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Does Bail-in Definitely Rule out Bailout?



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Abstract

A growing number of studies are focusing attention on the new bank resolution framework and, particularly, on its side effects. This paper intends to contribute to the limited literature by examining the first application of the BRRD in Italy, in 2015, to four small to medium-sized failing banks. It assesses empirically the (in)stability of bank creditors and depositors in stress situations. It analyses a unique proprietary database of the Italian Deposit Guarantee Scheme.

It finds that the resolved banks incurred a significant loss of total funding since the start of their Special Administration procedure. When resolution is impending, creditors and depositors take flight dramatically. The run-off is stronger for uninsured deposits than for insured deposits. It also reveals that the deposits of some banks that are solvent but which send public signals of weakness (capital shortfall) seem to become «infected» and behave in a similar fashion.

The results would seem to confirm that market discipline in fact does work. However, they also support the argument that resolution works best when the crisis is not systemic. In the presence of a systemic crisis the funding outflows can reasonably reach large proportions. They can weaken market confidence and affect other bank creditors with all the adverse knock-on effects on financial stability.

If the bail-in logic can be counterproductive in those very situations for which it was conceived, it could imply that the risk of having to resort to bail-out is still very high.

Keywords: Bail-in; Bail-out; Bank Resolution; Deposit Insurance; BRRD; Contagion.

JEL Codes: G28; G21.

1 Introduction

During the financial crisis, many governments rescued insolvent banks using the taxpayers' money. This significantly impacted public finances and fed into the sovereign-banks vicious circle. To protect taxpayers money and block unsustainable bail-outs, policymakers around the globe reacted with a profound revision of the framework for bank crisis management and the related resolution tools.

In 2001, the Financial Stability Board (FSB) published a set of principles (Key Attributes) to underpin an effective resolution regime for financial institutions, particularly for banks likely to have a systemic impact if they fail. According to the FSB, it should

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be possible to resolve any financial institution without exposing taxpayers to the risk of loss. This should be done by means of bail-in mechanisms, charging the losses of failing banks to shareholders and unsecured and uninsured creditors.

Many jurisdictions worldwide decided to transpose the FSB principles into domestic rules, by revisiting their own legislations on bank resolution. The European Union did likewise. In 2014, after prolonged debate, the European Parliament adopted the Bank Recovery and Resolution Directive (BRRD), which includes the bail-in tool.

Without a comprehensive resolution framework, the authorities have no option for rescuing banks other than bail-out, where financial stability and the real economy are threatened. Bail-in serves as a powerful tool to counter the banks' undue reliance on bailouts and, at the same time, acts as a stimulus to investors to monitor banks' risks (market discipline). It reduces the likelihood of moral hazard externalities. Bail-outs feeds the negative bank-sovereign circle; bail-in does not.

While reactions to the new framework have mostly been positive, intense debate has also arisen among academics, regulators and practitioners as to its effective capacity to resolve a crisis, especially where threats of systemic instability are present. In this type of scenario, it is argued, the new resolution framework, particularly bail-in, could provoke undesirable side effects, i.e. exacerbate bank creditor and depositor run-offs, undermining financial stability. The current debate would seem to focus around one question, namely, «Does the new resolution logic, based on bail-in, entirely replace bail-out or, on the contrary, will some form of public financial support still be necessary for resolving systemic bank crises?».

With the transposition of the new resolution framework into domestic legislations and, especially, after its first controversial application in a number of bank crises in Europe, the debate grew in intensity.

Still, there is a scarcity of empirical evidence on the application of the BRRD and its possible side effects.

This paper intends to contribute to the limited literature by examining the first application of the BRRD in Italy, in 2015, to four small to medium-sized failing banks (the «4 Banks»). The resolutions had great press and other media coverage, with negative emphasis on the issues affecting subordinated retail bondholders of the resolved banks.

It assesses empirically the (in)stability of bank creditors and depositors in stress situations. It analyses a unique proprietary database of the Italian Deposit Guarantee Scheme (*Fondo Interbancario di Tutela dei Depositi* – FITD). To the authors' knowledge, this analysis represents the first empirical investigation of bank creditors' flight from BRRD-resolved banks.

A growing number of studies are focusing attention on the new resolution framework and, particularly, on its side effects.

Goodhart and Avgouleas (2014) argue that in case of systemic instability «bail-in regimes will fail to eradicate the need for an injection of public funds where there is a threat of systemic collapse». On the other hand, bail-in tends to be effective when failure is idiosyncratic. Thus, the impact of the bail-in process is likely to be in terms of triggering capital flight and rising funding costs. The authors stress the incentives on creditors to withdraw deposits or to sell debt in such a situation and observe that «such actions could be damaging and disruptive, both to a single institution and potentially to wider market confidence».

Persaud (2014) argues that bail-in works well in idiosyncratic bank failures but in the presence of systemic crises it might actually make matters even worse.

Hadjiemmanuil (2016) formulates similar arguments. He points out that in a context of widespread distress, the application of bail-in in a single (failing) bank may push creditors of other banks to reconsider their positions, thus «precipitating an across-the-board flight to quality». However, De Grauwe (2013), on the basis of the FDIC experience, specifies that bail-in «does not lead to a run in other banks. This is true but (these) bail-in operations generally involve small banks».

Hüser *et al.* (2017) investigate the possible contagion effects of bail-in. The authors, by means of a multi-layered network analysis, argue that bail-ins tend to reshape interbank channels and they recommend a careful monitoring of the impact of the bail-in on the systemic relevance of the bank under resolution.

Pigrum *et al.* (2016) perform a detailed analysis of the structure of the demand and supply side of bail-in-able bank debt securities in each euro area country. Their analysis finds that the euro household sector holds a significant share of bail-in-able (euro) bank debt securities. Therefore, they argue that the application of bail-in may have some negative impacts on such investors and they raise concerns from a consumer protection perspective.

This paper contributes to this strand of the literature with empirical evidence. It finds that the «4 Banks» incurred a significant loss of total funding since the start of their Special Administration procedure¹. When resolution is impending, creditors and depositors take flight dramatically. The run-off is stronger for uninsured deposits than for insured deposits.

It reveals that the deposits of some banks that are solvent but which send public signals of weakness (capital shortfall) seem to become «infected» and behave in a similar fashion. In contrast, the other Italian banks show different trends: they do not incur any funding outflow and, presumably, benefit from the outflows of funds from the four resolved banks.

The results would seem to confirm that market discipline in fact does work. However, they also support the argument that resolution works best when the crisis is not systemic. In the presence of a significant systemic bank failure or multiple simultaneous failures, the funding outflows, very intense even in the case of the four small Italian resolved banks, can reasonably reach large proportions. They can weaken market confidence and affect other bank creditors with all the adverse knock-on effects on financial stability.

