

## THE NATIONAL DEPOSIT INSURANCE SYSTEM: A MARKET INSTITUTION AT THE CROSSROADS

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**ABSTRACT.** The safety net provided by deposit insurance systems gain heavily in weight at times of crisis. The correct set of such a cushion is critical to its effectiveness. While it helps to prevent bank runs, the severe market distortions are of great concern. The short term benefit of public confidence can be, far and away, offset by its long run negative effects consisting mainly in increased moral hazard, heavy public costs and impaired competition.

### 1. INTRODUCTION

Largely challenged worldwide, stability and safety of financial system are being a hot spot as regulators and governments are very active in their search for solutions to sort out the current crisis which wiped out the public confidence. In addition to the critical role of banking regulatory framework and supervision in delivering a reliable and stable banking system, an established framework of deposit insurance is being widely recognized as an important pillar of financial stability.

The current article is trying to elaborate on the role that the deposit insurance system is called to play among the other components of financial safety net in order to both prevent a crisis and act *post factum* in cleaning up the effects of bankruptcy or systemic crisis.

It is structured into five chapters, each approaching a different aspect of deposit insurance system as market construct which is to be overhauled under the pressure of recent developments.

The first chapter investigates the short-term and long-term impact of the exceptional measures applied in the context of crisis and the possibilities to review the setup of deposit insurance schemes. The second one approaches the role that the government has to play in the marketplace in order to deliver financial stability and preserve the depositors' interest in the national market.

The dilemma liquidity vs. solvency is dealt with in the third chapter from the perspective of the central bank that acts in its capacity of lender of last resort to commercial banks. While the selective liquidity injection is a *post factum* measure made by the monetary authority, a pro-active action consists in creating a risk-based contribution to deposit insurance scheme. It is the fourth chapter that tackles this issue and sets out a proposal to set up a risk-sensitive contribution system.

The next chapter delivers a few considerations about the current practice in calibration of deposit insurance fund and financing mechanisms in place. The correct set of its necessary level is crucial to enable it to cope with the depositors' claims in any isolated case of bankruptcy but also in extreme market conditions of the nature of the crisis underway.

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The last chapter puts together the conclusions and proposals of potentially applicable measures in order to improve the set-up and functioning of deposit insurance systems to the benefit of all stakeholders.

The issues touched upon by this article are addressed to regulators, bankers and decision-makers in macroeconomic policies, as they are all responsible for the stability and soundness of banking institutions, thus interested in the adequate setup of national deposit insurance schemes and financial safety nets at large.

The deposit insurance scheme is not a stand-alone instrument, but an important part of a consistent and articulated system of tools used to ensure the banking system safety. Together with the sound regulatory framework, supervisory infrastructure, clear status of lender of last resort of national bank and well-established bankruptcy institution, the deposit insurance is an important gear in the financial market construct.

While the quality of safety nets is usually proven by their capacity to prevent crises, the role of deposit insurance is to protect depositors in case of bankruptcy which may occur in normal market conditions and strike an individual bank, but also at times of crisis when the whole banking system is being threatened by solvency problems<sup>1</sup>.

International experience shows that deposit insurance is effective at times of relative normality in the banking system. In periods of crises its capacity is severely impaired and the crisis becomes primarily a fiscal problem (Demirgüç-Kunt, Kane & Leaven, 2006). Governments come under severe public pressure and resort to extended or even unlimited coverage of individuals' deposits placed with banks. Sometimes, the cover goes beyond commercial banks and encompasses other financial institutions in the attempt to avert generalized panic on domestic market.

## 2. SHORT-TERM VS. LONG-TERM APPROACH

The current crisis led the decision-makers to adopt an array of short-time solutions aimed at relieving the pressure from the capital markets and restoring the public confidence in the battered financial system. In addition to the unpopular and tremendous fund injections into ailing banks and across-the-board cuts in interest rates by central banks, the limits of deposit insurance have been raised or even abolished for the deposits to be fully guaranteed.

The primary goals of this mechanism are to protect depositors<sup>2</sup> and contribute to banking system's stability by preventing bank runs.

Whenever rumors in the market arise about possible troubles experienced by a specific bank, deposit withdrawals are the unavoidable consequence. Hence, its real or alleged problems can result in a solvency issue and the deposit insurance come into play if the bank goes bankrupt. In such a case, the procedures on the access to the fund's resources turn out to become a restructuring or closing tool.

The long-standing contentious issue of the safety brake provided by any deposit insurance system is that related to its adverse effects on banks' behavior. Encouraged by the existence of the insurance which guarantees the indemnification of small depositors in case of default, banks may be tempted to take on unreasonably huge risks in their search for higher profit. Such a

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<sup>1</sup>The components of national safety net interact irrespective of liquidity or solvency problems encountered by banks. Ante factum all these components come into play to prevent both liquidity and solvency problems. The national bank's role as lender of last resort is to step in whenever an individual bank comes through liquidity squeeze. Post factum, it is the deposit insurance that provides compensation in case of insolvency.

Small and medium-size account owners are targeted by the deposit insurance schemes, as they are deemed to be at a disadvantage with large depositors due to their lower expertise to correctly understand the available information. Additionally, it is the small depositors' category that is the most affected by the information asymmetry.

