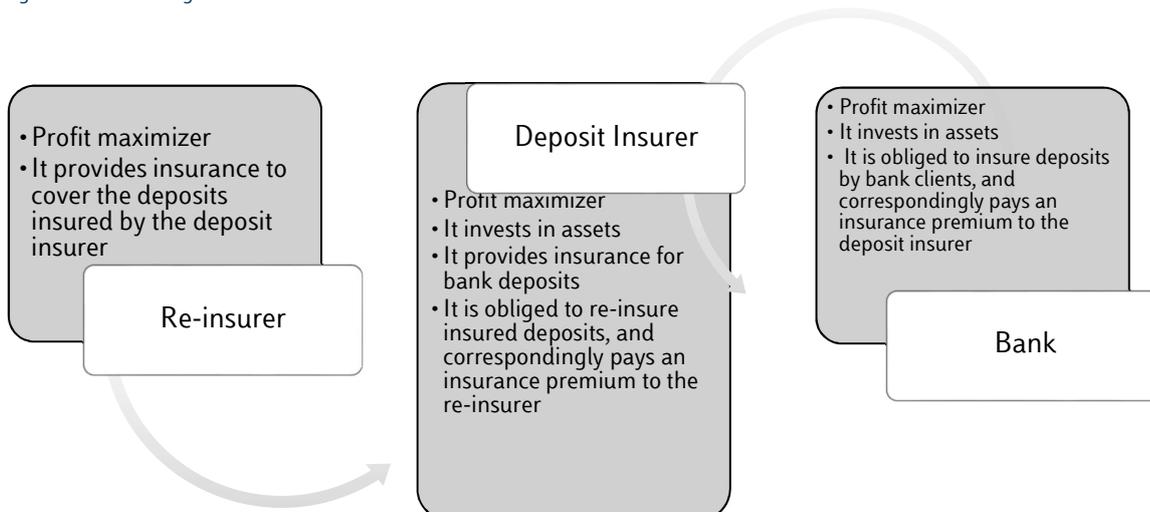
- We consider three agents: a representative bank, a deposit insurer (DI) and a re-insurance fund (DR)
- We envisage two levels of deposit insurance: 1. a compulsory insurance for all banks with pre-defined coverage standards (e.g. 100,000 Euro deposits); 2. a compulsory re-insurance contract for all providers of DI. Premiums would be risk-based and set by the market, and there would be no restrictions on providers operating in competition with one another (Fig.1). Providers of insurance and re-insurance in other terms may be public or private players, national or international funds, sectorial or cross-sectorial mutuals, which operate on the basis of competitive and voluntary subscriptions by insured intermediaries.
- There are two types of asset that banks and DI hold: safe assets, with a certain return y , and risky assets, with an uncertain return \tilde{y} . This distinction enables the model to deal with the question of liquidity and liquidity risk.
- We assume the existence of an infinite number of depositors in a partial equilibrium setting, where banks operate as intermediaries holding deposits, buying insurance, and investing in both risky and safe assets.
- Banks **must join** a deposit insurance scheme covering the **portion δ** of their deposits (e.g. 100.000€) and paying a premium to the DI providers. In turn, the latter **must ensure** the portion of the bank deposit that they cover through joining a deposit reinsurance fund (DR).

7.2 Monitoring and liquidity risk

As we discussed, monitoring the riskiness of portfolios and the quality of the balance sheet is of fundamental importance for the underwriting and pricing of insurance. Its effectiveness has an impact on liquidity risk and market discipline. That is why in our model, we explicitly consider monitoring activities, their impact on the riskiness of assets and moral hazard. In particular:

