Real Deposit Insurance Coverage: An International Study

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ABSTRACT

Recently several countries have implemented explicit deposit insurance systems. In most countries the adoption of an explicit deposit insurance system followed a banking crisis. This paper examines the impact of demographic, social, and political factors on the presence of an explicit deposit insurance system in a country. Moreover, for a subset of countries with explicit deposit insurance system we try to identify demographic, political, economic, and financial factors that affect the level of deposit insurance coverage. The findings suggest that life expectancy and political rights are related to whether an explicit deposit insurance system is in place or not. For countries with explicit deposit insurance systems the level of income, the importance of the banking sector within the financial system, and the development of domestic banking sector have a significant impact on the level of deposit insurance coverage level. The level of income, deposit money bank assets to GDP ratio, bank overhead costs to total assets ratio, presence of co-insurance, and type of administration are statistically significant in explaining differences in the level of coverage among countries.

Keywords: Deposit Insurance, International Comparison

INTRODUCTION

Recently we have witnessed a series of banking crises around the world. Banking crises have occurred in developed and developing countries. Prominently, the Asian crisis of 1997 and the Russian financial crisis of 1998 have involved banking crises including bank insolvency. Systematic bank insolvencies involve huge costs to the banks, their customers, and to the governments. The consequences include the disruption of bank lending and the payments system as well as a reduction in investment and economic activity. Further, in addition to depositors' losses, governments incur large costs to remedy a banking crisis.

To prevent financial and banking crisis all countries have financial safety nets in place, including explicit and implicit deposit insurance, bank regulation and supervision, central bank lender of last resorts facilities, and bank insolvency resolution procedures. Deposit insurance has become a tool often used by governments in an effort to ensure the stability of the banking system and to protect bank depositors from bank failures. Although more and more countries have adopted explicit deposit insurance schemes, risk taking associated with moral hazard behavior by banks contributes to the fragility of the banking system (Demirguc-Kunt and Detragiache, 2002). Under many deposit insurance schemes, if the government covers a significant portion of the depositors' losses, it weakens market discipline and creates an incentive for depository institutions to undertake undue risks, leading to greater systematic instability.

In recent years a significant number of developing countries have also implemented deposit insurance. Moreover, as Demirguc-Kunt, Kane, and Laeven (2005) point out, every country has a de facto implicit deposit insurance scheme in place since governments get pressed for relief at the breakout of a large systematic banking crisis. According to Demirguc-Kunt, Karacaovali, and Laeven (2005) as of 2003, there are 87 countries with explicit deposit insurance in place including 30 high income countries, 17 upper middle income countries, 30 lower middle income countries, and 10 low income countries. Geographically, countries with explicit deposit insurance in place are primarily located in Europe, Central Asia, Latin America and the Caribbean. Furthermore, among countries with

explicit deposit insurance we find that the schemes vary significantly from country to country in coverage and safeguards. The differences might be explained by political, demographic, social, economic, and financial factors. Deposit insurance affects not only banks' depositors, but also shareholders, creditors, bank managers, the deposit insurance agency, the government, and taxpayers.

This paper looks at the determinants of deposit insurance coverage throughout the world. First, our goal is to identify the factors that might have an effect on the existence of explicit deposit insurance systems throughout the world. Second, for a set of countries with an explicit deposit insurance system in place we investigate how cross-country differences including deposit insurance design features as well as social, political, demographic, economic and financial characteristics relate to the amount of deposit insurance coverage. The analysis will use international data sets on deposit insurance recently constructed by the World Bank and various sources that enclose social, political, demographic and other characteristics for countries across the world.

LITERATURE REVIEW

There is a large amount of theoretical research on deposit insurance design; however, there is not much empirical evidence to support theory and hypotheses. Most of the conducted empirical work uses U.S. bank data. Examining deposit insurance on an international level has been hard due to the absence of data on deposit insurance across countries. Recently, this gap was addressed by a few studies.