If the bail-in logic can be counterproductive in those very situations for which it was conceived, it could imply that the risk of having to resort to bail-out is still very high.

The conflicting goals of market discipline and financial stability need to be weighed in the context of resolution². Any effective resolution framework should give due consideration to this requirement.

¹ Special Administration is a procedure, opened by the Bank of Italy, which removes the ailing bank's governing bodies and replaces them with one or more special administrator in order to ascertain the bank's situation, to remove administrative irregularities and infringements of the law, and to find the best solutions for depositors' interest and to restore the sound and prudent management of the bank.

² On this issue, see Beck (2011); Biljanovska (2016); Bliss (2015).

Overall, the paper points out that the BRRD (and the State Aid rules) provides for flexibility in the case of systemic instability. The application of bail-in can be excluded to some extent and, even though as a last resort, public stabilisation tools may be obtained. This flexibility is useful in systemic situations, but it may not lessen creditors' *ex ante* fears about the risk of being bailed-in. We argue that establishing a more selective scope for bail-in and restricting it to selected liabilities with clear contractual provisions could balance the two conflicting goals.

Bail-in, and more in general the application of the BRRD, would need to be monitored empirically and carefully to assess if any design enhancements are needed.

The paper is structured as follows. Section 2 offers an overview of the BRRD, in particular the bail-in tool, its application and possible derogation, and the public support rules. It also considers the State Aid Regulation. Section 3 presents the empirical analysis on the first application of the BRRD in Italy. Section 3 contains the conclusions and examines policy implications.

2 How Does the BRRD Regulate the Bail-in Tool and the Public Support?

Bail-in is one of the BRRD's resolution tools³ (BRRD, Articles 43-44). Together with the power of resolution authorities to «write-down capital instruments» (often named «quasi bail-in»), this resolution tool ensures that the burden of banks' losses is borne by shareholders and creditors.

The main objective of the bail-in is the recapitalization of the insolvent bank. However, bail-in can also be used to convert to equity or reduce the amount of liabilities that are transferred to a bridge bank or with the sale of business resolution tool.

Basically, bail-in mirrors the effects of insolvency but in reverse order. Bail-in allows resolution authorities not only to write down subordinated debt and convert it into capital, but also to write down and convert into capital the remaining eligible liabilities in order to achieve the widest loss-absorbing capacity. Bail-in is applied according to a specific sequence, laid down in the applicable insolvency law: shareholders first; then holders of other capital instruments and subordinated debt, other unsecured creditors, deposits over EUR 100,000 and, lastly, the deposit guarantee scheme (DGS) which intervenes *in lieu* of the insured deposits.

«Quasi bail-in» is closely linked to bail-in, although it differs from it. It represents the power of the resolution authority to write-down or convert capital instruments (e.g. Tier 1, additional Tier 1 instruments and Tier 2); this power can be used in combination with a resolution action or independently of it (BRRD, Article 59). In the latter case, quasi bail-in is only admissible where the write-down and/or conversion suffice to remedy the crisis situation.

The scope of bail-in is defined in BRRD on the basis of a «comprehensive approach», under which all the liabilities of a bank can be bailed-in, with some exclusions. Another

³ On the BRRD, see Boccuzzi (2016).

possible policy is the targeted approach, where only a selected set of liabilities with clear contractual provisions may be subject to bail-in.

In particular, the scope of bail-in in the BRRD is wide and regards all bank liabilities that are not explicitly excluded (BRRD, Article 44(1)). To this end, in order to make the resolution effective the BRRD provides that banks must comply with a minimum requirement of own funds and bail-in-able liabilities (MREL).

The BRRD expressly excludes certain liabilities from bail-in. There are two types of exclusion: «permanent» and «optional».

The permanent exclusions regard the following liabilities: deposits insured by a DGS, secured liabilities (including covered bonds), liabilities arising by virtue of the holding by an institution or by virtue of a fiduciary relationship; interbank liabilities with an original maturity of less than seven days (excluding those to companies of the same group); liabilities deriving from the participation in the payment system having a remaining maturity of less than seven days, debts for salaries and pensions, tax debts and debts towards providers of essential services and, lastly, liabilities towards the DGS for contributions pursuant to the Deposit Guarantee Scheme Directive.

The «optional exclusions» represent an important discretionary power that can be applied by the resolution authority when «exceptional circumstances» occur. This option to exclude certain liabilities is specifically regulated by the BRRD (Article 44(3)).

These circumstances occur when the bail-in is not applicable within a reasonable timescale or there is concern that the bail-in may have negative impacts on the continuity of critical functions or may cause destruction in value or, finally, when there is a risk of generating widespread contagion which could cause serious disruption to the economy.

In this regard, the European Banking Authority (EBA) has issued technical advice on assessing the conditions under which exclusions from the bail-in tool are necessary (EBA, 2015). The EBA has stressed the principle that liabilities not expressly excluded are within the scope of bail-in. Thus, exclusions represent, «exemptions from the general principle of equitable treatment of creditors of the same class» (EBA, 2015, page 3)⁴.

As concerns the possible reasons for excluding certain liabilities from bail-in, particularly the risk of widespread contagion, the EBA has pointed out that the risk of a degree of contagion is inherent in the bail-in tool. Therefore, the magnitude of the risk of contagion should be assessed carefully. If «the financial system is under significant stress or suffering from a lack of confidence then widespread contagion may be more likely» (EBA, 2015, page 13).

When the optional exclusions are allowed, their applicability is related to the possibility of increasing the bail-in burden on other eligible liabilities, and must comply with the «no creditor worse-off» principle.

Alternatively, where losses are not completely transferred to other creditors, the resolution fund can provide a contribution to the bank in order to cover the losses not absorbed through the bail-in. However, the BRRD allows use of the resolution fund only where

⁴ Some authors have pointed out that the discretion left to resolution authorities raises issues on the exercise of an administrative power to exclude liabilities from bail-in, which is at odds with the general principle of the equitable treatment of creditors (Lener, 2017).

bail-in has been applied to an amount of not less than 8% of the bank's total liabilities (including own funds). Moreover, a cap on the use of the resolution fund is established, corresponding to 5% of the total liabilities of the bank under resolution.

However, the European Commission has the «last word»: resolution authorities must notify the European Commission, which can prohibit the exclusion.

As regards the role of «public support» in the BRRD, this is not fully excluded but is very limited and may only be provided under a few specific circumstances.

Public support may be granted whether or not a bank is under resolution.

In the context of resolution and in extraordinary circumstances, the resolution authority may seek further funding from alternative financing sources to cover losses still remaining after the financial contribution of the resolution fund (which is subject to the 5% cap) and after the write-down or conversion of all unsecured, non-preferred liabilities. The BRRD does not state where this additional funding should be sourced; some indications come from the Single Resolution Mechanism Regulation where it specifies that the Board cooperates closely with any «public financial assistance facility» (e.g. European Financial Stability Facility - EFSF) and the European Stability Mechanism - ESM) in «extraordinary circumstances» (SRM, Article 30(6)).