<sup>2</sup>Small and medium-size account owners are targeted by the deposit insurance schemes, as they are deemed to be at a disadvantage with large depositors due to their lower expertise to correctly understand the available information. Additionally, it is the small depositors' category that is the most affected by the information asymmetry.

behavior, commonly addressed to as *moral hazard*, undermines the credibility of banking system and threatens ultimately the economic stability at large.

Small depositors, who usually hold savings below the guaranteed level, will have little concern to carefully scrutinize their banks. As they will be surely reimbursed<sup>3</sup> if their depositor bank goes bankrupt, the control they are entitled to is close to zero while the yield received is not checked for proper correlation with potential risks the bank takes on. Banks, in their turn, perceive the deposit insurance umbrella as an invitation to additionally venture the resources they draw and are tempted to take on higher risks.

The proper calibration of insurance level is critical to the effectiveness of any deposit insurance scheme. Although the *moral hazard* is present on both depositors and banks sides, the evidence shows that the higher the cover provided under such a scheme<sup>4</sup>, the greater the *moral hazard* induced by banks' adventurous behavior. On the other hand, if the cover is set too low, it will turn out to be ineffective, as it falls short on its main role to prevent bank runs.

It is incumbent on regulators to determine an adequate level of deposit protection so as to strike the balance between the need of effective protection of depositors and the prevention of *moral hazard*.

At the end of the year 2008 when the looming crisis threatened the stability of national banking systems around the world, the preferred panacea in some countries was to adopt the unlimited deposit cover. Other jurisdictions took a more prudential stance relative to the risk of *moral hazard* and adjusted upwards the coverage limits instead of unlimited coverage.

**Table I.** Breakdown of limits for bank deposit coverage  
in some countries as of end-December 2008

Country	Previous insurance cover	Current insurance cover	Comments
<b>Austria</b>	EUR 20,000	Unlimited	Adopted in October 2008 <sup>5</sup> .
<b>Belgium</b>	EUR 20,000	EUR 100,000	Adopted in October 2008.
<b>Czech Republic</b>	EUR 25,000	EUR 50,000	Adopted in December 2008 <sup>6</sup> .
<b>Denmark</b>	DKK 300,000	Unlimited	Adopted in October 2008.
<b>Finland</b>	EUR 25,000	EUR 50,000	Adopted in October 2008.
<b>France</b>	EUR 70,000	EUR 70,000	Status quo.
<b>Germany</b>	Varied across banks but typically exceeding EUR 20,000	Unlimited	Adopted in October 2008.
<b>Greece</b>	EUR 20,000	EUR 100,000	Adopted in October 2008.
<b>Hong Kong</b>	HKD 100,000	Unlimited	Adopted in October 2008.

<sup>3</sup>The level of deposit recovery by depositors varies across the safety net arrangements. It may provide unlimited cover (as recently decided in countries like Ireland, Iceland, Germany, etc.), a capped cover or a co-insurance scheme (depositors who hold excessive deposits will bear partly the costs in case of depositor bank's bankruptcy).

<sup>4</sup>The limits are set in general to cover the vast majority of small depositor's balances. Large deposits of individuals together with corporate and interbank deposits are not covered but abide by market rules.

<sup>5</sup>From 2010 on the limit will be EUR 100,000.

<sup>6</sup>As compared with previous system where the insurance run up to 90% of deposits, the cover is now 100% within the set limit.

<b>Hungary</b>	HUF 6 mil.	HUF 13 mil.	Adopted in October 2008 <sup>7</sup> .
<b>Iceland</b>	EUR 20,887	Unlimited	Adopted in October 2008 <sup>8</sup> .
<b>Ireland</b>	EUR 20,000	Unlimited	Adopted in September 30, 2008 <sup>9</sup> .
<b>Italy</b>	EUR 103,291.38	EUR 103,291.38	Status quo.
<b>Japan</b>	JPY 10 mil.	JPY 10 mil.	Status quo.
<b>Korea</b>	KRW 50 mil.	KRW 50 mil.	Status quo.
<b>Luxembourg</b>	EUR 20,000	EUR 100,000	Adopted in October 2008.
<b>Netherlands</b>	EUR 40,000	EUR 100,000	Adopted in October 2008.
<b>Norway</b>	NOK 2 mil.	NOK 2 mil.	Status quo.
<b>Poland</b>	EUR 22,000	EUR 50,000	Adopted in October 2008.
<b>Portugal</b>	EUR 25,000	EUR 100,000	Adopted in October 2008.
<b>Romania</b>	EUR 50,000	EUR 20,000	Adopted in October 2008.
<b>Russia</b>	RUB 400,000	RUB 700,000	Adopted in October 2008.
<b>Singapore</b>	SGD 20,000	Unlimited	Adopted in October 2008 <sup>10</sup> .
<b>Slovak Republic</b>	EUR 20,000	Unlimited	Adopted in October 2008 <sup>11</sup> .
<b>Spain</b>	EUR 20,000	EUR 100,000	Adopted in October 2008.
<b>Sweden</b>	SEK 250,000	SEK 500,000	Adopted in October 2008.
<b>Switzerland</b>	CHF 30,000	CHF 100,000	Adopted in November 2008.
<b>Turkey</b>	YTL 50,000	YTL 50,000	Status quo <sup>12</sup> .
<b>United Kingdom</b>	GBP 35,000	GBP 50,000	Adopted in October 2008 <sup>13</sup> .
<b>United States</b>	USD 100,000	USD 250,000	Adopted in October 2008 <sup>14</sup> .

