JRC Scientific and Technical Reports

Change in the DGS level of coverage due to the 2008 financial crisis: first basic impact evaluation

A. Uboldi, E. Joossens, M. Petracco, F. Campolongo

The Institute for the Protection and Security of the Citizen provides research-based, systems-oriented support to EU policies so as to protect the citizen against economic and technological risk. The Institute maintains and develops its expertise and networks in information, communication, space and engineering technologies in support of its mission. The strong cross-fertilisation between its nuclear and non-nuclear activities strengthens the expertise it can bring to the benefit of customers in both domains.

***Europe Direct is a service to help you find answers
to your questions about the European Union***

Freephone number (*):

00 800 6 7 8 9 10 11

(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server http://europa.eu/

Printed in Luxembourg

Change in the DGS level of coverage
due to the 2008 financial crisis:
first basic impact evaluation

A. Uboldi, E. Joossens, M. Petracco, F. Campolongo

Scope of the analysis

Scope of this analysis is the assessment of the impact of increasing the DGS level of coverage for banks' deposits from current levels up to 50K€ or possibly 100K€.

Methodology

The impact of increasing the minimum level of coverage is measured as the increase in the amount of deposits covered. This is achieved by computing the difference between

- A, the total amount of deposits covered *today* (applying the current coverage levels), i.e. the total amount of money which would be needed to reimburse all entitled deposits (up to the coverage limit),
- B, the total amount of deposits covered under a new scenario (i.e. applying the new coverage levels under the hypothesis of a new minimum enforced by European legislation).

The focus is then on estimating the amounts A and B.

In order to estimate A and B, one should know the distribution of deposits today, and from that to derive the total amount covered respectively under the current and the new (or hypothetical) coverage levels.

The problem then reduces to estimating the distribution of deposits.

However data to estimate the distribution of deposits (both in terms of number and amount of deposits) are currently not available to JRC. A request has been forwarded to Central Banks and data may be released in the coming days.

In the meantime, we try to produce rough estimates of the maximum and minimum impacts under a set of assumptions.

First framework (maximum impact evaluation)

We assume that the recent crisis has dramatically changed the level of information on deposit protection in general, and more specifically on the part of deposit which is guaranteed (reimbursed) in case of bank failure.

We therefore assume that, given the achieved public awareness, all depositors will redistribute their money among different bank accounts so to have the complete amount covered. In other words we assume that all deposits will lie below the level of coverage.

In this framework, quantity B, which is the total amount of money needed to reimburse all covered deposits, will be close to the total amount of *eligible deposits* (where by eligible deposits we mean deposits that fall under Directive 94/19/EC on Deposit Guarantee Schemes).

A complete coincidence is not a realistic hypothesis (i.e. big firms accounts cannot be split into a large number of separate small accounts), but it can be considered a reasonable approximation. Under this hypothesis there is no need to know the distribution of deposits. It is sufficient to know the overall amount of eligible deposits. Figures on the total amount of eligible deposits can be found in the 2006 JRC report on minimum level of coverage[1] and in the 2007 JRC report on the efficiency[2].

These reports contain also an estimate of quantity A, the total amount of deposits covered under the nationally enforced limits which were valid up to a few weeks ago.

Note that one of the limitations of the present estimate is that the reports contain data on 2004, while the update deals with 2005. Estimates will be updated once more recent data will be made available.

The impact obtained under the assumptions of this framework can be considered as an upper estimate.

Also note that under the strong assumption of re-distribution of deposits (in order to achieve the maximum possible protection) the level of the coverage limit has very little impact. No matter the value of the coverage level, each deposit will stay below it and depositors will protect the complete amount of their capital. This could happen also in the case of no change in the coverage level: the change in public awareness alone is sufficient to produce an impact.

The table below summarizes the impact in this framework.

---

[1] 2006 JRC report "Estimating the effects of changing the funding mechanisms of EU Deposit Guarantee Schemes"
[2] 2007 JRC report "Investigating the Efficiency of EU Deposit Guarantee Schemes"

Table 1: Impact of framework1. Assumption: depositors quick reaction to crisis, which means all deposits will be below the level of coverage. Data are from 2005. The column in violet provides an upper bound for the impact. Last two columns provides relative impact with respect to eligible and covered deposits.