However, in the presence of an insolvent bank, the BRRD allows government funding as a last resort in case of systemic crisis. In this very extraordinary situation of system-wide crisis, the resolution authority can seek funding from «governments stabilisation tools» (BRRD, Articles 37(10) and 56-58). These provisions are only found in the BRRD and not in the SRM.

Stabilisation tools can only be used if certain conditions are met. In particular, it is necessary to apply a prior 8% bail-in, and to obtain prior and final approval under the Union's State aid framework.

The public financial stabilisation tools may consist in public equity support or in the temporary acquisition of ownership. Such instruments may be applied only when triggers for resolution occur and when certain conditions are met. These conditions occur when there is the need to avoid negative repercussions on financial stability, where the other resolution tools would not ensure sufficient protection of the public interest.

The general approach of the BRRD is to consider the presence of extraordinary public support⁵ as one of the condition for triggering the resolution (BRRD, Article 32(3)) unless some specific circumstances occur.

The BRRD also provides that public support may be granted in the case of a solvent bank with capital shortfall or where there is a fear of a serious disruption of the economy of a Member State and to preserve financial stability.

In other words, the BRRD foresees the possibility of public support outside the resolution; hence, public support is not necessarily a signal of failing or likely-to-fail conditions.

Public intervention is allowed only on a precautionary and temporary basis and not to cover banks' losses. Moreover, the form of public support is limited to specific tools: State

⁵ The BRRD defines «extraordinary public financial support» as: «State aid within the meaning of Article 107(1) TFEU, or any other public financial support at supra-national level, which, if provided for at national level, would constitute State aid, that is provided in order to preserve or restore the viability, liquidity or solvency of an institution...»; BRRD, Article 2(28).

guarantees to back liquidity facilities or newly issued liabilities, and own funds injections or purchase of capital instruments. The latter measures are limited to injections necessary to address capital shortfall established by stress tests, asset quality reviews or equivalent exercises.

Finally, public supports is subject to final approval under the Union State aid framework.

According to the 2013 Communication on State aid rules in favour of banks (EC, 2013)⁶, in order to address moral hazard and to limit the distortion of competition in the banking sector, State aid is allowed only if «burden sharing» is applied⁷.

However, the Banking Communication provides an exemption to this rule when the conversion (or write-down) of subordinated debt «would endanger financial stability or lead to disproportionate results» (point 45). Therefore, the Banking Communication contains an exemption to the general burden-sharing principle, which can be used where there is a risk of severe financial instability.

3 How Do Creditors and Depositors Behave in Failing Banks? Empirical Evidence from the First Application of the BRRD in Italy

3.1 Structure of the analysis and data

The analysis examines the funding stability of failing banks that have been placed under the BRRD procedure. The aim is to study the behaviour of banks debt holders in such stress situations⁸. The analysis measures quarterly changes of bank funding before the resolution and for some time after it. These results are then compared with the funding behaviour of some other banks' peer groups.

To do so, the paper builds a unique and proprietary database, composed of the accounting information on the funding of (individual) banks affiliated to the Italian Deposit Guarantee Scheme (FITD)⁹. The FITD covers approximately 88% of the overall deposits of the Italian banking system. The resolution event regards the first application in Italy of the BRRD, which involved four Italian banks.

The BRRD was transposed in Italy and entered into force in 2015, with the bail-in rule starting in January 2016. On 22 November 2015, the Italian Resolution Authority (Bank of Italy) and the Italian Government decided to place under resolution the fol-

⁶ The European Commission has published, since 2008, seven «Communications» to detail the application of Article 107 of the Treaty of the European Union to State aid in the banking market. The Communication issued in 2013, named «Banking Communication», in the section on «recapitalization and impaired assets» defines the scope of «burden-sharing».

⁷ «The bank and its capital holders should contribute to the restructuring as much as possible with their own resources. State support should be granted on terms which represent an adequate burden-sharing by those who invested in the bank» (EC 2013; Point 15). Also, «Adequate burden-sharing will normally entail, after losses are first absorbed by equity, contributions by hybrid capital holders and subordinated debt holders» (EC 2013; Point 45).

⁸ On depositors' behavior and market discipline in failing banks, see, among others, Berger and Turk-Ariss (2015), Peristiani and Santos (2014); Martin *et al.* (2017).

⁹ Two deposit guarantee schemes operate in Italy: the FITD (*Fondo Interbancario di Tutela dei Depositi*) covering the deposits of Italian commercial banks and the *Fondo di Garanzia dei Depositi delle Banche di Credito Cooperativo*, devoted to the insurance of cooperative banks' deposits.

Table 1: Summary statistics of variables used in the analysis – 2016 Q3 – EUR Billion

	N.	Total Assets (2015Q4)	Total Funding	Total Deposits	Insured Deposits		Uninsured Deposits	
					Value	%	Value	%
All Banks	198	2.627	2.148	828	559	68	269	32
The «4 Banks»	4	25	21	15	12	76	4	24
Big Banks	5	1.203	972	351	239	68	112	32

Source: Authors' elaborations of FITD data.

lowing four Italian banks: Banca Marche, Banca Popolare dell'Etruria e del Lazio, Cassa di Risparmio di Ferrara and Cassa di Risparmio di Chieti.

A first plan of intervention proposed by the FITD was not authorized by the European Commission (DGCOMP) because of the EU rules on State aid, according to which the intervention of Deposit Guarantee Schemes in such situations is considered to be State aid and, consequently, triggers the resolution. The banks were put under resolution afterwards and the «quasi bail-in» of shareholders and subordinated debt holders was applied¹⁰. The resolution plan split the banks into four bridge banks and one bad bank was established in order to deal with the non-performing loans. The entire resolution process was carried out under intense scrutiny by the press and other media, whose reports placed negative emphasis¹¹ on the banks and highlighted the issues affecting subordinated retail bondholders.

The analysis considers 20 quarterly datasets ranging from the last quarter of 2011 to the third quarter of 2016, being the last available data.

The database comprises the following available data on the FITD banks: *i*) total debt funding, composed of total bonds and deposits; *ii*) total deposits eligible for deposit insurance («total deposits»); *iii*) deposits insured by the FITD, below the insurance coverage threshold of EUR 100,000, («insured deposits»); *iv*) deposits above the coverage level, namely greater than EUR 100,000 («uninsured deposits»). The sum of «insured deposits» and «uninsured deposits» is equal to «total deposits»¹². Data are treated at aggregate level or anonymously, where shown individually, in order to ensure the confidentiality of FITD data.