- The deposit insurer (DI) monitors the bank’s balance sheet and, based on the bank’s screening activity (a^B), it observes a signal m^B , which depends on the bank risk profile.
- Please note that given the structure of the model the proportion of screening carried out by the bank, i.e. a^B , corresponds to the amount of safe assets. The bank in fact in order to control for the risk of a liquidity crisis conducts action a^B , such as screening on loans, which can increase depositors’ confidence and discourage bank runs, and in this way identifies the risk-free assets. From a^B the DI - observing signal m^B – infers the screening activity of the bank.
- As screening is costly and represents a direct disutility for the bank, action a^B can be modelled as $\frac{a^{B^2}k}{2}$ with $k > 0$. Moreover, it affects negatively the probability distribution of losses (L): the greater is the amount of safe assets that the bank holds in its portfolio, the smaller is the probability that a liquidity crisis would occur.
- Please note that the choice of a^B , which the bank makes in line with its profit maximisation objectives, gives a signal to DI that could be imperfectly correlated with a^B . In other terms, action a^B , and correspondingly the liquidity situation of the bank, is not directly observable by the insurer, but she can infer it from m^B .

Figure 1: The three agents of the model



7.3 The role of the re-insurer

The DI can suffer a loss, due to the liquidity shock affecting the bank. She must therefore buy an insurance from the re-insurer (DR) and pay a market determined premium. This implies the need for both DI and DR to exercise some screening and evaluate the underlying liquidity risks. Here is how this can be formulated:

- The reinsurer does not observe the output of the screening activity conducted by DI, but only a signal m^D about such activity (a^D). We define these screening activities carried out by DI as $a^D = f(a^B + \frac{\theta(1-a^B)^2}{2})$, i.e. a function of the assets screened by the bank and of the monitoring activity the DI computes on the bank. Strictly speaking, we will show later that this signal is not informative for the DR.

7.4 Liquidity crises

We said that the total assets of the bank (normalized to 1) are made up of risky and safe assets. Banks choose assets on the basis of a trade-off: the greater the amount of safe assets, the smaller is the risk of a liquidity shortfall. And the greater the number of risky assets, the greater is the probability of a loss due to a liquidity shortfall, but also the greater will be the profitability of the bank. We assume in fact that if y is the yield of safe assets, and \tilde{y} that of risky assets. Thus, we will always have that $y \geq \tilde{y}$ on average. The bank, given its intermediary role, invests capital k and part of the deposits in safe assets and part in risky asset. There are no constraints on investment.

Here is how a crisis comes about:

- The crisis takes the form of a liquidity shortfall, to which a loss L^B is associated. This shortfall can materialize either because of a bank, or because of the failure of borrowers to repay loans on schedule, or due to the sudden unavailability of interbank loans, as the interbank market cannot offset the liquidity risk. The loss L^B occurs then when the economy faces a lack of liquidity. The loss depends on the possibility that a shock ε occurs in the economy. We can think of ε as a shock that dries out the liquidity of the financial system, such as for instance a bank run due to a public debt shock⁵.
- Note that both the lack of liquidity and the signals observed by DI and then by DR do not occur with certainty, but subject to probability.
- Formally, let $a = \{a^B, a^D\}$ be, respectively, the bank's and the DI's screening actions, which correspond to the amount of safe assets in the balance sheet, respectively, of the bank and the deposit insurer. Let us denote L the total loss generated by a bank run in the economy, which is the residual amount of liquidity shortfall, or more precisely the residual amount of deposits after the intervention of all levels of insurance. It is equal to the total loss, i.e. the liquidity shortfall of

⁵ As an extension, we can endogenize the loss and assume that ε affects the distribution of the unsafe asset (ovvero gli asset più rischiosi, dal momento che il portafoglio della banca è composto da asset liquidi e asset rischiosi). We can think of ε as the possible liquidity shortage generated by an external shock, such as bank run. Thus the loss is $L=(V-a)\varepsilon$ where $(V-a)$ is the amount of risky assets in the bank portfolio, and V the amount of total assets.

the whole banking system (L^B), which is caused by the bank run shock, plus the amount of liquidity shortfall the deposit insurer is not able to repay.