	data			absolute exposure	relative exposure	
	eligible (m€)	covered (m€)	level of coverage (2007, €)	cov - eli (m€)	percentage of cov - eli over eli	percentage of cov - eli over cov
	A	B	C	A-B	(A-B)/A	(A-B)/B
BE	215,427	115,281	20,000	100,146	46.49%	86.87%
CZ	57,943	31,541	27,778	26,402	45.57%	83.71%
DK	128,594	57,308	40,000	71,286	55.44%	124.39%
DE	1,911,376	1,022,827	22,222	888,549	46.49%	86.87%
EE	4,283	1,667	22,222	2,616	61.07%	156.88%
IE	177,947	95,224	22,222	82,723	46.49%	86.87%
GR	118,736	63,539	20,000	55,197	46.49%	86.87%
ES	636,538	315,796	20,000	320,742	50.39%	101.57%
FR	1,018,478	620,604	70,000	397,874	39.07%	64.11%
IT	583,075	427,815	103,291	155,260	26.63%	36.29%
CY	31,030	10,433	22,222	20,598	66.38%	197.43%
LV	8,606	1,610	20,000	6,997	81.30%	434.65%
LT	7,078	3,702	20,000	3,375	47.69%	91.17%
LU	89,054	12,437	20,000	76,616	86.03%	616.01%
HU	36,788	20,272	25,924	16,515	44.89%	81.47%
MT	5,706	4,799	22,222	907	15.89%	18.89%
NL	482,343	293,913	40,212	188,430	39.07%	64.11%
AT	185,000	117,347	20,000	67,653	36.57%	57.65%
PL	94,801	90,068	22,500	4,734	4.99%	5.26%
PT	123,886	63,108	25,000	60,778	49.06%	96.31%
SI	12,468	7,130	21,294	5,337	42.81%	74.85%
SK	10,982	10,876	22,222	106	0.96%	0.97%
FI	80,577	38,271	25,000	42,307	52.50%	110.55%
SE	115,745	56,133	26,628	59,613	51.50%	106.20%
UK	1,091,493	665,095	51,072	426,398	39.07%	64.11%
EU 25 total	7,227,953	4,146,796		3,081,157		
EU 25 average			30,081		44.91%	117.36%

Second framework (minimum impact evaluation)

In this framework we assume that the distribution of deposits remains unchanged, or in other words, we assume that owners of large accounts will not react by splitting them in order to bring them under the coverage level.

Under this assumption, a lower bound for the cost in each country could be estimated.

In this framework only a part of the total amount of money is held in accounts below the coverage threshold, while there are several accounts with an amount of money above it. It then becomes important to know the distribution of the deposits.

As data on the distributions are not available, we introduce an approximation procedure detailed below. This procedure provides an underestimate of the lower bound of the total amount covered under the new coverage level.

Table 2 and Table 3 summarize the impact evaluation of changing the coverage level to 50K and 100K. The third and fourth column contain the estimated covered amount for each country, which are obtained using the approximation procedure described above and coverage levels respectively of 2007 and newly proposed ones. Reference data are form 2003. The absolute and relative impacts are presented in the later columns. For those countries having a coverage level in place exceeding the newly proposed levels the impact is zero.

Table 2: Impact of Framework 2 using a new coverage level of 50,000. Assumption: depositors do not react to crisis, which means that distribution of deposits remains unchanged. Data are from 2003.

	data	estimations		absolute exposure	relative exposure	
	eligible (m€)	estimated 2003 covered (m€, 2007 coverage level)	estimated covered (50K€ level)	estimated cov (50K€ level) – cov	percentage of estimated cov (50K€ level) over cov	percentage of estimated cov (50K€ level) over eli
	A	B	C	C-B	(C-B)/B	(C-B)/A
BE	188,791	83,449	149,621	66,172	79.30%	35.05%
CZ	40,854	39,734	40,600	866	2.18%	2.12%
DK	106,029	66,693	76,679	9,986	14.97%	9.42%
DE	1,615,946	824,645	1,355,457	530,812	64.37%	32.85%
EE	2,590	2,394	2,531	137	5.74%	5.31%
IE	143,226	54,563	98,156	43,593	79.89%	30.44%
GR	98,926	56,488	84,303	27,816	49.24%	28.12%
ES	575,940	331,756	492,041	160,284	48.31%	27.83%
FR	839,391	774,272	714,415	-		
IT	511,527	463,528	405,080	-		
CY	16,887	15,260	16,596	1,336	8.76%	7.91%
LV	5,115	4,751	5,035	284	5.98%	5.55%
LT	3,903	3,755	3,896	141	3.75%	3.61%
LU	86,734	37,515	68,001	30,486	81.26%	35.15%
HU	27,649	26,330	27,389	1,059	4.02%	3.83%
MT	4,617	4,172	4,538	365	8.76%	7.91%
NL	264,839	203,688	226,937	23,249	11.41%	8.78%
AT	158,338	69,763	136,647	66,883	95.87%	42.24%
PL	63,934	57,805	62,393	4,588	7.94%	7.18%
PT	108,384	86,250	106,078	19,828	22.99%	18.29%
SI	10,760	7,427	10,688	3,261	43.90%	30.31%
SK	10,150	8,784	9,904	1,120	12.75%	11.03%
FI	68,948	43,568	60,816	17,248	39.59%	25.02%
SE	113,094	67,872	96,393	28,520	42.02%	25.22%
UK	1,728,510	1,054,517	1,042,693	-		
EU 25 total	6,795,082	4,388,980	5,296,887	1,038,035		
EU 25 average					33.32%	18.33%