*Source:* OECD and public information from websites of national monetary authorities.

Table I provides a breakdown of bank deposit coverage limits in some countries as of end-December 2008. As evidenced, the solutions adopted vary widely across countries. While the most troubled opted to provide blanket covers, others increased the ceiling of deposit insurance guarantee. A small group of countries<sup>15</sup> maintained the same level they had before the crisis broke out. Nevertheless, the afore-mentioned measures are temporary remedies addressing the

<sup>7</sup>Pending the Parliament approval, the limit will be raised to HUF 15 million starting with June 30, 2009.

<sup>8</sup>Although the Act no. 98 / 1999 on Deposit Guarantee was not changed, the blanket guarantee was introduced by Government from October 2008. It covers all retail and corporate deposits in domestic commercial and savings banks and their branches in Iceland.

<sup>9</sup>The temporary guarantee that covers deposits, covered bonds, senior and subordinated debt held in the six biggest Irish banks is set to get terminated in September 2010.

<sup>10</sup>The Government pledged to temporarily guarantee all deposits denominated in SGD and foreign currency owned by individuals, non-banking clients, finance companies and commercial banks licensed by the Singapore Monetary Authority. The blanket guarantee is valid until December 31, 2010.

<sup>11</sup>The guarantee covers all deposits of individuals and small companies with commercial banks.

<sup>12</sup>If the Savings Deposit Insurance Fund is called in to administer a bank before it collapses, all deposits held by private individuals are covered and not just up to the YTL 50,000 limit.

<sup>13</sup>The Government announced it would cover 100% of deposits with a bankrupt bank, although there is no legally binding pledge in this respect.

<sup>14</sup>The guarantee is given per depositor per bank and is valid until the end of 2009.

<sup>15</sup>The rationale for deposit insurance ceiling preservation is the comfortable level which provide reasonable protection to the most depositors in mature banking systems (Italy, France etc.) or the recent experience which turned out to have been helped the set of an adequate coverage limit. The latter case is illustrated by Turkey which introduced the unlimited deposit insurance in 1994 after the collapse of three national banks. But the 100% guarantee led many banks to engage in risky undertakings. In 2001 a banking crisis broke out in Turkey and many banks were seized. The market authority resorted to deep changes in the banking system workings. The unlimited coverage of deposits was abolished in 2004 and Turkey aligned its regulations with the EU guidelines.

effects and by no means the deep roots of crisis. To reach the target of real depositors' protection while preserving financial stability, the far-reaching change in regulatory and supervisory framework emerges as the only reasonable solution with long-standing and across-the-board benefits.

### 3. GOVERNMENT AS STAKEHOLDER: STAND-ALONE VS. CONCERTED INITIATIVES

To mitigate the *moral hazard* risk while reducing the total cost of a crisis for government, the market discipline must be quickly restored. Depositors have an important role to clean up the market by shifting their savings from banks perceived as riskier to the safer ones.

The regulatory authorities are the key stakeholder because they have to design and implement a reliable regulatory and supervisory framework to enable the market forces come into play as quickly as possible.

The measures taken in the recent turmoil to increase the coverage level or even to offer unlimited deposit guarantee needs credibility and a good argument here is a clear commitment related to the so-called *exit strategy*. These measures cannot last forever and a phasing-out timetable is necessary although the duration of the crisis is highly unpredictable. A realistic approach here would be to correlate the milestones in the phasing-out plan with a set of indicators relevant for the improvement in the financial market.

By way of regulatory arbitrage, differences in treatment across jurisdictions give rise to the risk of deposits' migration from countries with lower limits of deposit guarantees towards those with higher guarantees or unlimited coverage. The *flight to safety* attitude can be hindered only by restrictions in the exchange rate regime.

Currently, with the widespread removal of barriers and the free movement of capitals across countries, enhanced depositors protection is equivalent to temporarily creating a comparative regulatory advantage. In Europe, governmental guarantees for deposits and depositor protection schemes may fall under the EU state aid rules<sup>16</sup>.

While useful to sort out the financial turmoil, these measures add to the *moral hazard* risk and make the exit more difficult once the troubles were overcome.

Banking regulations enforced across EU stipulate a different treatment of banks' branches authorized to operate in a different member country<sup>17</sup> and the asymmetry can also generate problems by way of unfair competition. Furthermore, the market inefficiency can result in a flawed depositors' protection.

