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CHARACTERISTICS OF DEPOSIT INSURANCE RESEARCH AND THE CHALLENGES AHEAD

1. INTRODUCTION

The evolution of research into Deposit Insurance Systems (DISs) may not reach back particularly far. The beginning of the history of DISs started with one of the most striking episodes in the history of economics, the Great Depression. Eighty two years ago, the Great Depression delivered a devastating blow to banking systems. Many retail depositors were – to put it bluntly – simply wiped out. This sparked a wide-scale rush to convert bank deposits into cash or gold. Similarly, the recent Global Financial Crisis triggered a wide range of problems for financial institutions all across the world. The desperation reflected in both episodes has provided us with a salient lesson, namely that, when undertaking a readjustment of the financial system, one element in particular stands out as the most valuable. That element is public confidence. Without it, management of a financial crisis is next to impossible. A lack of this can render futile all manner of clever and

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ambitious responses to economic turbulence, therefore it really is a most precious commodity worth nurturing and protecting.

The architects of a solution to the setbacks presented by both crises seem to have understood this, and that regaining and then maintaining public confidence required mechanisms to restore the financial system. The idea after the Great Depression was, consequently, the birth of deposit insurance, and after the Global Financial Crisis, reconstruction of the institutional financial architecture to which deposit insurance belongs. Recalling these two crises is justified because they were milestones in the history of DIS development. These two events had a huge impact on the deposit insurance industry and accelerated research in this domain.

The establishment of the first deposit insurance agency in the world's largest economy after the Great Depression ushered in an era of research and analysis in this field[1]. Over the years, this has varied in scope and magnitude, and has contributed to a number of related policy breakthroughs. Deposit insurance – both as a policy option and as a subject of study – has aroused the interest of politicians, policymakers, researchers and academics alike because of the impact that deposit insurance has on the banking system, on the behaviour of depositors and because of the different phenomena that it is linked to.

2. DEVELOPMENT OF DIS RESEARCH

Deposit insurance has been the subject of a number of theoretical and empirical studies. To classify these, we propose dividing the history of research on the topic of deposit insurance into five periods. Each has its own character, specificity and associated dilemmas. Also, the number of publications and intensity of research has been linked to the number of DISs all over the world as well as to the occurrence of crisis situations. The database of the International Association of Deposit Insurers (IADI), which consists of papers published in the years 1934–2012[2], is very helpful in the systemization of the respective research. A breakdown of the numbers of papers and the most popular sub-topics related to DISs is presented in Figure 1. The most popular are papers analyzing the funding of DISs (e.g. ex- ante vs. ex-post or burdens set on banks by the existence of DISs) as well as public policy objectives of DISs, their mandates and powers.

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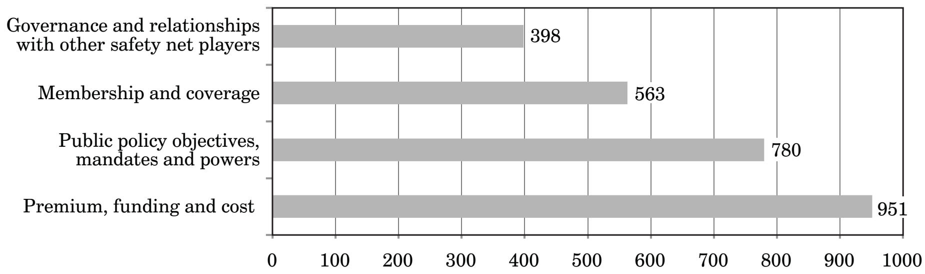
1 The establishment of the first DIS, in the form of the Federal Deposit Insurance Corporation (FDIC) was a truly breakthrough innovation – an adventurous step that took courage, especially in light of the fact that, for quite a long period, no other jurisdictions were bold enough to follow in those footsteps.

2 IADI, *Bibliography of papers related to deposit insurance 1934–2012.*

Figure 1. Breakdown of DIS research fields in IADI database according to the number of papers published



TThe bibliography ends covers the years up to 2012. The same papers may be included in multiple categories.