The Table 1 provides the summary statistics of variables used in the analysis for the «4 Banks» and for the comparison groups. The «4 Banks» are compared with data of all FITD members, as a proxy of the overall banking sector, and the «Big Banks» including the five biggest Italian banks in terms of FITD insured deposits. The analysis also considers six solvent banks with – publicly known – capital shortfall (requiring external support).

In 2016, Italian banks collect funding for EUR 2,148 billion, of which EUR 828 billion are deposits eligible for the FITD guarantee. Insured deposits stand at almost

¹⁰ A significant share of banks' subordinated debts was held by the retail sector. The total subordinated bonds of the «4 Banks» were equal to EUR 789 million (2015) for an overall number of 10,500 depositors; almost 50% was in retail portfolios. Moreover, the Italian household sector held 46% of the total subordinated bonds (2015). See Bank of Italy (2016); https://www.bancaditalia.it/media/approfondimenti/2016/obbligazioni-subordinate/obbligazioni_subordinate.pdf.

¹¹ See Graziano *et al.* (2016).

¹² Information on different categories of deposits, as transaction accounts or term deposits, are not available.

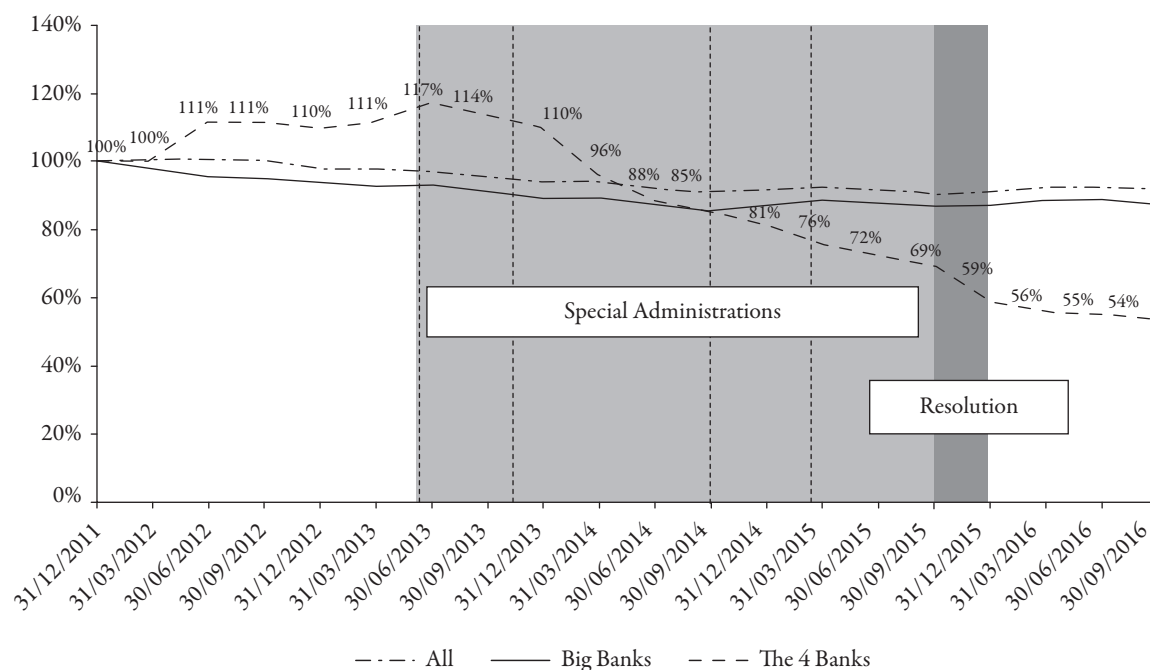


Figure 1: Evolution of total funding – Index numbers (100% = 2011Q4).

Source: Authors' elaborations of FITD data.

67.5% of eligible deposits and they are equal to EUR 559 billion. Overall 32.5% of total deposits are uninsured.

The «4 Banks» hold a very small share of the banking market: approximately 1% of the total funding and of the total assets, round 2%, considering overall insured deposits. The (individual) Big Banks represent roughly 43% of FITD insured deposits.

3.2 Results

The first step of the analysis covers the evolution of total funding. Figure 1 reports the index numbers, starting from the end of 2011 (pre-crisis period), of the 4 Banks' funding compared with those of peer groups, namely all FITD members banks and the Big Banks.

The figure marks the quarter in which the «4 Banks» were placed under resolution, namely the 4th quarter of 2015. The graph also marks the overall «crisis period» and those points in time (dotted vertical lines) when the «4 Banks» were placed under the «Special Administration» procedure.

Unlike the comparison groups of banks, whose funding slightly decreased over time, the «4 Banks» (dotted line) recorded a significant loss of funding after the first Special Administration event. The fall became sharper just before the resolutions and continued after them. At the end of the period (Sep. 2016), overall funding was almost halved, clear evidence of a downsizing of the «4 Banks» as well as of effective market discipline.

Figure 2 shows the evolution of total deposits. The «4 Banks'» deposits behaved differently from total funding. Before the resolution, deposits increased slightly over time and

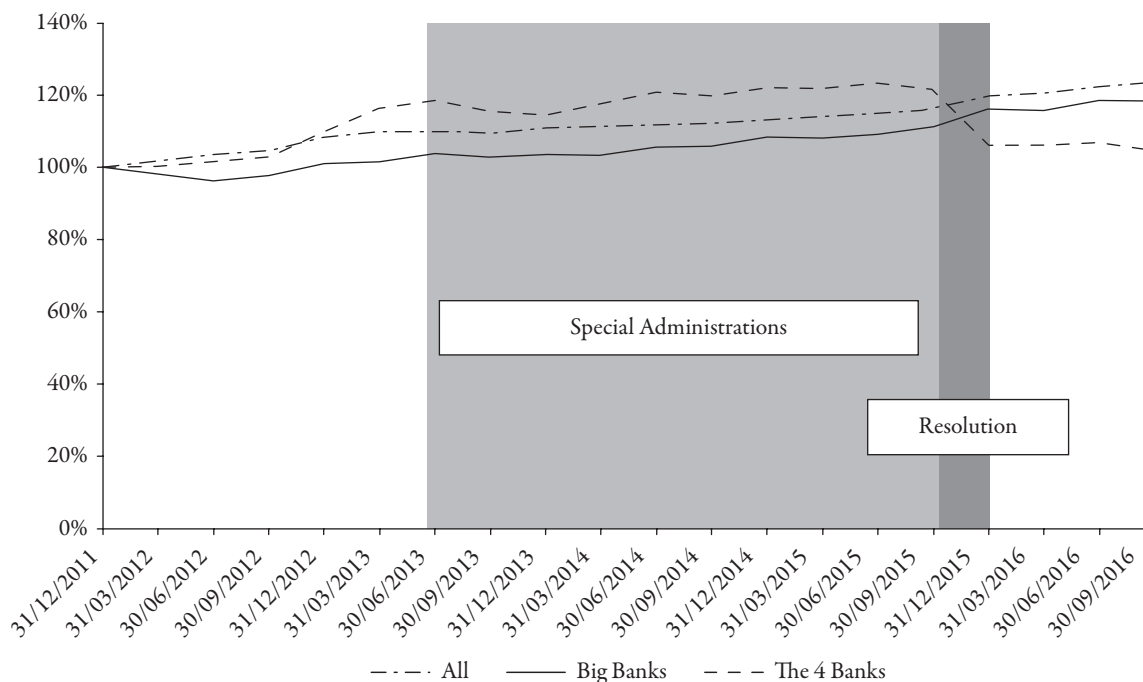


Figure 2: Evolution of total deposits – Index numbers (100% = 2011Q4).