Under EU Directive 94/19/EC on Deposit Guarantee Schemes, depositors of a bank's foreign branch operating in a host country are protected according to the rules of the home country where the mother bank is authorized. If the latter one is a member of the European Economic Area, the minimum deposit protection comes to EUR 50,000 since October 2008 and is to increase to EUR 100,000 as of January 2010. In case the host country adopted a higher deposit insurance limit or lifted it temporarily, the branches of foreign banks cannot be forced to participate in the additional insurance schemes of local market. As the depositors are usually not aware of that, they run the risk of partial losses. The other way round, domestic banks covered by the additional scheme can capitalize on the likely shift in public opinion and draw additional deposits.

Against the background of crisis, some governments introduced extended guarantees beyond individuals' deposits, to include other forms of savings and other types of financial companies<sup>18</sup>. Such measures evidence the commitment of authorities to prevent panic, particularly in mature

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<sup>16</sup>The blanket coverage offered to depositors in Germany, Austria, Denmark, Iceland, Ireland and Slovak Republic was reported to the European Commission as such.

<sup>17</sup>There may be the case of different levels of deposit insurance, as the banks' foreign branches fall within the legislation of the mother bank's home country.

<sup>18</sup>In October 2009 USA's FDIC (Federal Deposit Insurance Corporation) extended the cover scheme to deposits of small business. Almost concomitantly, the Australian government introduced a three-year guarantee for all deposits made with the domestic banks, credit unions and building companies.

markets where a wide range of saving & investment instruments were made available to public. While helpful to deliver security to depositors and investors over a relatively brief time, they end up fostering inefficiency in public expenses and *moral hazard*.

Although the deposit insurance scheme is an effective tool to provide the depositors the sense of safety, its failure to deliver the promised indemnification has a broad negative impact on the market and undermines ultimately the authority of the state and its institutions<sup>19</sup>.

#### 4. THE LENDER OF LAST RESORT – SOLUTION OR DEEP ROOT OF TROUBLES

The issue of deposit insurance schemes has always elicited fierce debates on its virtues and shortcomings. Supporters insist on depositors' protection and preservation of market confidence, important to enable banks carry out their functions of financial intermediation. Critics stress the *moral hazard* risk, arguing that it prompts banks to hunt for riskier business, as they are secured that depositors will be indemnified in case of bankruptcy. In their turn, depositors fuel the hazardous behavior of banks as they prefer to make deposits with the most rewarding banks that usually offer above average interest rates due to their risk appetite.

The recent financial turmoil revealed once again that the market confidence is crucial for commercial banks being able to function properly. Due to their heavy reliance on savings as the cheapest source of funds, any market disruption pushes them to look for more expensive alternatives on interbank market or to resort to the national bank, called in to play its role of lender of last resort.

Liquidity has an overwhelming role in the financial market nowadays and any adverse information is priced into the credit cost on every market segment. The information is almost instantaneously spread across markets, as they are basically a system of communicating vessels.

Insufficiently tackled so far by the regulations in force, the liquidity risk turned out to become crucial especially at times of financial turbulence, when the market dries up of money. The liquidity problems can result in bank runs and the troubles encountered by a particular bank, if not adequately addressed, can quickly spill over and become a systemic issue. It is here that the central bank usually gets involved in its capacity of lender of last resort. By its role to provide temporary funds to the market, the central bank can relieve tensions and prevent panic and further negative developments.

The new challenges facing the central banks were related to both market liquidity and beneficiaries of emergency funding. Furthermore, the lender-of-last-resort function<sup>20</sup> had to be adapted to these changing circumstances (Davis, 2008).

The prerequisite for the lender of last resort function to be fulfilled properly is a clear package of rules where the central bank sets clearly the terms on which the emergency funding is made available to banks. A large base of collateral increases the credit risk run by the central bank. The value of liabilities in the balance sheet of the borrower may end up exceeding the real value of collateral pledged. Due to the credit facility, commercial banks will expand as much as possible the collateralization of their assets, hence decreasing the available assets for other depositors and lending institutions.

In normal circumstances, a bank is reluctant to ask for emergency financing because of the negative impact and reputation damage. The looming risk associated with liquidity support

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<sup>19</sup>The Russian Capital Credit Bank stopped the normal deposit withdrawals in December 2008. It was a de facto insolvency although no official statement from the Central Bank of Russia had been made. In spite of depositors' protests, the central bank, in charge with banking supervision, didn't make any decision. A few weeks later it withdrew the license of Capital Credit Bank and depositors were able to start the recovery of their savings from the deposit insurance.

<sup>20</sup>The role of lender-of-last-resort was originally aimed at providing funds to solvent banks facing temporary liquidity problems. However, this emergency funding bore a penalty rate and was granted against acceptable collateral. It couldn't be used for current lending operations but to fulfill the daily obligations in the interbank payment and settlement system.

comes from its exceptional nature and the bank that resorts to such a tool to overcome a temporary shortage of funds may carry a stigma (Mayes and Wood, 2007).

## 5. THE CHALLENGE OF RISK-BASED CONTRIBUTION

In current circumstances when the resources of deposit insurance institutions are being strained, the funding becomes an issue of the utmost importance for its credibility. The most systems have in place the *ex ante* mechanism where premiums are collected into a standalone insurance fund that can be accessed to indemnify depositors when the case arises. The matter at issue with this kind of arrangement is the inequitable set of premiums. Most countries set flat rates applied to the amount of insurable deposits, as it is easy to manage and has low administration costs.