Source: own materials based on IADI, *Bibliography…, op. cit.*

2.1. The first period: 1930–1970

The first period, from the 1930s to about 1970, was a period in which deposit insurance was predominantly a fringe pursuit for economics researchers. This is not a surprise because at the end of that period only 9 jurisdictions had functioning DISs[3]. Among the most distinguished publications relating to DISs was a publication that analyzed the rationale for the very existence of deposit insurance written by Taggart and Jennings (1934), supporting the existence of deposit insurance. Other valuable publications from that time were written by Beaver (1966) and Altman (1968), who analysed predictors of company failures, which is very useful in DIS functioning. In general, there are three main policy conclusions resulting from the research of that period: the necessity of state involvement in the operation of DISs, ensuring emergency state funding for DISs and a need for cooperation between the DIS and the supervisor for effective operation.

2.2. The second period: 1971–1982

The period between 1971 and 1982 was a time of growing popularity of DISs, which saw the establishment of DISs in 9 new jurisdictions worldwide. The decade starting in 1971 was the time when research moved beyond the baseline question of “to be or not to be”, because in this period academics broadened the scope of their research and discovered new questions awaiting answers. Researchers in the 1970s, for example Sharpe (1977) or Buser at al. (1981), examined the

[3] The numbers relate to jurisdictions with at least one DISs and are counted based on the compiled studies of IADI, *Annual Survey*, 2014 and Demirgüç-Kunt (2014).

optimal relationship of bank capital adequacy to the level of deposit protection and its impact on regulatory policies. Other academics, for example Kreps and Wacht (1971), searched for ways of protecting deposits that would constitute an alternative to a DIS. Still others, such as Bryant (1980), looked at the challenges of adequate DIS funding, admitting that even a well-funded DIS is not always able to protect the financial system from a bank run.

To briefly sum up the policy conclusions from that period, the consensus was that DISs should maintain only the minimum mandate and stay in a narrow pay-box model. Another was that deposit protection depends not only on the strength of a DIS but also on the regulatory and economic environment in which banks operate – which was the idea promoted by Horvitz (1975). Yet another of the policy conclusions was that participation in a DIS should be mandatory for banks, while the protection given to depositors should be sufficiently low to counteract moral hazard.

2.3. The third period: 1982–1993

The period 1983–1993 was a time of rising popularity of DISs all over the world, which bore fruit in the establishment of DISs in 22 new jurisdictions. The centre of gravity during this period shifted to concentrate research efforts on the side effects of the operation of deposit insurance. The most important and often quoted authors tested issues like moral hazard, information asymmetry and the excessive risk taking by banks, which was the domain of such distinguished authors as Pennacchi (1984), Thomson (1986) or Wheelock (1993). But the perspective of moral hazard as a research issue requires a more detailed explanation. As a problem it was known since the establishment of the FDIC in 1934, but the significance of this problem increased with the rapid spread of deposit insurance. This was also a time of extensive analyses of the costs and benefits of providing deposit insurance to a jurisdiction, carried out by Diamond and Dyvbig (1983). Academics examined the role of DISs in contagious bank runs, optimal coverage or protection, and tested principal-agent conflicts – done by Furlong (1984) or Kane (1989). The authors also pointed out that many DISs had defective systems of information collection, client monitoring, and risk management.

The policy conclusions from that period can therefore be summed up as a call for reforms in DISs, suggested by the research results. There was a general consensus among researchers that deposit insurance only benefits the banking system when it is properly designed and there are tools in place to mitigate moral hazard. It is also worth noting that at that time the FDIC was granted resolution powers (with the least cost solution instead of open bank assistance), making it the world's first modern resolution authority, which shows how ahead of its time this institution was[4].

[4] Thanks to the reforms introduced by *Financial Institution Reform, Recovery and Enforcement Act* (FIRREA) in 1989 and *Federal Deposit Insurance Corporation Improvement Act* (FDICIA) in 1991.

2.4. The fourth period: 1994–2007

The fourth period lasted from 1994–2007 and saw a marked upswing in the establishment of deposit insurance agencies. This period was characterized by the formation of new systems, especially in Europe and on emerging markets. At that time DISs were established in 57 jurisdictions. However, a different approach to the institutional framework of the financial safety net brought about different designs of DISs among countries. At that time research was at its most dynamic and introduced new concepts for the mandate of DISs in the world. Some of the most distinguished authors dealing with DIS matters, such as Garcia (1996) and Beck (2001) engaged in discussions about the ex-post versus ex-ante approach to DIS funding, with arguments on both sides. Also, more sophisticated models of deposit insurance pricing and target funds were developed by Blinder and Wescott (2001) or Shibut (2002).