Source: Authors’ elaborations of FITD data.

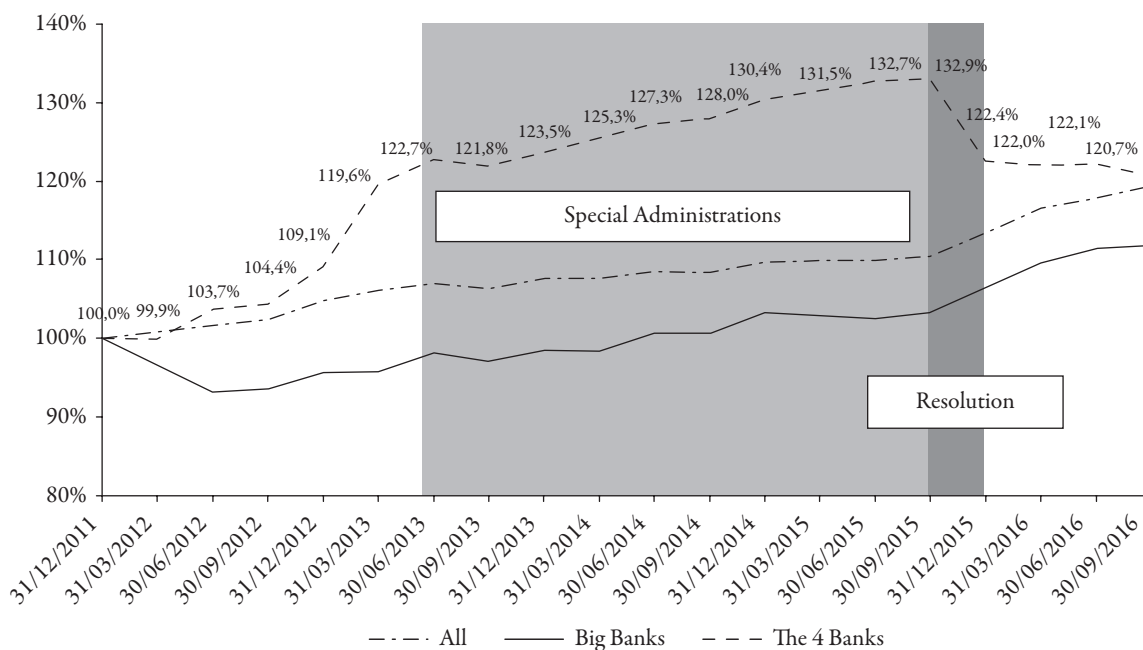


Figure 3: Evolution of insured deposits – Index numbers (100% = 2011Q4).

Source: Authors’ elaborations of FITD data.

this trend continued under the Special Administration regime. This might be explained by the fact that, in Italy, the Special Administration usually resolves bank crises without liquidating the bank concerned (e.g. by means of mergers, assets and liabilities transfers or take-overs); moreover the FITD’s intervention typically consists of preventative and

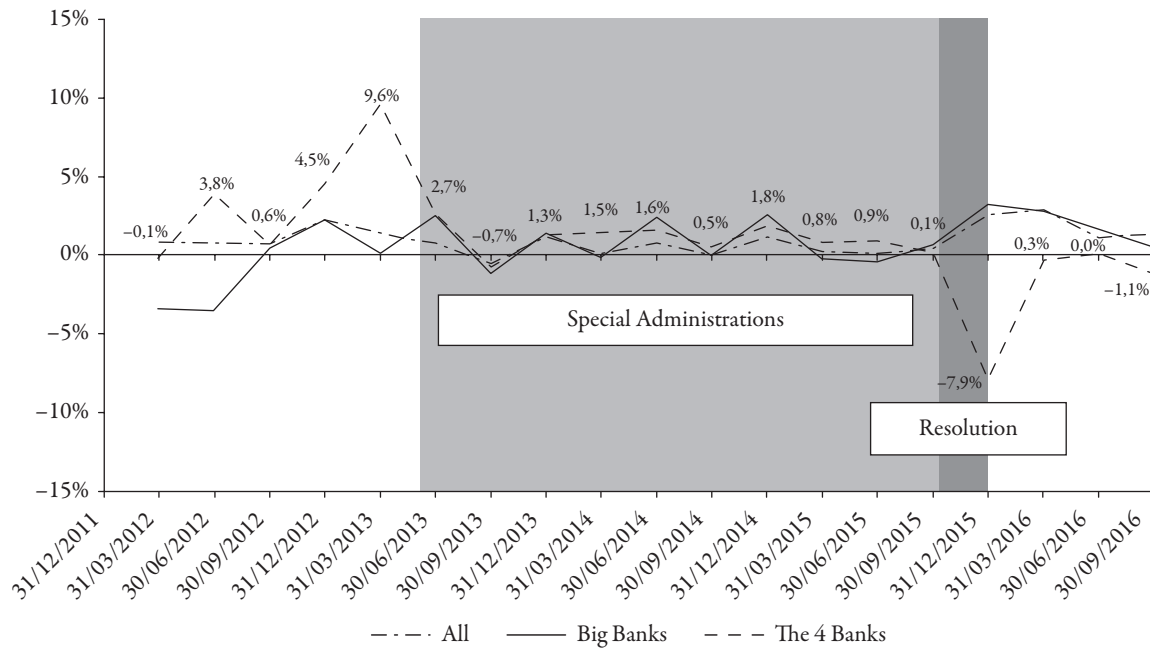


Figure 4: Evolution of insured deposits – Quarterly change rates – %.

Source: Authors' elaborations of FITD data.