Table 3: Impact of Framework 2 using a new coverage level of 100,000. Assumption: depositors do not react to crisis, which means that distribution of deposits remains unchanged. Data are from 2003.

	data	estimations		absolute exposure	relative exposure	
	eligible (m€)	estimated 2003 covered (m€, 2007 coverage level)	estimated covered (100K€ level)	estimated cov (100K€ level) cov	percentage of estimated cov (100K€ level) over cov	percentage of estimated cov (100K€ level) over eli
	A	B	C	C-B	(C-B)/B	(C-B)/A
BE	188,791	83,449	170,762	87,313	104.63%	46.25%
CZ	40,854	39,734	40,769	1,035	2.61%	2.53%
DK	106,029	66,693	96,313	29,620	44.41%	27.94%
DE	1,615,946	824,645	1,525,817	701,172	85.03%	43.39%
EE	2,590	2,394	2,558	164	6.84%	6.32%
IE	143,226	54,563	121,383	66,820	122.46%	46.65%
GR	98,926	56,488	91,021	34,533	61.13%	34.91%
ES	575,940	331,756	525,234	193,477	58.32%	33.59%
FR	839,391	774,272	801,342	27,070	3.50%	3.22%
IT	511,527	463,528	463,112	-		
CY	16,887	15,260	16,754	1,494	9.79%	8.85%
LV	5,115	4,751	5,073	323	6.80%	6.31%
LT	3,903	3,755	3,902	147	3.90%	3.75%
LU	86,734	37,515	77,950	40,435	107.78%	46.62%
HU	27,649	26,330	27,558	1,228	4.67%	4.44%
MT	4,617	4,172	4,581	409	9.79%	8.85%
NL	264,839	203,688	259,594	55,906	27.45%	21.11%
AT	158,338	69,763	154,617	84,854	121.63%	53.59%
PL	63,934	57,805	63,175	5,370	9.29%	8.40%
PT	108,384	86,250	108,123	21,873	25.36%	20.18%
SI	10,760	7,427	10,760	3,332	44.87%	30.97%
SK	10,150	8,784	10,037	1,253	14.27%	12.35%
FI	68,948	43,568	65,109	21,541	49.44%	31.24%
SE	113,094	67,872	106,756	38,884	57.29%	34.38%
UK	1,728,510	1,054,517	1,315,777	261,259	24.78%	15.11%
EU 25 total	6,795,082	4,388,980	6,068,074	1,679,510		
EU 25 average					41.92%	22.96%

Technical procedure

Data on the distribution of the amount of eligible deposits are not available. Nevertheless, some information can be extracted from the 2005 JRC report[3], which contains data in the following form. Bank eligible deposits are divided into groups/buckets and for each bucket the total amount of capital within the bucket is provided (in other words the sum of all deposits containing an amount falling within the bucket is given). The buckets can be split up into three groups:

- the buckets for which the upper bound falls under the coverage level,
- the buckets completely exceeding the coverage level, and
- the bucket containing the coverage level.

An account which has a value below the coverage level is completely covered. Hence for the first group of buckets the total amount covered is equal to the total eligible accounts.

For accounts exceeding the coverage level there is only coverage up to the coverage level. Hence we should know the number of accounts exceeding this coverage level.

As we only have the total amount per bucket we can estimate the minimum number of accounts present in a bucket. It is the ratio of the total amount and the upper bound of the bucket.

By multiplying this minimum number of accounts by the coverage level we have a lower bound for the total amount covered for this bucket. No information is included for the highest bucket, since the same argument does not apply. For this reason, in Figure 1 the last bucked is made up entirely by uncovered deposits: we insist on the fact that this estimate is a "lower bound" estimate.