This period delivered various policy implications for DISs. These were the conclusions that it is the role of state authorities to take care of the proper structure of DISs because poorly designed systems can result in negative incentives in the banking sector – which was proved by Demirgüç-Kunt and Detragiache (1999). Researchers also observed that the purpose of the existence of a DIS is two-tier: the protection of small-scale depositors is one, but another is overall contribution to financial stability and crisis management. This gave the impulse for DISs to become part of the financial safety net, which was an idea developed by Goodhart (2004, 2006). One of the thoughts that seemed rather ahead of its time was the conclusion by Garcia (1999) that there are valuable synergies when the DIS acts as a receiver and can decide on the method of bank liquidation when it goes to a payout.

2.5. The fifth period: post 2008

Analysis of the previous four periods led to the general statement that for quite a long time both academics and policymakers had attached a lot of attention to analysing the impact of deposit insurance on bank risk taking and moral hazard, and how to set the premiums paid by banks. The same applied to the topic of funding, coverage level and optimal design. These problems were thoroughly investigated and led to the *status quo* prevalent in economics until 2007, but the necessary reforms were hindered by the prosperity of those times and the lack of need for extensive use of DISs in the past.

Therefore a completely new, fifth period was triggered in 2008 by the Global Financial Crisis and this is not yet concluded. It has brought a new reality to the institutional framework in which DISs participate. So far in this short period 22 jurisdictions (unconvinced before) have established a DIS. This period is characterised by discussion about the redefinition of the role of the DIS in the new financial architecture. Researchers have admitted that the crisis underscored the fact that the systems have been designed in a pro-cyclical way – this was stressed by Laeven and Valencia (2008).

The main policy implications from this period are yet to emerge but for now the conclusion appears to be that the pre-crisis form of DIS functioning must be changed and a new shape must be formulated in order to meet the new challenges – as postulated by Gros or Schonmaker (2013). The ex-ante variant of funding is the target form of funding, because only well-capitalized DISs are able to operate effectively in a crisis situation, as pointed out by Tomasic (2011). Moreover, DISs can play a key role in the process of crisis management and there should be a place for these institutions in the new financial architecture – as indicated by Tarr (2010). In this period, most visible is the strong development of the role and powers of DISs around the world, which is exemplified most strongly by North America and Asia. However, the EU has also stipulated the inclusion of crisis management components in deposit insurance systems with new directives. The related challenges ahead are described in the part 4.

3. CONTRIBUTION OF INTERNATIONAL ORGANIZATIONS

Wrapping up this historic overview of DIS research, it is necessary to briefly touch on the major sources of this research. The research on deposit insurance systems in all periods has been conducted not only by academics, but also by international organizations. Most noteworthy in this regard are the studies carried out by the World Bank, the IMF and the OECD. Studies on a significant scale are also being undertaken by the European Commission and the Financial Stability Board. The subject of deposit insurance also shows up in the studies of such recognized research entities as the Center for European Policy Studies or the National Bureau of Economic Research or FDIC's Center for Financial Research. In addition to this, numerous deposit insurance agencies and safety net players themselves are conducting research, particularly research of practical significance. Some noteworthy examples (in addition to the aforementioned FDIC) in this regard are the Canadian Deposit Insurance Corporation, the Korean Deposit Insurance Corporation, the Bank of England and the Central Bank of Holland.

IADI has also relatively recently begun supporting the deposit insurance research agenda by addressing the most current issues facing deposit insurers. The publications of a series of guidance and research papers on the subject of moral hazard mitigation, deposit insurance coverage, reimbursement systems or handling systemic crises can be mentioned[5]. Also, a number of postulates from research,

[5] The full list of papers is available at IADI, *Research and Guidance, Papers*, www.iadi.org/Research.aspx?id=55 (access: 17 June 2015).

relating to the optimal design of DISs, were used in the *Core Principles for Effective Deposit Insurance Systems*, which are now a benchmark for jurisdictions to use in establishing or reforming their DISs[6].