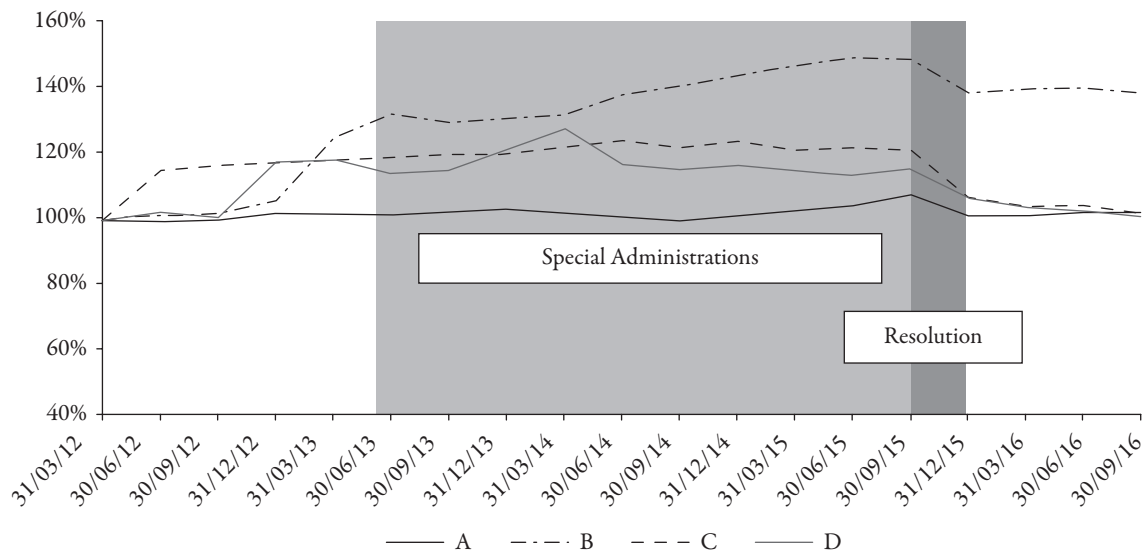


Figure 5: The «4 Banks» – Evolution of insured deposits – Index numbers (100% = 2011Q4).

Source: Authors' elaborations of FITD data.

alternative measures rather than payouts. Depositors seem to hope that nothing else of serious import will happen to the banks.

However, deposits behaved very differently when resolution was impending and, most likely, the perceived resolution risk had intensified. Things changed dramatically. At the end of December 2015, deposits fell sharply.

Figure 3 shows the progress of insured deposits. While the overall banking system as well as the Big Banks gradually attracted larger share of insured deposits, the «4 Banks»

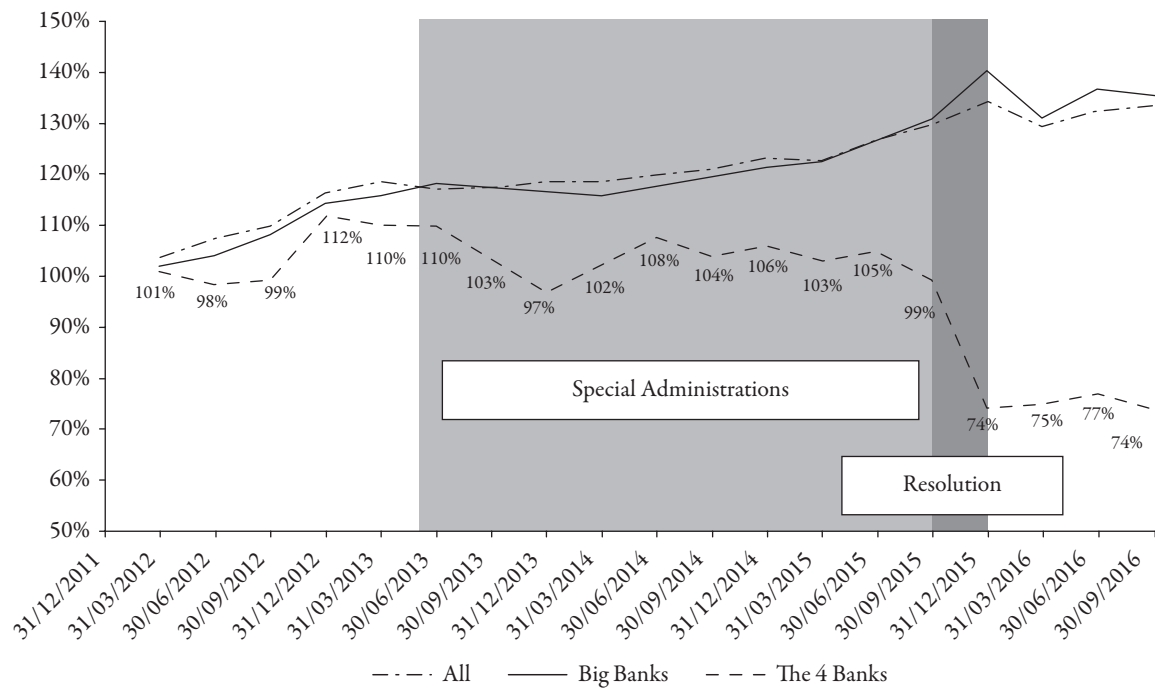


Figure 6: Evolution of uninsured deposits – Index numbers (100% = 2011Q4).

Source: Authors' elaborations of FITD data.

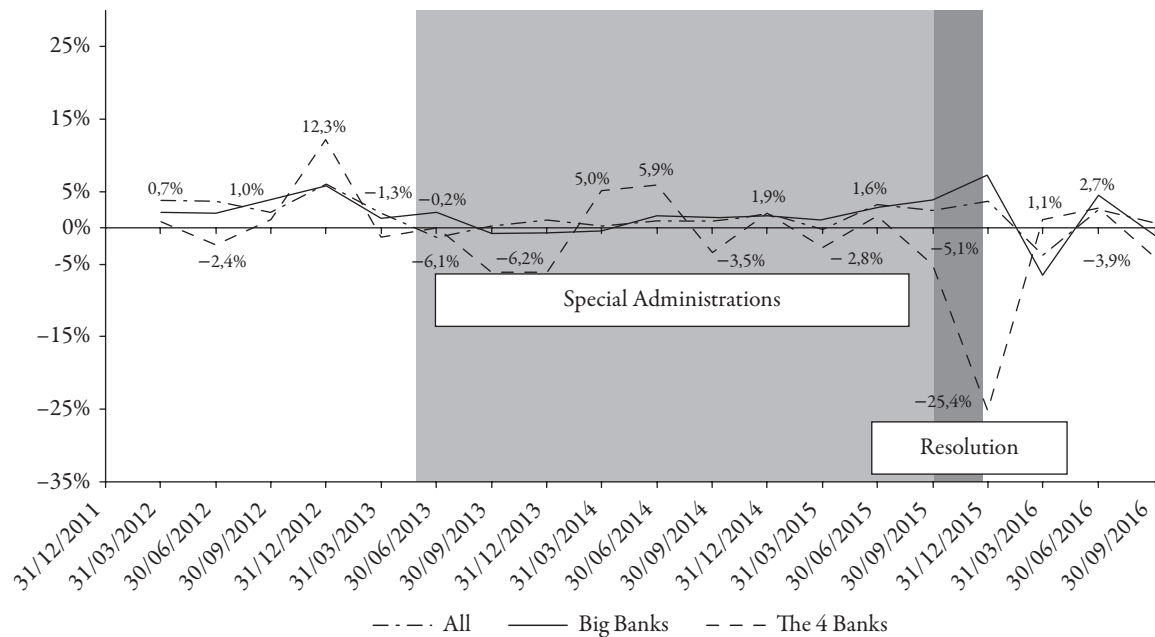


Figure 7: Evolution of uninsured deposits – Quarterly change rates – %.