Table I offers a picture of current premium settings in a selection of European countries where the flat rate is being used. Its main drawback is that it acts as a strong disincentive for some contributors that have to pay the same rate irrespective of how risky they conduct their business. The flat rate gives rise to *moral hazard*, all member banks being covered in case of default although the re-distribution is obviously unfair. Those that chase for higher profit or market share venturing excessively their funds and go bankrupt are covered from contributions paid by prudent banks which accepted lower returns. A redesign of premium calculation based on banks' risk profile gathers momentum as more and more regulators committed to strengthen the prudential rules and put in place advanced early warning systems<sup>21</sup>. In addition to their supervisory purpose, the risk indicators may be very well used in order to settle a fair system of contributions to deposit insurance fund. The package of such indicators has to capture adequate information on both assets & liabilities and their correlation. Such a risk-based contribution system not only puts emphasis on preventing action, but also penalizes unsound or risky practices of members.

The current reporting requirements provide reasonable data and indicators to facilitate the design of a sound risk-sensitive premium calculation system. The upcoming Basel II Accord also enforces reasonable reporting requirements and enhances transparency, so that a reform of deposit insurance system can be revamped to the benefit of depositors, deposit-taking institutions and taxpayers.

A possible solution consists in a panel of five indicators whose role is to provide an accurate risk profile of member institutions as a basis for fair calibration of premiums:

1. *Solvency ratio*<sup>22</sup> is a core item of mandatory reporting framework and gives an indication of the overall risk appetite and its correspondence with the capital cushion.

2. To capture the total risk run by a banking institution, the *global risk ratio*<sup>23</sup> is a good proxy for the overall business risk.

3. *Credit risk ratio*<sup>24</sup> must be present in the panel of indicators applied to come out the risk-based contribution. It can be built to capture the bank's exposure coming from both credit activity and placements with counterparties on monetary and financial markets. The risk degree in credit and placement areas impacts directly on the liquidity necessary to cope with likely withdrawals from clients. The higher the ratio of poor quality credits & placements, the lower the capacity to stand the depositors' assaults.

<sup>21</sup>Argentina, Canada, France, Taiwan, Turkey, USA have already in place risk-based contribution schemes while other countries like Bulgaria are in advanced stages of implementation.

<sup>22</sup>The solvency ratio is defined under Basel I and taken over as such by Basel II Accord. It represents the ratio [Own Funds] / [Risk weighted assets (including off-balance sheet items)].

<sup>23</sup>The global risk ratio is defined as the ratio [Risk weighted assets] / [Total assets]. The numerator and denominator include off-balance sheet items converted into their asset equivalent.

<sup>24</sup>The proposed credit risk ratio is defined as follows: [Gross loans + interbank investment (classified as doubtful and loss)] / [Gross loans + interbank investments]. The gross exposure made up of banking and non-banking loans and interbank investments includes the accrued interest. The denominator incorporates the accrued interest as well. Both numerator and denominator cover the off-balance sheet items converted into their asset equivalent.

4. *Liquidity ratio*<sup>25</sup> is to be considered in the calculation of contribution to deposit insurance fund as it provides a very good indication as to how prompt a deposit-taking institution can react to withdrawal requests and the preparedness to avert a potential bank run.

5. *Return on assets* (ROA) is worth using due to its wide applicability and relevance to measuring the banking profitability. The indicator was taken over by most national banking supervisory authorities as part of CAMEL<sup>26</sup> rating systems.

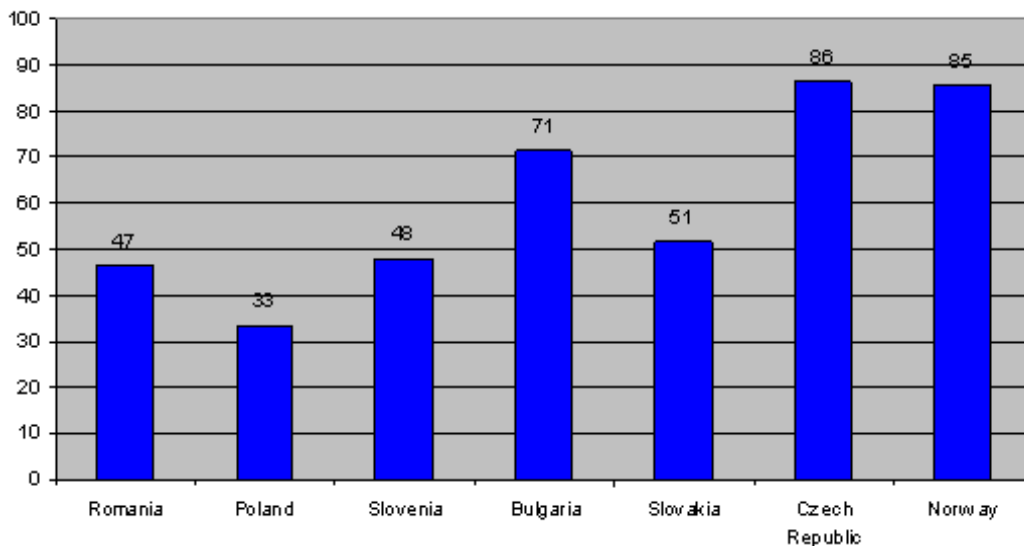
Attaching a rating scale ranging from 1 to 5 to each of the above-mentioned indicators, depending on their significance and relevance to the level of risk, along with an aggregation rule, the regulators are in the position to set differentiating premiums corresponding to each rating bracket.