Table 1. Breakdown of some DIS related databases in the years 2003–2013

Institution	Year	Scope of the DIS research
World Bank[a]	2003	181 jurisdictions
European Commission[b]	2011	27 EU countries
FSB[c]	2012	G-20 countries
IADI[d]	2012	81 jurisdictions
IMF[e]	2013	28 EU countries

[a] World Bank, *Banking Regulation Database*, 2003.
[b] EC, *JRC Report under Article 12 of Directive 94/19/EC as amended by Directive 2009/14/EC*, JRC, Unit G09, Ispra (Italy), 2011.
[c] FSB, *Thematic Review on Deposit Insurance Systems. Peer Review Report*, Basel 2012.
[d] IADI, *Annual Survey*, 2012.
[e] IMF, *Deposit Insurance. Technical Note*, Washington, March 2013.

Source: own materials.

Holistic research done by the institutions mentioned in the table above promotes the systematization of knowledge and enables international comparisons of DISs. These are needed to determine the different roles that the DIS fulfils in national financial safety nets all over the world. Thanks to the aforementioned researchers, it is possible to analyze the new trends in the development of DISs in the world.

4. BIBLIOMETRIC ANALYSIS

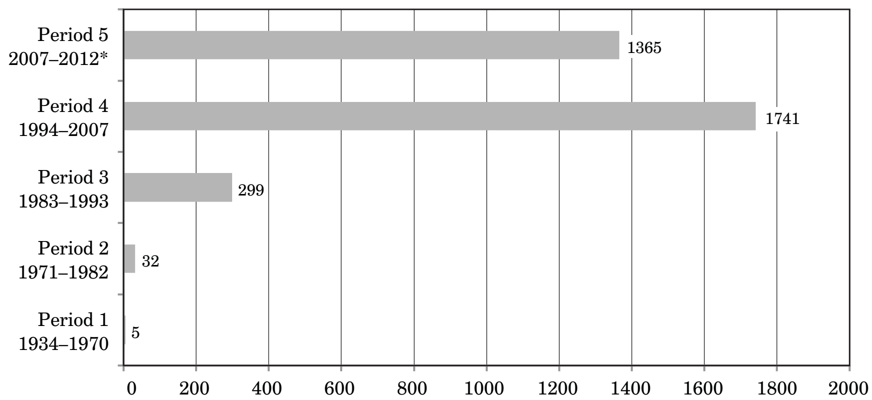
It might be informative to draw a brief comparison between the volume of research done on DISs versus other safety net participants. A bibliometric analysis, the contemporary way of measuring the science and impact of research, can be quite informative. And here we refer to the papers relating in topic to “deposit insurance” in the two popular research databases: ScienceDirect and Web of Science. The former features a total of only 114 titles published in scientific journals. Another interesting statistic is that of these 114 titles, only 27 have been published since the beginning of 2008 (24%), arguably the most significant period from the point of view of DIS engagement and evolution. The second database –

[6] IADI, *The Revised Core Principles for Effective Deposit Insurance Systems*, November 2014. World Bank uses Core Principles in the assessment of DIS performance, e.g. World Bank (2013).

Web of Science – is kinder to deposit insurance, containing 327 related articles, but also just 81 after 2007 (25%)[7].

Of course it needs to be borne in mind that DISs are the safety net participants with the shortest history, but just to give a comparison, papers on the respective functions of other safety net players are vastly more numerous in both databases. For example, titles with "monetary policy" show up in Web of Science 5,070 times, papers related to the topic "financial supervision" amount to 1,725 papers and "macroprudential policy" is the topic of 52 articles. This last one is less than deposit insurance but the genesis of the idea of macroprudential policy is very recent, basically dating from 2009. Such bibliometric comparisons are not rigorously comparative and meaningful, but they do give a perspective and show a gap in the research related to deposit insurance. The deposit insurance system, as a member of the financial safety net, remains largely unacknowledged in many jurisdictions.

Figure 2. The number of DIS related publications in the IADI database for each period



* The bibliography ends with the year 2012 although the fifth period has not yet concluded.

Source: own materials based on IADI, *Bibliography…, op. cit.*

5. NEW RESEARCH TOPICS

Highlighting earlier the large contribution of research to deposit insurance shows progress in research in the area of DISs, which has been impressive on the whole. Many questions remain unanswered, however. The dynamics of the crisis have made room for research to fill, and it is reasonable to increase activity

7 The searches were done on 18 June 2015.

in this area. The post-crisis reality is diametrically different from the pre-2007 state of affairs. The scale of the recent financial crisis and the failure of numerous financial institutions means that deposit insurance agencies have faced the biggest challenge since their inception and this should be more comprehensively reflected in the research. Science has not yet managed to provide a convincing response to some of the most important issues currently facing deposit insurance. This is by no means a failure on the part of scientists, it is simply the natural order of things. The environment – and the structures and systems that are part of it – change and evolve, providing space and opportunities for researchers to explore.