The study by Demirguc-Kunt and Huizinga (2004) presents cross-country evidence on market discipline. In an examination of deposit insurance in over 50 countries, they find that explicit deposit insurance systems weaken market discipline as evidenced by lower interest expense and reduced sensitivity of interest payments to risk. They also find that market discipline declines with higher coverage levels, coverage of interbank deposits, ex-ante funding, and government sponsored funds. Market discipline is increased in cases with co-insurance, coverage of foreign currency denominated deposits, and private administration of funds.

Cull, Senbet, and Sorge (2005) address a similar issue. They examine the impact of explicit deposit insurance on financial stability and development. They gather data over a longer period of time and find that the same explicit deposit insurance programs will have different effects depending on the general institutional setting and environment. Based on deposit insurance design features, they construct two indices: generosity of coverage to depositors and entry hurdles representing the requirements imposed upon member banks. The empirical results show that generous deposit insurance schemes in countries without proper regulatory oversight have a negative effect on financial stability and development. In addition, insurance premium requirements on member banks, have little effect on financial development. To explain this fact they find that in most countries included in the sample, deposit insurance is under priced. Thus, the low insurance premiums do not constrain banks' risk-taking incentives.

In contrast to the literature that focuses on how deposit insurance relates to the financial systems, Laeven (2005) applies a political economy framework to explain cross-country differences in deposit insurance design. Laeven looks at differences in coverage across countries focusing on political, regulatory, and institutional setup. In his model, the dependent variable is the level of coverage divided by GDP per capita obtained from the sample of 69 countries with explicit deposit insurance as of year-end 2000. Multiple regression models were estimated to determine the influence of the political-institutional setup as well as other factors on the amount of coverage. It is found that political-institutional variables have little power in explaining variation in coverage level. Most of the variation can be explained by the share of risky banks in the system. Coverage is higher in countries where banks with relatively low capital-to-asset ratios constitute a larger share of the banking system. The results suggest that private interests prevail over the public interests with regard to deposit insurance systems across the world. Therefore, from the welfare maximizing prospective, deposit insurance systems are not socially optimal in most of the countries.

Demirguc-Kunt, Karacaovali, and Laeven (2005) updated the Demirguc-Kunt and Sobaci (2000) cross-country deposit insurance database and extended it in several important dimensions. It identifies 14 new countries that have adopted deposit insurance since 1999 and identifies 12 other countries with deposit insurance as of 1999 that were not covered before. It also provides an historical time series for several variables and adds new variables

such as the level of co-insurance requirements, percentage of the value of deposits covered, and the extent of coverage whether the protection is per depositor or per depositor per account

Barth, Caprio, Levine (2007) analyze the impact of reforms in commercial bank regulatory regimes throughout the world. The examination of the latest data on bank regulation around the world doesn't provide a uniformly positive view of recent reforms. Moreover, they conclude that even though many countries have followed the Basel guidelines, strengthening capital regulations and empowering supervisory agencies, the existing evidence does not suggest that this will improve banking system stability, enhance the efficiency of intermediation or reduce corruption in lending.

The following empirical analysis attempts to add to this literature by examining economic, demographic, political, and social factors as they relate to deposit insurance systems. In contrast to the previous literature, the analysis considers why a country provides insurance and how much is provided, in a sample selection framework.

EMPIRICAL FRAMEWORK

To examine the determinants of deposit insurance coverage, a model is estimated that relates the amount of coverage to various explanatory variables. However, since not all banking systems have explicit deposit insurance coverage, a sample selection problem exists. This causes the sample to be non-random, drawn from a subpopulation of a wider population. In our case only those banking systems with explicit deposit insurance coverage will have an observed amount of coverage. In order to avoid sample selection bias the two-step Heckman (1976) procedure will be used in the analysis.