- Let $f(L, m|a) = \{ f(l^B, m^B|a^B); f(l^D, m^D|a^D) \}$ be the joint probability of the generic event (L, m) conditional on the action generic a^6 As in Holmström (1979), we also assume that \underline{m} and \underline{L} are independent, meaning that the premium paid in any period is function of the loss incurred in that same period. This means that the actions undertaken by the bank and the DI over their portfolios determine the probability that the accident will occur, not the size of the accident. This is equivalent to say that $f(m, L|a) = g(m|a)h(L|a)$. These probabilities depend on a , because the more the bank cleans its assets, the smaller will be the probability that the loss L occurs, i.e. the smaller will be the conditional probability of L given a , or $h(L|a)$. Moreover, the signal m depends on the fact that the bank undertakes action a ; in the extreme situation in which a is equal to zero, it will be zero also the signal observed by the re-insurer. In fact, $(m|a) = 0$ only if the bank does not undertake any screening action. Formally, we assume that $h'(L|a) < 0$, and $g'(m|a) > 0$.
- Obviously, we refer here to losses induced by a bank run hitting a single bank. If the risk is systemic, the model would not be able to account for all the possible losses.

7.5 The main variables

The following table shows the main variables.

Table 1: Main model variables

$\Pi = \{\Pi^B, \Pi^D, \Pi^R\}$	The profit of the bank, the deposit insurer and the reinsurer, respectively.
$R = \{R^B, R^D\}$	Revenue for the bank and the deposit insurer derived from investment.
$a = \{a^B, a^D\}$	Possible set of action of, respectively, the bank and the deposit insurer
a^B, a^D	Screening effort of the bank and the deposit insurer. It is a function of the asset of the bank and its monitoring cost.
\tilde{y}	Return of the risky asset, can be 0 or Y with a given probability. This probability can be linked to the probability of the shock, or not.
y	Return of the safe asset
d	Depositors
p^B	Premium to be paid to DI by the bank
p^D	Premium to be paid to the RI by the DI
$l^B = L^B(a, \varepsilon) = \varepsilon - a^B d$	Loss function for the bank. Risk exposure shortfall

⁶ To facilitate the reader, we use the variable without any subscript or superscript to indicate both banks and deposit insurer.

ε	Liquidity shock faced by bank
$p(L a, m) = g(m a)h(L a)$	Joint probability of observing the signal m for the insurer and the reinsurer and of facing the shock, given the action a . This formulation holds in both relation: banks-DI, DI-DR.
$\frac{\theta(1 - a^B)^2}{2}(1 + \tilde{y})$	Cost of monitoring for the DI, where possibly theta greater than zero indicates the propensity to monitor of the DI. In the same way, we can capture the behaviour of the market: for the DI the more the market is unstable, the more monitoring becomes costly for the DI.
$\frac{ka^{B^2}}{2}$	Cost of the screening effort for the bank, where k indicates the propensity to undertake screening activities
$\frac{z(1 - a^D)^2}{2}$	Cost of monitoring for the DR, where z indicates the propensity of the DR to monitor the DI
$l^D = l^B - a^B d$	Loss for the DI
ϵ	DI's evaluation error on the safeness of the bank

7.6 The first level: equilibrium in the relationship between the bank and the deposit insurer

Let $l^B = L^B(a^B, \varepsilon^B)$ be a random variable over the support $[\bar{l}, \underline{l}]$ with a cumulative distribution $F(l^B | a^B)$, where a^B is decided by bank, and with a conditional density function $f(l^B | a^B)$. Let ε^B be the random shock that hits the economy, implying a bank run with a normal distribution, such that $\varepsilon^B \sim N(0, \sigma)$.

The (representative) bank is obliged to buy an insurance, and thus pays a premium P^B that depends on the loss l^B and the signal observed by the insurer. In particular, the bank needs liquidity for an amount $l^B = \varepsilon^B - a^B d$, which represents the early withdrawal minus the amount the bank itself can reimburse to the depositors d . In addition to the performance indicator l^B , the insurer can observe the signal m if it monitors the bank.

Let now us see the difference between the conventional model and our more complex “alternative” one, and what this difference implies for the determination of the optimal premium the bank will pay.