Each of the above-mentioned indicators will have the range of possible values split into 5 brackets.

For solvency ratio, liquidity ratio and ROA, 1 is assigned to the lowest bracket (hence reflecting the poorest performance) while 5 to the highest one.

As for the other indicators – global risk ratio and credit risk ratio – the scale is to be used in the opposite way: the highest values in the last bracket are associated to higher risk and are to be rated with 1, while the lowest values in the bracket designate a lower risk and get a the grade 5.

**Figure 1.** Coverage ratio (insurable deposits/total deposits)



*Source:* IADI Surveys 2007.

Considering that the indicators have the same weight (20%), their weighted average will determine the global rating of the bank. Based on this rationale, the more prudent and sound a bank is the higher global rating it works out, but no more than 5. Hence, the reward it receives is a lower contribution to the fund.

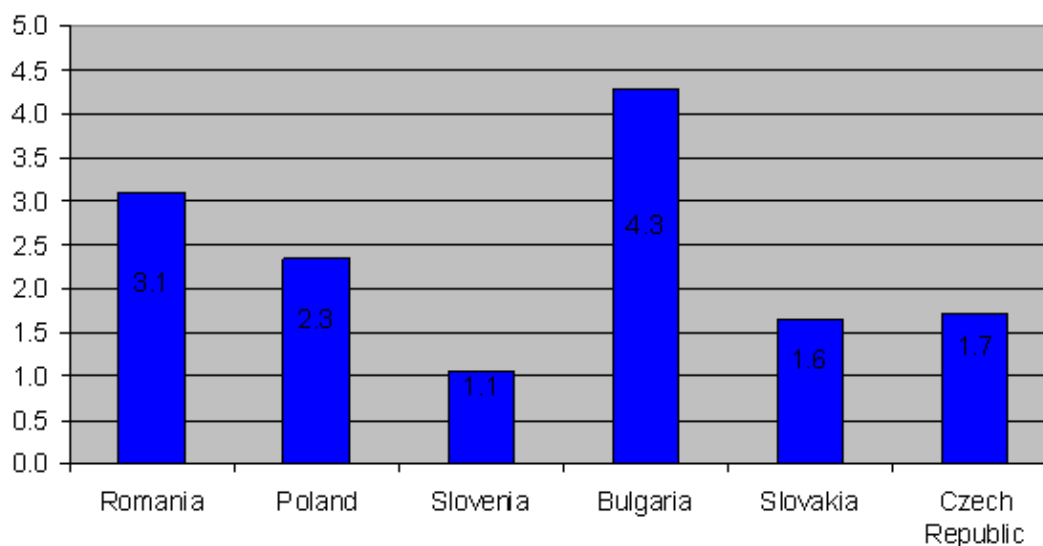
<sup>25</sup>The liquidity ratio can be calculated in various combinations. For the purpose of risk-based contribution calculation to deposit insurance fund, an adequate solution could be to use a 7 days span. Hence, the liquidity ratio represents [Short-term assets] / [Current accounts and term deposits]. Short-term assets include assets maturing within 7 days. The denominator is made up of current account and term deposits owned by individuals.

<sup>26</sup>CAMEL is being used as rating system by national banks as an effective supervisory tool (Capital adequacy, asset quality, management, equity and liquidity).



Although such a mechanism is not easy to manage and implies higher administration costs, it can pave the way for enhanced transparency and banks' accountability to deponents. It leads additionally to an equitable distribution of contribution burden among the fund members.

**Figure 2.** Coverage limit/GDP per capita (times)



Source: IADI Surveys 2007.

**Table II.** Breakdown of limits for bank deposit coverage in some European countries as of end-December 2008

Country	Institutions covered	Instruments covered
Bulgaria	Banks, deposit taking institutions, investment services.	Savings accounts, checking accounts, annuity contracts, money orders, certified drafts of checks, foreign currency deposits.
Czech Republic	Commercial banks, Building societies, Cooperative banks.	Savings accounts, checking accounts, certificates of deposit, foreign currency deposits.
Greece	Commercial banks and cooperative banks.	Savings accounts, checking accounts, foreign currency deposits.
Poland	Domestic banks as defined by the Banking Act and branches of credit institutions from the non-EU member states in case they do not belong to any other guarantee scheme or if the scheme they belong to provides less favorable conditions than the Polish one.	Savings accounts, checking accounts, certificates of deposit, money orders, foreign currency deposits.