The resulting model is a two equation system with the first equation estimating the probability that an explicit deposit insurance system is in place. The second equation relates the amount of coverage to a set of explanatory variables, including a factor that accounts for selectivity.

$$\text{DEPINS} = f_1(\overset{+}{INCOME}, \overset{-}{PR}, \overset{+}{LIFEM}, \overset{+}{URBAN}) \qquad \text{(Eq. 1)}$$

$$\text{COV} = f_2(\overset{+}{INCOME}, \overset{+/-}{RADJPREM}, \overset{+/-}{DBAGDP}, \overset{=/-}{OVERHEAD},$$

$$\overset{+/-}{COINS}, \overset{+/-}{ADMIN}, \overset{+/-}{MEMBER}, \overset{+/-}{REGUL}, \overset{+/-}{FOREIGNC}, \lambda) \quad \text{(Eq. 2)}$$

Table 1 describes all the variables included in equations, their definitions and sources.

The rationale behind the Heckman procedure is that the error term is correlated with the explanatory variables in the first equation, causing bias asymptotically. Thus, the first stage of the Heckman procedure estimates the expected value of the error term and then it is included in the second equation as an extra variable, removing that part of the error which is correlated with the explanatory variables and thereby avoiding the bias.

Therefore, λ in equation (2) is the inverse Mill's ratio from equation (1) accounting for sample selection bias. An alternative estimation approach is the maximum likelihood procedure, developed by Amemyia (1974). It is more efficient than the two-step approach, although the two-step approach is still widely used (Kennedy, 1998).

Equation (1) is estimated using a probit equation for the entire sample, including all the countries with and without explicit deposit insurance. The dependent variable in the first equation, DEPINS, represents a deposit insurance dummy variable that is equal to 1 if the country has explicit insurance in place, and 0 otherwise. A country without explicit insurance may have either an implicit deposit insurance system in the form of unofficial agreements between government and banks or no deposit insurance. Demirguc-Kunt, Kane and Laeven (2005) state that every country has a de facto implicit deposit insurance scheme in place. The choice of independent variables included in the first equation is defined by various factors affecting the financial systems and banking sectors across countries. We include political, demographic and social characteristics that might affect the presence of an explicit deposit insurance system. Positive coefficients indicate a higher probability for a country to have explicit deposit insurance

while negative coefficients indicate a lower probability for a country to have explicit deposit insurance. INCOME is included as a measure of overall economic development. It is calculated as GDP per capita in 2003 US dollars. We expect a significant positive coefficient for INCOME which suggests that countries with higher levels of income are more likely to have an explicit deposit insurance system in place. The countries with a high level of income are mainly developed countries with developed banking industries and deposit insurance systems in place.

Table 1: List of Variables for Equation (1) and (2)

Dependent Variables	Definition	Source
DEPINS	a dummy variable equal to 1 if a country has explicit deposit insurance system in place 0 otherwise	The World Bank Dataset: Deposit Insurance Around the World, 2007
COV	coverage limits in US dollars, using the exchange rate at the end of June 2003	The World Bank Dataset: Deposit Insurance Around the World, 2007
Independent Variables	**Definition**	**Source**
INCOME	level of income across countries, expressed as GDP per Capita in 2003 US dollars (2003)	United nations, 2005
PR	political rights rating (average for December 1, 2003 through November 30, 2004)	United Nations, 2005
LIFEM	life expectancy for male population (2003)	United Nations, 2005
URBAN	percentage of urban population (2003)	United Nations, 2005
RADJPREM	Risk-adjusted premiums yes=1 no=0	The World Bank Dataset: Deposit Insurance Around the World, 2007
DBAGDP	Deposit Money Bank Assets / GDP	The World Bank Dataset: A New Dataset on Financial Structure and Development
OVERHEAD	Bank Overhead Costs / Total Assets	The World Bank Dataset: A New Dataset on Financial Structure and Development
COINS	Co-insurance yes=1 no=0	The World Bank Dataset: Deposit Insurance Around the World, 2007
ADMINJ	Administration joint=1 otherwise=0	The World Bank Dataset: Deposit Insurance Around the World, 2007
ADMINPR	Administration private=1 otherwise =0	The World Bank Dataset: Deposit Insurance Around the World, 2007
MEMBER	Membership compulsory=1 voluntary=0	The World Bank Dataset: Deposit Insurance Around the World, 2007
REGUL	Has the deposit insurance agency/fund ever taken legal action against bank directors or other bank officials? yes=1 no=0	The World Bank Dataset: Deposit Insurance Around the World, 2007
FOREIGNC	Foreign currencies yes=1 no=0	The World Bank Dataset: Deposit Insurance Around the World, 2007