The bucket containing the coverage level should be treated with care, as it contains accounts entitled to be fully covered and account to be partially covered. In absence of other information, we assume that data within this bucket is uniformly distributed. Under this assumption, we can estimate the total amount within the bucket which falls under the coverage level: it is obtained by multiplying the total amount by the share of deposits below the coverage level (which is given by (coverage level-lower limit)/(upper limit-lower limit)). This amount has to be fully covered.

The remaining amount (representing the total amount of eligible accounts within the bucket exceeding the coverage level) is calculated with the same approach described above for exceeding buckets.

Hence the total amount of coverage for the deposits within this bucket results to be:

$$TAED * \frac{CL - LL}{UL - LL} + CL * \left(TAED * \frac{UL - CL}{UL - LL} \right) / UL \, ,$$

---

[3] 2005 JRC Report "Minimum guarantee level of Deposit Guarantee Schemes Directive 94/19/EC"

where TAED stands for total amount of eligible deposits, CL for coverage level, LL for the lower limit and UL for the upper limit of the bucket.

Adding up the total amount of coverage for each bucket provides a lower limit for the total amount covered in each country.
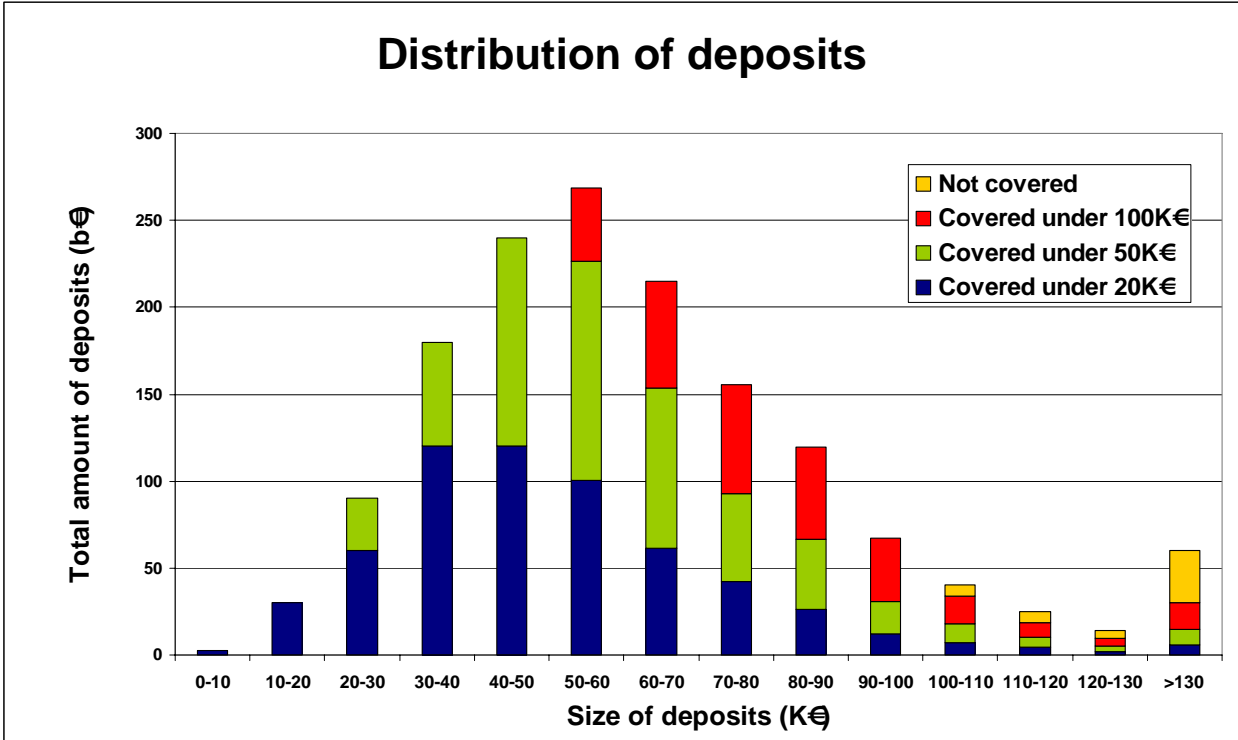

Figure 1: example of estimation of covered amount

How to obtain EU publications

Our priced publications are available from EU Bookshop (http://bookshop.europa.eu), where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents. You can obtain their contact details by sending a fax to (352) 29 29-42758.

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.

JRC
EUROPEAN COMMISSION

Publications Office
Publications.eu.int