Romania	All credit institutions authorized by NBR to receive deposits from public. Following Romania's accession to the European Union, the branches of foreign credit institutions headquartered in other EU member states ceased to have the obligation to participate in the Romanian deposit guarantee scheme, but they may apply for membership on a top-up basis.	Savings accounts, checking accounts, certificates of deposit, travelers checks, money orders, certified checks, foreign currency deposits.
Slovak Republic	Commercial banks and Building societies.	Savings accounts, certificates of deposit, foreign currency deposits.
Spain	Credit institutions whose business is to receive deposits or other repayable funds from depositors in order to invest them.	Savings accounts, checking accounts, certificates of deposit and foreign currency deposits.

Country	Type of premium	Premium & calculation base
Bulgaria	Flat rate	0.5% of the eligible deposits
Czech Republic	Flat rate	For banks and cooperative banks = 0,1% of insured deposits including accrued interest. For bank building societies = 0,05% of insured deposits including accrued interest.
Greece	The calculation of annual contributions is based on a regressive scale. The scale's thresholds revised each year by the Board are so that the ratio of total annual contributions to total deposits used for the calculation is unchanged at the level of the first year of TEK's operation.	Thresholds of deposit in EUR millions (percent premium rate): 0 – 331.6 (0.1250%); 331.6 – 1,655.2 (0.1200%); 1,655.2 – 4,892.1 (0.1175%); 4,892.1 – 11,583.3 (0.0205%); over 11,583.3 (0.0025%).
Poland	Flat rate	Maximum 0.4% of insured deposits
Romania	Flat rate. In addition, the Fund is authorized to increase the annual contribution to be paid by a credit institution up to double if, according to the regulations issued by the Fund and to the prudential regulations established by the National Bank of Romania, the respective credit institution has engaged in risky and unsound policies.	0.1% of insured deposits
Slovak Republic	Flat rate	0.2 % of the amount of deposits protected
Spain	-	-

Country	Funding	Risk-based contributions
Bulgaria	Premiums paid are the main source. In emergency the funding comes from government, private markets. The Parliament approved an increase of premium rate to 1.5% and collection of premiums in advance.	Under development a system based on risk-adjusted contributions, where qualitative and quantitative criteria will be used to define the profile of member banks.
Czech Republic	Premium contribution is the main part. In emergency the private markets are tapped.	No differentiation depending on risk.
Greece	In principle ex-ante funding is used. If such funding is not sufficient to compensate depositors, ex-post funding may also apply.	The annual contributions paid by member institutions are not differentiated according to risks.
Poland	Contributions are the source of funding. They are assessed twice a year for ex post funding and once a year for ex ante funding.	n/a
Romania	The funding instruments are mixed (mainly annual contributions of the member credit institutions and stand-by lines of credit granted yearly by the member credit institutions; the latter could be drawn down only in case of necessity of funds for paying compensations in the event of the default of a member credit institution). In emergency the private markets are accessed.	No differentiation based on risk.
Slovak Republic	Participants' premiums are the primary source. In emergency one can add government funding and resources from private markets.	n/a
Spain	Premium paid by members are the main source of funds. If needed the private markets can be accessed. When the assets of the DIS become negative, the Management Committee may agree to extraordinary contributions being made by the member institutions. The total extraordinary amount may not exceed the sum necessary to eliminate the deficit.	n/a

*Source:* International Association of Deposit Insurers (IADI) Surveys.

## 6. COVERAGE SCOPE AND FUNDING MECHANISM

The *ex ante* financing raises the question of adequate ratio between fund's resources and total insured deposits. As long as there is neither benchmark in the industry nor quantitative target, the national regulators follow the track records and try to strike the balance between the need to protect depositors and that of delivering financial stability. According to OECD statistics, the insurance funds ranges from a few decimal points of a percent up to 10 percent of

total deposits. The same lack of consensus exists in terms of ratio of insured deposits to total deposits.

Figure 1 gives evidence of the large spectrum of options as displayed by the data gathered<sup>27</sup> from a selection of EU countries. While Poland keeps a low coverage ratio (33%), others go to upper ceilings: Czech Republic has a ratio of 86% and Norway 85%.

Table II sets out a breakdown by country where it is easily noticeable that the differences are rather small. In fact, the core of guaranteed instruments is fairly the same as long as the remaining part plays a marginal role in terms of amounts.

The crisis put the funding issue in the spotlight because the *ex ante* mechanism turned out to be overwhelmed due to the unprecedented number of bankruptcies. Almost all deposit insurance funds have in place explicit borrowing agreements to get emergency funding from governments. Due to additional pressure on public finances induced by the financial turmoil and dismal market conditions, the governments' capacity to supply generous amounts to deposit insurance funds ended up being questioned.

Figure 2 shows by how many times the insurance limit exceeds the GDP/capita in a panel of new EU members. These countries tried to comply with the EC directives which set the minimum guaranteed amount to EUR 20,000<sup>28</sup> before the crisis. The low level of GDP/capita led in some cases to better cover: in Bulgaria the guarantee covered 4.3 times the GDP/capita, in Romania 3.1 times. The changes operated in order to contain the crisis i.e. higher or unlimited cover correlated with weaker public finances led to fiscal problems. They are, in fact, the result of *ad hoc* measures that didn't consider the liquidity squeeze on the markets and put in jeopardy the governments' capacity to make good on their pledge to provide for the announced implicit or explicit guarantees.