The study by Demirguc-Kunt and Kane (2002) implies that high deposit insurance limits are more feasible in countries with better institutional environments. Nowadays the political climate in a country, particularly political rights and civil liberties, is a subject of particular interest. Several indexes and ratings were created by different institutes which measure the degree of freedom in all the countries. PR is included to control for political regime in a country. PR is scaled from 1 to 7 with 1 representing the most free and 7 representing the least free rating for a country. This freedom rating created by the United Nations reflects an overall judgment based on survey results. PR reflects global events from December 1, 2003, through November 30, 2004. We expect PR to be significant and negative, which implies that less free countries are less likely to have an explicit deposit insurance system.

We also control for the effect of differences in demographics of the population. Life expectancy is one of the more important demographic characteristics. We include life expectancy for males. We expect LIFEM to have a significant positive coefficient, which in this case implies that countries with longer life expectancy are more likely to have explicit deposit insurance. The percentage of urban population is included to account for more demographic differences among countries. We expect URBAN to have a significant positive coefficient, which suggest that

countries with more people concentrated in cities or their suburbs are more likely to have an explicit deposit insurance system in place.

Equation (2) is estimated using OLS for the sub sample of countries with explicit deposit insurance. The dependent variable for the second equation represents coverage limits as of 2003 in US dollars. The amount of coverage is an important feature since it directly affects market discipline. If the coverage is low, then depositors are more likely to monitor banking activities and therefore better and more reliable banks will be preferred by depositors. However, very high coverage limits could inhibit any form of monitoring on the depositors' end, reduce market discipline, and result in moral hazard behavior by banks. The inverse Mill's ratio (λ) from equation (1) is included to account for sample selection. Other independent variables include several deposit insurance design features as well as macroeconomic and financial variables.

INCOME is the only variable which appears in both the first and second equations. In this context we expect the level of income to have a significant positive impact on the level of coverage. Countries with higher level of income and greater overall economic activity are more likely to have higher coverage limits.

Premiums may be fixed or vary according to the riskiness of the underlying assets. RADJPREM is a dummy variable that indicates whether the premiums are risk-adjusted or not. It is equal to one for risk-adjusted systems, and it is equal to zero for the systems with fixed premiums. As of 1995, only the United States had a system with risk-adjusted premiums. Since then, the number of countries with risk-adjusted deposit insurance systems has gone up to 20. According to Barth, Caprio, and Levine (2007) premiums are not risk-adjusted in the low-income category and it is also uncommon in other categories where some 23 percent of the countries employ this feature. RADJPREM has no *a priori* assumption about the sign of the coefficient. A statistically significant positive coefficient will imply that countries with this design feature in place provide higher coverage limits, therefore implementing risk-adjusted premiums reduce moral hazard and prevent banks from excessive risk taking. On the other hand, statistically significant negative coefficient supports the fact that countries with risk-adjusted premiums have lower coverage limits, and therefore identifies more conservative deposit insurance systems in place.