We assume first that the bank is risk averse and the insurer is risk neutral (**first-best solution**). This implies that there is no moral hazard in the system. In this case the problem to solve is:

$$\max_{P^B(l^B), a^B} \int_{\underline{l}}^{\bar{l}} (R^D + P^B - l^B - P^D - l^D) f(l^B, m^B | a^B) dl^B - \frac{\theta(1 - a^B)^2}{2}(1 + \tilde{y}) \tag{1}$$

$$s. t. \int_{\underline{l}}^{\bar{l}} u(R^B - P^B - l^B) f(l^B, m^B | a^B) dl^B - \frac{k a^{B^2}}{2} = 0 \quad (2)$$

With a risk neutral agent, the solution (first best) would be then:

$$\frac{1}{u'(\cdot)} = \lambda \quad (3)$$

In other terms, the contribution required to the bank is a fixed proportion of the amount of insured deposits. This is in line with the conventional thinking in relation to the European system of DI, where most proposals include a fixed assessment rate corresponding -more or less- to 0,8% of the amount of deposits.

7.7 Minimizing moral hazard: the second-best solution

Let us now introduce moral hazard into the model. This is a feature characterizing the relationship between the bank and the DI (as in the standard agent-principal framework). In this case, the insurer's problem becomes

$$\max_{P^B(L^B), a^B} \int_{\underline{l}}^{\bar{l}} (R^D + P^B - l^B - P^D - l^D) f(l^B, m^B | a^B) dl^B - \frac{\theta(1 - a^B)^2}{2} (1 + \tilde{y}) \quad (4)$$

$$s. t. \int_{\underline{l}}^{\bar{l}} u(R^B - P^B - l^B) f(l^B, m^B | a^B) dl^B - \frac{k a^{B^2}}{2} = 0 \quad (5)$$

$$s. t. a^B \in \operatorname{argmax}_{a^B} \int_{\underline{l}}^{\bar{l}} u(R^B - P^B - l^B) f(l^B | a^B) dl^B - \frac{k a^{B^2}}{2} \quad (6)$$

We can also assume that the DI can observe the market situation and the position of the bank and get a feedback through random screening on the composition of the bank's asset portfolio. This is another

relevant element of differentiation vis-à-vis the previous case (first best): the possibility that monitoring activities are undertaken.

The optimal solution (second best) would then be:

$$\frac{1}{u'(\cdot)} = \lambda + \mu \left[\frac{h_a(L|a)}{h(L|a)} + \frac{g_a(m|a)}{g(m|a)} \right] \quad (7)$$

where the signal $m^B = \tilde{y}(1 - a^B) + \epsilon$.

If the insurer engages in monitoring activities, she would pay a cost proportional to the composition of the bank's portfolio and the market situation, as expressed by the formula $\frac{\theta(1-a^B)^2}{2}(1 + \tilde{y})$. The DI would choose to monitor if her profit is higher than without monitoring. Thus, we find the conditions, in terms of an equilibrium premium, under which the monitoring activity makes the DI better off and can offer an optimal contract to the bank.

Note that in the simplest case, i.e. with a risk neutral bank, the optimal insurance premium required to the bank varies in relation to the probability of the liquidity shock and the ability of the bank in that circumstance to pay back depositors. In fact, we see that the optimal risk sharing contract in first best solution is still achieved if the Lagrangian multiplier $\mu = 0$. But this would not consider moral hazard. By contrast, Holmström (1979) shows that $\mu > 0$ if the principal wants to motivate more than the lowest possible level of effort. So, if we assume that the principal is risk neutral, the agent's compensation can be a fixed wage, independent of outcomes and efforts. Under such contract the agent would have no incentive to work hard, so he would provide the minimum possible effort. But, this is not the case. Banks are not risk neutral and moral hazard does exist. Thus, $\mu = 0$ cannot be the optimal solution.

We assume that $\frac{f_a(L|a)}{f(L|a)}$ is decreasing in L. This means that the loss distribution is decreasing in the agent's effort. These assumptions imply that the Lagrangian multipliers are positive (see Lambert, 1983). The fact that $f_a(L|a)$ is negative implies that L is less likely to happen if the bank works harder.