Source: Authors' elaborations of FITD data.

behaved differently. More precisely, during the special administration period, their deposits showed steady growth; during this period the deposit insurance does matter; the resolution quarter is associated with a marked outflow of deposits from those banks. The evolution of insured deposits is also shown in Figure 4, where quarterly change rates are plotted. The three groups had a similar trend of insured deposits over time before the resolution quarter.

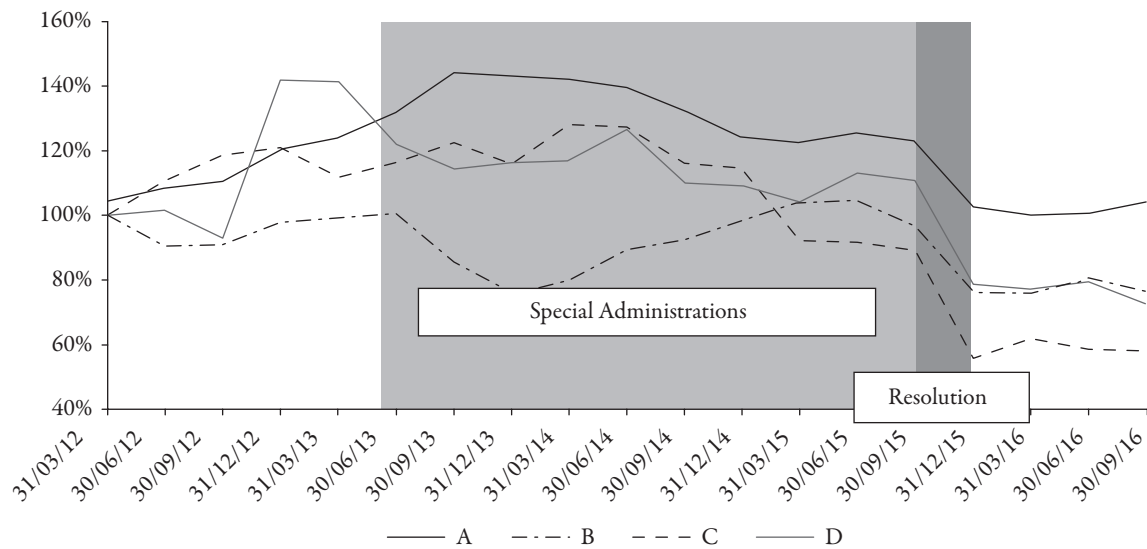


Figure 8: The 4 Banks – Evolution of uninsured deposits – Index numbers (100% = 2011Q4).

Source: Authors’ elaborations of FITD data.

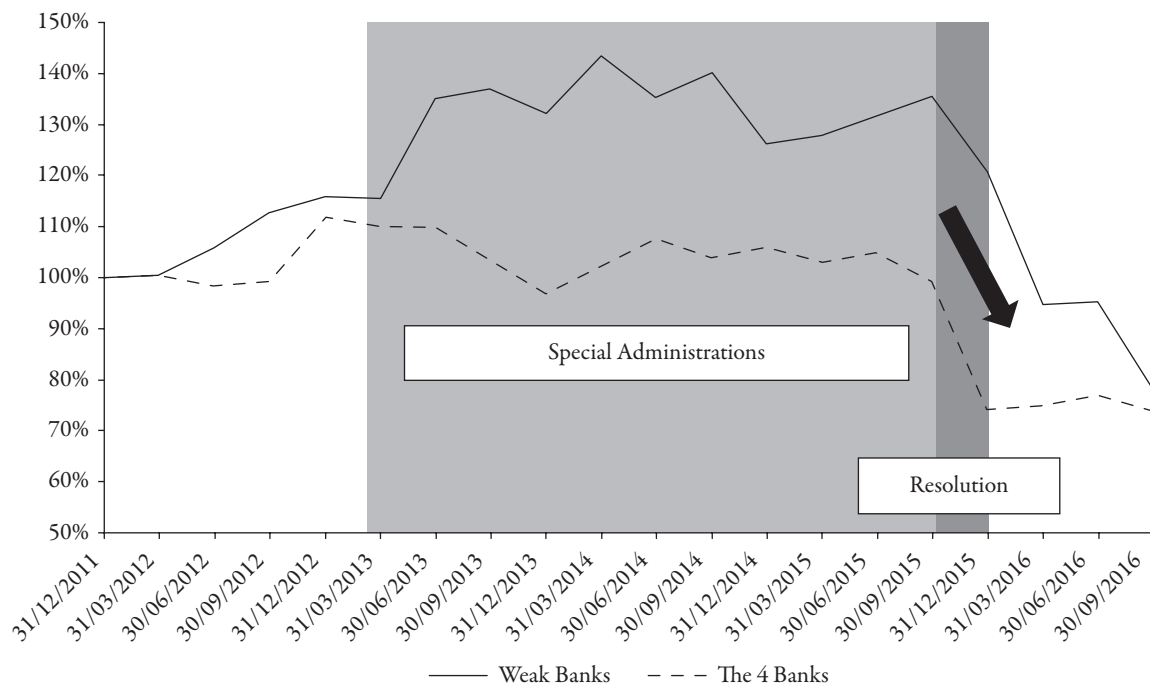


Figure 9: The «4 Banks» vs. Weak banks – Evolution of uninsured deposits – Index numbers (100% = 2011Q4).

Source: Authors’ elaborations of FITD data.

The resolution period is clearly associated with a significant outflow of deposits from the four resolved banks, amounting to almost 8%. Despite the FITD insurance, depositors reacted to the resolution procedure and fled from the resolved banks. By contrast, the depositors of the Big Banks and in the all-Banks group behaved differently: insured deposits increased slightly.