DBAGDP presents a measure of the size of a country's banking sector relative to GDP. This measure gives evidence of the importance of the financial services performed by the banking sector relative to the size of the economy. The assets include claims on the nonfinancial real sector, including both public and private sectors. A large amount of deposit money bank assets as a percentage of GDP implies that banks play a more important role in the financial system. Conversely a small amount of deposit money bank assets as a percentage of GDP implies that banks play a less important role and the financial system is more capital market oriented. Therefore, a significant positive coefficient suggests that the more influence the banks possess, the higher the level of deposit insurance coverage limits. A significant negative coefficient suggests that the more influence the banks possess, the lower deposit insurance coverage limits. Due to these two possible outcomes, no *a priori* assumption is made about the DBAGDP coefficient.

One of the main functions of financial intermediaries is to channel funds from savers to investors. OVERHEAD is included as a potential efficiency measure that describes how well banks perform this function. OVERHEAD is equal to the accounting value of a bank's overhead costs as share of its total assets. The higher value of overhead costs identifies less efficient banks. Therefore, a significant negative coefficient suggests enforcement of market discipline through deposit insurance since less efficient banking systems with higher overhead are provided less coverage. In contrast, if systems with high overhead and less efficient banks also have higher coverage levels, then the coefficient would be positive. Here, deposit insurance coverage would be subsidizing an inefficient banking sector. No assumption is made about this relationship so the sign off the OVERHEAD coefficient is ambiguous.

The remaining variables COINS, ADMIN, MEMBER, REGUL, and FOREIGNC are included in the model to account for differences in explicit deposit insurance system design features. The COINS variable provides information on whether the program requires depositor co-insurance (a deductible). In addition to setting a maximum level of coverage, some countries have incorporated co-insurance into their deposit insurance systems. With co-insurance, a fraction of the covered amount is insured so the depositor is exposed to some of the risk of

loss. Thus, it is aimed to get depositors to make more prudent bank choices in their deposit decisions, since depositors bear part of the cost in the event of a bank failure. It is a dummy variable that is equal to one if a co-insurance mechanism is in place, and it is equal to zero if this feature is absent. Table 5 presents a list of countries that have implemented co-insurance in their explicit deposit insurance schemes. Co-insurance was required by about a third of the countries, does not exist in low-income countries but otherwise gets more and more prevalent in the higher income level countries. No *a priori* assumption is made about the sign of the COINS variable coefficient. A significant positive coefficient suggests that countries with co-insurance in place provide higher coverage limits. A significant negative coefficient suggests that countries with co-insurance reinforce market discipline with lower coverage limits in addition to other bank regulation.

We create two dummy variables ADMINJ and ADMINPR to account for administration forms of the systems that can be broken into three main categories: official, joint, and private administration. Systems that are administered by central banks are included in the official administration category. Moreover, some privately administered institutions have limited authorities. For example, in Italy and Croatia certain decisions need to go through the central bank for approval, hence the deposit insurance systems of these countries are considered to have a joint administration in the database. ADMINJ is equal to one if a country has a joint form of administration and zero otherwise. ADMINPR is equal to one if a country has a private form of administration. The coefficient signs for both dummy variable are ambiguous since a statistically significant positive sign will suggest that private or joint form of administration, compared to official administration, offsets market discipline through higher coverage limits while a statistically significant negative coefficient will suggest that private or joint form of administration, compared to official administration, reinforces market discipline through lower coverage limits and implements regulation policies toward more stable banking systems. The schemes are mostly administered officially (60%), followed by joint administration (26%). Private administration is highest in the high income category.

MEMBER is a dummy variable that takes a value of one if the membership to the fund is compulsory and zero it is voluntary. If systems with required membership also have higher coverage, then this coefficient would be positive. A negative coefficient would imply the opposite. No assumption is made about the sign of MEMBER. Membership is compulsory in 90 percent of the countries. The only exception is the Asia and Pacific Region, where half of the group has voluntary membership.