7.8 The second level: the relationship between the deposit insurer and the reinsurer

We can follow a similar line of reasoning in describing the relationship between the DI and the DR. The main difference between the two levels is that in the second level the signal the reinsurer can observe is determined by the underlying bank situation. If the bank is not able to repay back the depositors, and if the shock is not systemic, the signal the reinsurer receives about the DI is negative. This suggests that the DI might want to transfer all the risk onto the reinsurer, particularly when he has stipulated contracts with high risk banks. Formally, this means that the signal m can be formulated as: $m^D = l^B + a^D \epsilon$, i.e., the bank's shortfall, plus an evaluation error. The latter component is due to

the fact that the inability of the bank to repay back depositors does not fully capture the riskiness of the bank. The loss of the deposit insurer in other terms is determined by its inability to deal with the bank's loss: $l^D = l^B - a^B d$. Therefore, monitoring does not add any information about a^D that is not already conveyed in l^D .

From this model it seems that the reinsurer monitoring activity is not needed, in the sense that she can derive the relevant information from the monitoring conducted by the deposit insurer.

Also, at level 2 we get a solution that is close to the one achieved at level 1. And likewise, we need to distinguish a first-best case, where we expect a fix premium, and a second-best solution, where we expect a premium that depends on the bank's shortfall, and on the insurer's asset quality situation.

In close form, in the first best solution we obtain, as optimal sharing rule

$$\frac{1}{u'(\cdot)} = \lambda^D \tag{8}$$

While the second-best solution optimal equilibrium sharing is

$$\frac{1}{u'(\cdot)} = \lambda^D + \mu^D \frac{f_a(l^D|a^D)}{f(l^D|a^D)} \tag{9}$$

where $\frac{f_a(l^D|a^D)}{f(l^D|a^D)}$ is decreasing in L, with $f(l^D|a^D) = f(l^B - a^D d^B|a^D)$, i.e., the loss linked to the banking sector shortfall, the deposits the insurer ensures to the bank, the portfolio composition of the insurer.

Please note that in the context of the model the following concepts apply:

- insurance - reinsurance: this distinction is addressed by defining the reinsurance as an agency that ensures the bank's deposits on the basis of market mechanisms;
- public and private mechanisms: they operate on an equal basis from a theoretical point of view;
- voluntary and compulsory mechanisms: the idea is that everything is left to the market, and in this sense, the choice is voluntary for the bank.

7.9 Further research

The model presented here is a reduced form of a structural model that predicts the best way to deal with -and limit- moral hazard in an insurance/reinsurance framework. The limit of this model is that it

shows the solution only in closed form. Nevertheless, the hypotheses tested here are clearly structured and would benefit from the possibility of further research. It would be interesting in fact to expand the model and derive additional results such as the different amount of safe, unsafe or risky assets the bank is encouraged to hold in its balance sheet under different scenarios, namely the first and second best cases that represent the fixed premium and the state-dependent premium. This would enable us to understand better how the more stable scenario works in liquidity terms.

8. Conclusions: risks and opportunities facing the pandemic crisis

DI is generally considered to represent the missing link for the completion of the European BU, the last mile, without which the whole BU construction would be flawed and practically unworkable. In this paper we argue that, whereas an overall European depositors' protection system is greatly needed and should be set in place, this emphasis appears exaggerated, and risks missing the point. As a matter of fact, there is not a single missing link. There are several gaps and stumbling blocks. Moreover, they interact with one another, generating vicious circles. The reality we must come to terms with is that we are not making progress on the road to BU. On the contrary, several indicators (from ring-fencing to national liquidation regimes, from national rather than European mergers and acquisitions to nationalisation of private banks, etc.) point in the opposite direction.

We need therefore a comprehensive approach, capable of highlighting the most critical factors, focusing on them, and following a pragmatic line, open to compromise, knowing that BU is a process requiring a gradual and consensus-based transition. The cornerstone of the whole BU construction hangs on breaking the doom loop between banks and the sovereigns. That is why and how BU started, and DI should be instrumental in achieving that goal.