More room for scientific inquiry is also supplied by the fact that DIS has a specific policy area. Because of its nature it has never truly settled into its own in the mainstream of economics theory. It is different from the other members of the financial safety net, yet it is beyond doubt that DISs are part of that safety net and the crisis management process. This specific area needs its respective research coverage, similar to how the other safety net participants are supported by extensive research.

There are now new opportunities to explore the course of the evolution of DISs because this role is currently laid out along multiple tracks. The variety of concepts being formulated for the development of deposit insurance system functionality demands scientific inquiry and verification.

To enumerate only one such opportunity, a less extensively tested research field is the relationship between the pay-box fund and the resolution fund in crisis management. It seems advisable to consider the issue of the desired target level of funding in the context of a diversity of mandates – particularly with respect to the relationship between a resolution authority mandate and a pay-box function, and determination whether they are substitutive or complimentary? The relationship between deposit insurance funds and resolution financial arrangements is closely linked to the bilateral relationship between reimbursement of covered deposits in insolvency and resolution proceedings.

This is connected with microeconomics and the issue of substitutability and complementarity of function with respect to a resolution versus pay-box mandate. In terms of functions, both these measures are mutually substitutable. This is because the transfer of covered deposits to a sound acquirer in a P&A or a bridge bank ensures that depositors have uninterrupted access to their savings, without triggering a reimbursement. The same result can be achieved through a bail-in, when a failing or likely to fail entity is recapitalized by its creditors.

However, in terms of their objective scope, reimbursement and resolution should be perceived as complimentary mechanisms. One of the preconditions for resolution is that such an action should be taken in the public interest and in some cases this condition may remain unsatisfied. What is more, it cannot be ruled out that some covered deposits may remain in a residual entity after resolution tools are exercised, although as a rule such a situation should not take place.

The challenge of defining the relationship between reimbursement and resolution was faced by European Union bodies during drafting of the Bank Recovery and Resolution Directive. The approach adopted, which assumes the obligatory participation of DIS funds in financing resolution proceedings up to the net cost of reimbursement of covered deposits, mirrors the mutual substitutability of these two processes. At the same time, separation between DIS funds and resolution financing arrangements indicates that both functions are to exist in parallel in a crisis management framework because of the complementarity mentioned above.

It should also be emphasized that EU regulations envisage some additional limitations for the use of DIS funds in resolution – up to 50% of the target level – and it seems that this provision, providing additional safeguards for deposit insurers, indicates that the EU legislator has acknowledged the crucial significance of their function as a last resort measure where the resolution strategy fails[8]. The elaborated issue is only one of the dilemmas, so there really does appear to be room to undertake new topics of research.

6. CONCLUSION

Deposit insurance research started with the establishment of the first deposit insurance agency – FDIC in 1934. Academia, the policy and decision makers and international organizations have engaged in many research topics related to DISs over the years. The main areas of interest have been deficiencies in DIS functioning, optimal design or the proper way of DIS funding. However in comparison to other safety net players, DIS seems to be the least tested. Nowadays, all over the world financial systems are being redefined and the role of the DIS is changing in the post-crisis environment. The crisis responses adopted by decision-makers have given rise to a need to systematize policy actions and carry out a comprehensive assessment of their effectiveness. Policymakers supported by many institutions are developing new ideas that have practical carry-over into the real economy. In this context the new DIS role (post 2007) needs to be adequately supported by research, so that whatever solutions are being proposed have the support of the rigour of scientific inquiry. DISs should be supported by science and research especially in such new post crisis fields as resolution or crisis management.

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8 Article 109 of the Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms, Official Journal of the European Union L 173/190.

Abstract

The article aims to present the history of research relating to deposit insurance. It identifies the main fields of interest in selected periods of study, presents the policy conclusions and indicates papers written by the most popular authors handling these topics. Deposit insurers seem to be the least scientifically examined financial safety net participants. The post-crisis regulatory reforms in financial markets all over the world require a redefinition of the role of deposit insurance. The authors sum up the research in the field of deposit insurance performed so far and indicate the new research challenges and rationale for undertaking them.

Key words: deposit insurance research, engagement of deposit insurance in resolution

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