REGUL is constructed based on the deposit insurance related survey results from the Barth, Caprio, and Levine (2004) database on banking regulation and supervision. REGUL is a dummy variable that is equal to one if the deposit insurance fund can take legal action against bank directors or other bank officials, and zero otherwise. No *a priori* assumption is made about the sign of the coefficient on REGUL. A positive coefficient would imply higher coverage in systems with more accountability for bank officials. A negative coefficient would suggest the opposite.

FOREIGNC is a dummy variable that is equal to one for systems that cover foreign currency denominated deposits, and zero otherwise. However, some deposit insurance systems are restrictive in the set of foreign currencies they cover. For instance, Hungary extends coverage to deposits denominated in EUR or currencies of other OECD countries. This variable takes a value of one for such countries as well. If a country covers foreign currency deposits, deposit insurance could incur larger losses in the case of bank failures. Therefore, a statistically significant positive coefficient suggests more generous deposit insurance schemes within a more liberal environment, while a statistically significant negative coefficient suggests less generous deposit insurance as an attempt to limit potential losses. Foreign currency deposit coverage is found in 76 percent of the countries, whereas it is observed in 57 percent of the low-income countries. This feature will be more likely to be in place in developed countries as a result of more developed banking infrastructure and financial systems in general. However, more and more developing countries are adopting this feature as a result of high volatility of the value of national currencies.

EMPIRICAL RESULTS

Table 2 represents summary statistics for equation (1) and equation (2). Equation (1) and (2) were estimated using Heckman's (1979) two-step estimation procedure. Table 3 presents the regression results for the estimated probit equation by maximum likelihood. The total number of 178 observations was employed to obtain

estimation results. An intercept was included in the model and was statistically significant at a 1 percent significance level. INCOME is statistically insignificant. First this result might be surprising since we assumed that countries with high income are more likely to have explicit deposit insurance systems in place. However, according to Demirguc-Kunt, Karacaovali, and Laeven (2005), as of 2003 there are 30 high income countries, 17 upper middle income countries, 30 lower middle income countries, and 10 low income countries. Until the 1990s a surge of explicit deposit insurance systems prevailed in high income countries, but since 1995 we observe a surge in explicit deposit insurance systems among lower middle income countries. This is partly driven by the Eastern and Central European transition economies as well as former Soviet Union republics. PR turns out to be statistically significant at a 5% significance level and it also has the expected negative sign. The more democratic countries are more likely to have an explicit deposit insurance system. LIFEM is statistically significant at a 1% significance level with expected positive coefficient. The countries with longer male life expectancy are more likely to have an explicit deposit insurance system, while countries with shorter male life expectancy tend to be less likely to have explicit deposit insurance systems. Therefore, the results are consistent with our expectations. URBAN is statistically insignificant and therefore the percentage of urban population doesn't have a significant impact whether an explicit deposit insurance system is in place or not.

Table 2: Summary Statistics

Dependent Variables	**N**	**Mean**	**Standard Deviation**	**Min**	**Max**
DEPINS	178	.5138	.5012	0	1
COV	50	26837.85	46670.03	588	100,000
Independent Variables	**N**	**Mean**	**Standard Deviation**	**Min**	**Max**
INCOME (equation 1)	178	7322.69	11,546.54	86	57,379
INCOME (equation 2)	50	16,169.11	14,453.42	390	43,486
PR	164	3.44	2.19	1	7
LIFEM	164	63.19	11.76	32.5	78.7
URBAN	164	55.07	23.36	2	100
RADJPREM	50	.26	.44	0	1
DBAGDP	50	.67	.45	.12	1.74
OVERHEAD	50	.35E-01	.18E-01	.92E-02	.79E-01
COINS	50	.34	.48	0	1
ADMINJ	50	.32	.47	0	1
ADMINPR	50	.18	.39	0	1
MEMBER	50	.94	.24	0	1
REGUL	50	.3	.46	0	1
FOREIGNC	50	.78	.42	0	1

Table 3: Probit Equation Results (standard errors in parentheses)