Table 2: Paired t-test for equality of means – The «4 Banks»

	N.	Mean (%)	St. dev.	St. error	Mean diff.	St. dev.	St. error	t	Sig. (2 tails)
Insured deposits									
Pre 2012Q4-2015Q4	4	1,4	.0098	.0049	9,49	.0282	.0141	6,7305	.007
Post 2015Q4	4	-8,1	.0264	.0132					
Pre 2012Q4-2015Q4	4	1,4	1,0%	0,5%	3,94	.0158	.0079	4,9763	.016
Post 2015Q4-2016Q3	4	-2,5	1,3%	0,7%					
Uninsured deposits									
Pre 2012Q4-2015Q4	4	0,7	.0103	.0051	26,80	.0873	.0437	6,1379	.009
Post 2015Q4	4	-26,1	.0922	.0461					
Pre 2012Q4-2015Q4	4	0,7	.0103	.0051	7,27	.0261	.0131	5,5649	.011
Post 2015Q4-2016Q3	4	-6,6	.0252	.0126					

Figure 5 provides the breakdown of insured deposits at the «4 Banks». The decrease of deposits during the resolutions quarter is a trend shared by the four banks.

Uninsured deposits show more intense outflow. During the crisis period (Special Administration), deposits tend to be almost stable. When the resolution was «just around the corner», the value of uninsured deposits of the «4 Banks» fell to almost 75% of the initial period amount (Figure 6). By contrast, the Big Banks and the all FITD banks recorded a gradual increase in their uninsured deposits. The mobility of deposits above the FITD coverage level is also shown by Figure 7. At the end of the quarter immediately after the resolutions (Dec. 2015), the «4 Banks» deposits had decreased by 25.4% with respect to their level in the previous quarter.

Figure 8 shows the «4 Banks» separately: the sharp fall in deposits was common to each of them.

The analysis also compares the trend of the «4 Banks» uninsured deposits with that of some Italian banks with some (public) capital shortfall but still solvent (6 banks). Although these banks were not in resolution, the behaviour of the «4 Banks» deposits seemed to affect the «weak» banks' deposits, just before and after the «4 Banks» resolutions (see Fig. 9).

The analysis finally tested whether the different behaviour of deposits was statistically significant. To do so, paired *t*-tests for the equality of means¹³ of the quarterly change rates of two periods (*pre* and *post*¹⁴ resolution) were performed, considering the different comparison groups. The tests considered the rate of change of both insured and uninsured deposits.

In the case of the «4 Banks», as shown in Table 2, the results of the *t*-tests are statistically significant (with $p < 0.05$). By contrast, in the case of Big Banks and all FITD Banks, *t*-tests are not significant. Last, *t*-tests were also performed considering the «weak» banks. In this case too, *t*-tests are significant (before mean = +2.9%; after mean = -13%; $n = 6$; $df = 5$; $t = 7.158$; $p = 0.001$).

¹³ Normality of data was positively checked.

¹⁴ The *pre* period comprises all the quarters before the resolution quarter (Dec. 2015). The *post* period has a twofold definition: *i*) the quarter in which the resolutions took place (Dec. 2015); *ii*) all the quarters starting from Dec. 2015.

4 Final Remarks and Policy Implications

The paper analyses the behaviour of the creditors and depositors of the first insolvent banks that underwent application of the BRRD in Italy. While the analysis was statistically limited, given the low number of cases analysed, it did yield some significant empirical evidence.

The total funding of the «4 Banks» decreased steadily from the start of the Special Administration regime, two years before the resolution events. This can be interpreted as being the result of effective market discipline, which most likely began when these banks' problems became public. During the Special Administration and prior to the resolutions, total deposits, differently from total funding, increased slightly. Therefore, market discipline tends initially to «attack» bonds more than deposits.

Things changed dramatically around the time of the resolutions.

The «4 Banks'» deposits recorded a sudden sharp fall. Both uninsured and insured deposits fled, but the former much more than the latter.

Evidence of some outflow of uninsured deposits is also documented for some other «wobbly» banks (solvent but with some capital shortfalls) and this happens simultaneously to the «4 Banks'» resolutions. This suggests a possible negative contagion channel from the resolved bank to these weak banks.

The evidence may have some policy implications.

First, the insured deposits outflow questions the effective credibility of deposit insurance. Policy actions to make DGS financing more robust may be useful. In this regard, providing the FITD with credible back-up facilities may be an option. The third pillar of the Banking Union, a European deposit insurance scheme (EDIS) could also produce positive effects.

Second, the run of uninsured deposits is certainly consistent with the market discipline literature, although the magnitude and the speed of the outflow suggest that there are also other strong drivers, i.e. «panic», closely linked to the perceived uncertainty of the new resolution framework. Most likely, the «fear» of being bailed-in heightens the creditors' and depositors' desire to get out quickly.

However, given that such strong funding flights and signals of potential contagions emerge even in the case of small bank failures (as in the Italian case), it is reasonable to expect that where the resolution involves a large systemic bank or multiple failures these effects will be even stronger and might have adverse impacts on financial stability. Therefore, the results of our analysis support the view, recently put forward in the literature, that the new resolution framework can be an effective tool only in minor crises but not when there are threats to financial stability.

Thus, the enhancement of market discipline and the strengthening of financial stability may act as conflicting goals that need to be balanced in the context of bank resolution. The design of the resolution framework should consider these factors at play in order to be effective.

The BRRD and the State Aid regulation do allow some flexibility in the rules, which can be used in the presence of the threat of systemic collapse in order to avoid negative externalities, hence, to make the resolution regime more effective. When financial stability

is at stake, the application of bail-in can be excluded to some extent; also, as a last resort, public stabilisation tools may be required.

However, while the flexibility of rules is useful to deal with *ex post* undesired systemic consequences, it is unlikely to reduce the *ex ante* uncertainty (fear) of banks creditors of having their savings bailed-in. The adverse effects on market discipline, therefore, may persist.

To balance market discipline with financial stability, it may be useful to consider to what extent the bail-in should be applied. If its application to the «maximum possible extent» can have adverse effects, it might be reasonable, from a policy point of view, to keep the principle of private burden-sharing, with only a narrow extension of the bail-in.

A targeted approach to bail-in, instead of the comprehensive one, may be a policy option that balances the two conflicting goals. Restricting the scope of bail-in to certain liabilities with clear contractual provisions may give more (*ex ante*) certainty to creditors and hence reduce the risk of generalized funding flights-to-safety. On the other hand, this approach reduces bail-in capacity to resolution financing and requires, *ceteris paribus*, additional funding from other sources (i.e. the resolution fund or, as a last resort, public support).

These issues deserve more in-depth research, both legal and empirical. The application of the BRRD should be carefully monitored in order to ascertain whether its design, particularly the bail-in, might require reviewing.

In conclusion, bail-in is certainly a useful resolution tool but it is not the «silver bullet» for all situations. When financial stability is at stake, bail-out does not seem to be definitely ruled out, at least not yet.

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