The international coordination might be a solution to prevent a crisis of confidence, by either bilateral or multilateral insurance arrangements set up in normal market circumstances. A deposit insurance system in EU is a possible solution to support the troubled European financial sector and avoid regulatory arbitrage.

## 7. CONCLUSIONS

The severe stress that financial markets are currently facing can be addressed by emergency measures consisting *inter alia* in increased protection of depositors and other creditors, as key component of a comprehensive master-plan at macroeconomic level with strong focus on monetary and fiscal initiatives.

An effective deposit insurance system must strike the balance between short-term and long-term objectives while supporting the general effort to build up a sound financial system with functional market discipline.

The unfolding financial turmoil – spread with different pacing and intensity on markets all over the world – brought together a critical mass of lessons to guide the overhaul on deposit insurance arrangements to the benefit of all stakeholders, from depositors and banks to regulatory & supervisory authorities, governments and taxpayers at large.

1. Any deposit insurance system redesign must contribute to the accomplishment of macroeconomic policies i.e. bring in financial stability by credibility and reasonable costs. On the one hand, it has to provide protection for the payments system. While the blanket coverage targets the best this objective particularly in a crisis, the government must set a reasonable time-limit when such a shield has to be abolished. Otherwise it nurtures the *moral hazard* and the credibility of the whole construct is in jeopardy. On the other hand, the protection of

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<sup>27</sup>Data reflect the coverage ratios as at December 2007 and are aimed at evidencing normal market conditions. The across-the-board measures adopted in October 2008 due to the financial turmoil changed tremendously the situation.

<sup>28</sup>The common practice across the world is to have guaranteed amounts ranging from 2 to 3 times of GDP/capita. The selected EU countries were analyzed based on the regulation in force in December 2007, before the exceptional measures made to contain the spill over effect amid the financial crisis.

small depositors, actually the basic function of any deposit insurance, is comfortably fulfilled by setting a proper coverage limit. In fact, this limit is a big challenge for policymakers. If set too low, it cannot serve the purpose of securing the financial stability. The other way round, an unreasonably high limit prompts banks towards risky behaviors and blunts the depositors' vigilance.

2. In terms of compliance with the principle of fair contribution to the insurance fund, a risk-based premium calibrated to accurately capture the risk appetite of banks is increasingly attractive for both regulators and members of deposit insurance system.

It helps prudent banks avoid unnecessary costs and discourages the unsound or risky policies by higher premiums. However, the identification of risk profile is a sensitive issue. The indicators selected to calibrate the contribution must be relevant to the specter of risks that can jeopardize the capacity of banks to meet depositors' withdrawal requests. They should cover fairly all the significant risks run by banks and ideally be picked up from the risk reports already in place. Financial authorities use a complex system of indicators to perform their supervisory functions and build up a comprehensive database where both risk and profitability are being recorded.

The panel of indicators proposed in chapter 4 is a proposal which pursued the criteria of relevance and availability, as a starting point towards a more equitable setup of contributions to the deposit insurance fund.

A future research based on historical records can reveal the potential improvements in order to better capture the risk profile of banks, by including new indicators or giving up those which turn out to have little relevance to purpose. Furthermore, the system proposed can be fine-tuned by assigning different weights to the indicators in the panel in order to develop an accurate global risk indicator used to correctly work out the contributions to the deposit insurance fund.

3. Closely related to the deposit insurance tool, the market needs a proper set of lender of last resort function to enable the central bank intervene in the stage of liquidity squeeze and supply the solvent bank(s) facing temporary liquidity shortage the needed funds to go back on track. We witnessed lately an overhaul on lender of last resort function which had to address the market failure. As central banks were called in to inject funds into the market when allegedly sound banks and other financial institutions came across severe liquidity shortage, the classical lender of last resort concept has been fundamentally revised.

The intricate relationship between this role bestowed on central bank and the deposit insurance scheme is being challenged against the background of financial turmoil that made it more difficult to draw the line between liquidity and solvency problems.

4. An efficient system of early warning indicators is to be established in order to enable the central banks to detect the nature of problems that a particular bank may encounter. Should the last resort lender provide with liquidity a bank with severe problems which subsequently goes insolvent, it makes actually an adverse selection at the expense of depositors of the other banks as they have lower funds available.

The quality of collateral was usually lowered and the additional funding pushed banks to further take high risks. At the end of the day one cannot say that the financial market problems are properly addressed as long as the funds injected into the banking system can be subsequently channeled towards risky transactions increasing *de facto* the risk faced by depositors.

5. Along with the lender of last resort function, the regulatory & supervisory infrastructure must be enhanced and the bankruptcy institution enabled to properly play its role. Instead of relaxing the access conditions to liquidity facility, central banks together with other market institutions have to enhance their tools to better perform the supervisory functions and avoid liquidity / solvency dilemma.

In the end, the issue of deposit insurance system shouldn't be approached isolated but in connection with the other components of national safety nets. Furthermore, the national connections tend to be dismantled to the benefit of international cooperation, as the globalization set forth new and unexpected challenges amid a changing financial landscape.

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