Variable	**Coefficients**
INTERCEPT	-2.387*** (.8059)
INCOME	0.742D-05 (.1374D-04)
PR	-0.136** (.0540)
LIFEM	.038*** (.0133)
URBAN	0.007 (.0060)

*** significant at 1%, **significant at 5%, *significant at 10%

Table 4 gives results for the OLS equation (2). The standard errors were computed using Murphy and Topel (1985) results for two-step estimators. Standard errors are heteroskedastic-consistent. The total number of observations is 50, while the total number of countries with an explicit deposit insurance system is 87. Table 5 represents a sample of countries employed in equation (2). The data sources are indicated in Table 1. Data collection was performed through surveys conducted by the World Bank, however some countries did not respond to surveys or provided inaccurate and conflicting information. Therefore, the number of observations in the second equation dramatically falls due to lack of complete and comprehensive information on countries with explicit deposit insurance.

Table 4: OLS Equation Results (standard errors in parentheses)

Variable	Coefficients
INTERCEPT	48989.24 (37967.1486)
INCOME	2.05*** (.7146)
RADJPREM	-13582.76 (12474.3088)
DBAGDP	-58703.67*** (21128.06)
OVERHEAD	-750170.15* (389608.59)
COINS	-24010.24** (11149.90)
ADMINJ	11679.12 (11863.9451)
ADMINPR	34035.73* (18502.1329)
MEMBER	21837.22 (22233.1629)
REGUL	303.73 (11297.69)
FOREIGNC	3819.69 (12885.28)
λ	-8559.12 (26157.5461)

Standard Errors are heteroskedastic-consistent
*** significant at 1%, **significant at 5%, *significant at 10%

The intercept and the inverse Mills' ratio from equation (1) were included to account for sample selection. However, the results turn out to be that both the intercept and inverse Mills' ratio are statistically insignificant [1]. INCOME is statistically significant at a 1% significance level with anticipated positive sign. Therefore, countries with a higher level of income have a higher coverage limit. RADJPREM is statistically insignificant, meaning that the amount of coverage is unrelated to the manner in which premiums are levied. This result can be explained by the fact that deposit insurance is largely underpriced in most countries. It coincides with empirical findings by Cull, Senbet, and Sorge (2005) that deposit insurance premiums are often so low that they are ineffective at constraining banks' risk-taking incentives. DBAGDP is statistically significant at a 1% significance level with a negative coefficient. In the context of this study it indicates that countries with bank-based financial systems and a high ratio of total bank assets to GDP tend to have lower coverage limits. Conversely, countries with capital market-based financial systems and a low ratio of total assets to GDP tend to have higher coverage limits. Therefore, lower coverage limits reduce insurance fund risk exposure in countries with relatively large banking systems. OVERHEAD is statistically significant at a 10% significance level with a negative coefficient. Countries with inefficient banking systems or high overhead costs as a share of its total assets have less generous deposit insurance schemes. Overall it indicates enforcement of market discipline through deposit insurance programs and presence of more conservative bank regulation. COINS is statistically significant at a 5% significance level with a negative

coefficient. Countries that have implemented co-insurance features into their deposit insurance scheme provide lower coverage, reinforcing market discipline. Multicollinearity between RADJPREM and COINS was checked and found not to be an issue in this case.