The evidence, however, drawn from our historical and comparative analysis, together with recent experience, have shown that achieving that goal through full centralisation or a public system of deposit guarantees would not work. Centralisation would wipe out the different mechanisms that were developed for specific territories and types of bank, which would also erase the flexibilities and customisation created by established traditions and business models. The second would have to be accompanied by complex constraints and safeguards to avoid trans-national risk sharing (transfer Union) and minimizing moral hazard. Moreover, the funding would have to come mainly from the banks themselves. Both centralisation and Government funding run against formidable political resistance and generate a widespread and multidirectional sentiment of mistrust.

In this paper we explore a different route that relies on the utilisation of market mechanisms of insurance and re-insurance and is inspired by the principle of horizontal subsidiarity, in line with the general approach that has made progress in the realisation of the single market in different areas of policy. Such an approach would enable to disengage Governments from interfering with bank crises and depositors' protection and would give European institutions the responsibility of providing a common framework (standards, compulsory insurance and reinsurance, harmonisation of insolvency regimes, single supervision, resolution and minimum levels of deposit guarantee, etc).

To bring our arguments to bear we use two lines of analysis. First, we provide an overview of the evolution of the US DI system, and compare it with Italy, drawing relevant lessons for Europe. Second, we develop a theoretical model showing how DI and re-insurance can operate in a private market

framework and in competitive equilibrium, benefitting of the full support of an appropriate incentive structure and market discipline.

The historical comparison shows that the secret of success of the US DI system does not lie necessarily in the “centralisation” of FDIC nor in public funding from the US Treasury or State budgets. The American system remains “dualistic” and has overlaps and fragmentations that leave much to be desired. Its recognized strength is in several institutional mechanisms developed throughout a long history of trials and errors. Among them, we should mention the credibility of FDIC as an independent professional public-private agency operating following market mechanisms and enforcing market discipline. Other relevant aspects are the synergetic interplay between DI, supervision and resolution, the effective provision of last resort liquidity and emergency intervention, the “single” bank crisis management regime, etc. But the main factor accounting for the superior performance of the American system is in its close reliance on the operation of the private market and the close collaboration between private and public players, including the public private corporations, like the FED, the SEC and FDIC itself, which play the regulatory and supervisory role in the market. The American approach appears to follow the principle that we call in the European tradition “horizontal subsidiarity”, i.e. leaving to the private market what is best dealt with by the private players, and limit the role of public policy to what necessarily requires market corrections.

The model we develop shows that the most controversial issues in the DI debate - that are widely held to block progress in the European BU-, i.e. the question of moral hazard and that of the cross-country transfer of tax-payers’ money associated with risk mutualisation, can be dealt with by a formulation that relies on market mechanisms for insurance and re-insurance. This approach disintermediates national Governments and leaves to European institutions the task of setting the framework of common standards, harmonized regimes, and last resort backstops.

Like in the US, also in Europe the response to the crises has created, and will create opportunities for fine-tuning institutional mechanisms, promote common practises and overcome national or sectional biases. The pandemic crisis fits neatly into this picture. At the beginning of its mandate the Commission President Ursula von der Leyen expressed firm determination to “make further concrete progress on the Banking Union”. The response to the pandemic requires a leap forward in banking and financial integration. DI, and the whole BU, could advance through concrete steps forward, following a pragmatic non-ideological approach, and become an integral part of the Recovery and Resilience Plans, the Next Generation EU, the Green New Deal, the new Multiannual Financial framework (i.e. the EU Budget), etc. This could imply for instance focusing on future NPLs, establishing a European system of bad banks, getting rid of ring-fencing, adopting a new European liquidation regime, and moving boldly on in the post-Brexit Capital Markets Union. Measures of this kind – even if restricted to pandemic specific vulnerabilities or of temporary nature - would weaken the doom loop and eliminate obstacles to cross-border banking. Similarly, progress would be made by applying an integrated comprehensive approach to DI, supervision and resolution; if – following the FDIC benchmark- one looks for an authoritative and independent “single” European framework for DI, resolution and supervision, why don’t we put the different mechanisms at play under the common umbrella of the ECB? The pandemic requires a pro-active role of European institutions, an enhanced dialogue with business associations and financial communities, a strengthened role of the Euro, an effective advisory hub for Covid-related planning, investment, financing, banking, and execution.

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