Table 5: List of Countries with an Explicit Deposit Insurance

High income countries (30)			
Austria	France	Korea	Spain
Bahamas	Germany	Liechtenstein	Sweden
Bahrain	Greece	Luxembourg	Switzerland
Belgium	Iceland	Malta	Taiwan
Canada	Ireland	Netherlands	United Kingdom
Cyprus	Isle of Man	Norway	United States
Denmark	Italy	Portugal	
Finland	Japan	Slovenia	
Upper middle income countries (17)			
Argentina	Hungary	Mexico	Uruguay
Chile	Latvia	Oman	Venezuela
Croatia	Lebanon	Poland	
Czech Rep	Lithuania	Slovak Republic	
Estonia	Malaysia	Trinidad & Tobago	
Lower middle income countries (30)			
Albania	Dominican Republic	Macedonia	Serbia Montenegro
Algeria	Ecuador	Marshall Islands	Sri Lanka
Belarus	El Salvador	Micronesia	Thiland
Bolivia	Guatemala	Paraguay	Turkey
Bosnia-Herzegovina	Honduras	Peru	Turkmenistan
Brazil	Jamaica	Philippines	Ukraine
Bulgaria	Jordan	Romania	
Colombia	Kazakhstan	Russia	
Lower income countries (10)			
Bangladesh	Kenya	Tanzania	Zimbabwe
India	Nicaragua	Uganda	
Indonesia	Nigeria	Vietnam	

ADMINPR is statistically significant at a 10% significance level with a positive coefficient. Thus, countries with privately administered institutions provide higher coverage limits and constitute more generous deposit insurance schemes, compared to countries with officially administered systems. In this case private administration offsets market discipline through higher coverage limits. Since privately administered systems lack the backing of the public sector and its ability to raise funds through the tax system, higher coverage limits substitute for public sector control. The other variables explaining various design features of deposit insurance schemes are found to be statistically insignificant.

CONCLUSION

This paper attempts to add to the short list of empirical work on deposit insurance systems throughout the world. The data collected in the past years make it possible to perform empirical analysis and expand the theoretical literature on this issue. Using cross-country data we first investigate which factors have a significant effect on the presence of an explicit deposit insurance system. The findings of this study allow us to conclude that country demographics such as life expectancy have a significant effect on whether explicit deposit insurance is adopted or not. Countries with longer life expectancy are more likely to have an explicit deposit insurance system in place. Moreover, human rights particularly political rights, contribute to the presence of an explicit deposit insurance system. The more free countries in terms of political rights are more likely to have an explicit deposit insurance system.

For the countries which have already implemented an explicit deposit insurance system the main task is to create an effective safety-net. As we can see coverage levels, design features, schemes and main characteristics vary widely across countries. On one hand policy makers' goal is to protect depositors and prevent bank crisis, however generous protection of banks may easily introduce risk-enhancing moral hazard, and destabilize the system it is meant to protect. The amount of coverage is one of the key features of deposit insurance systems. We investigate the impact of various factors including demographic, social, economic, financial, and political variables on the level of coverage provided by deposit insurance systems throughout the world. We find that the level of income has a significant impact on deposit insurance systems. Countries with a higher level of income tend to have a higher coverage limit. The value of bank assets relative to GDP, emphasizing the importance and the dominance of the banking sector within financial system, has an effect on the amount of coverage. Countries with bank based financial systems have lower coverage limits compare to countries with capital market based financial systems. Therefore, this result supports the view that bigger banking systems imply larger exposure to possible losses. Thus low coverage levels reduce overall insurance fund risk. Different design features present policy makers with an important trade-off between depositor safety and bank risk taking. We find that countries with more inefficient systems, as measured by overhead expenses, have lower coverage limits. Similarly, systems incorporating some form of coinsurance or deductibles for depositors have lower limits. They reinforce and strengthen market discipline with lower coverage in addition to other regulation. Countries with private administration introduce more generous deposit insurance schemes. According to Cull, Senbet and Sorge (2003) the introduction of generous deposit insurance schemes in countries lacking adequate bank supervision and rule of law might not help but rather appear an obstacle for financial system stability and development.

AUTHOR INFORMATION

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End Notes

[1] Despite the insignificance of the inverse Mills' ratio, it remains in the model. It is unlikely that the final sample reflects a random draw from the initial sample of 178 countries, so removing the inverse Mills' ratio from the model would result in omitted variable bias. For comparison, equation (2) was re-estimated without the inverse Mills' ratio. Although the magnitude of the coefficients changed, signs and significance levels are similar to the results in Table 4.

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