ECONOMIC PAPERS

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ECONOMIC AND FINANCIAL AFFAIRS

http://europa.eu.int/comm/economy_finance

Number 164 February 2002

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by

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ECFIN/098/02-EN

This paper only exists in English.

* The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They should not be attributed to the European Commission. Helpful comments from Marianne Wolfbrandt are gratefully acknowledged. Errors and omissions are entirely those of the authors.

Abstract

This paper examines how international depositors respond to national deposit insurance policies. Countries with explicit deposit insurance are found to be relatively attractive to international non-bank depositors. Deposit schemes characterized by co-insurance, a private administration, and a low deposit insurance premium appear to be particularly favored by these depositors. The sensitivity of non-bank deposits to deposit insurance policies opens up the possibility of international regulatory competition in this area. The EU directive on deposit insurance imposes minimum standards on national deposit insurance policies. This directive, however, is silent on several important features of deposit insurance such as the level of the deposit insurance premium. Hence, it may not preclude regulatory competition in Europe.

Key words: deposit insurance, international deposits

JEL codes: F34, G18

1 . Introduction

In recent decades, banks in Europe and elsewhere have found themselves increasingly in competition for an international clientele. The elimination of capital controls, advances in information technology, and the introduction of the euro in 1999 are forces that facilitate cross-border banking activities. Banks' balance sheets tend to reflect the enlarged international activities. By 1999, the external assets of EU banks were € 1.8 trillion (up 243 percent from 1990), while external liabilities stood at € 1.1 trillion (up 109 percent from 1990). The integration of Europe's banking markets, in part reflected in these figures, has been a major objective of EU policies. EU directives ensure that European banks can provide financial services Europe-wide either directly or through the establishment of international branches and subsidiaries. EU directives, for instance, call for the mutual recognition of regulations imposed by home states, in areas such as allowed banking activities and product definitions. The principles of home-state regulation and mutual recognition – subject to minimum standards – also pervade other areas of EU banking regulation – such as deposit insurance and capital adequacy. The EU deposit insurance directive of 1994 requires a minimum covered amount of € 20,000 per individual, but it does not prescribe, for example, whether the deposit insurance should be organized by a public or private institution, or how high the deposit insurance premium should be.

The promulgation of minimum bank regulatory standards in Europe leaves some room for international regulatory competition. In the area of deposit insurance, for example, EU member states can compete on the level of the deposit insurance premium charged to the banks. In the larger world economy, countries are even less constrained than EU member states in setting their deposit insurance and other regulations, and hence in principle they can actively compete in these areas. While explicit international agreements on financial regulation outside the EU have been the exception rather than the rule, efforts have been made to formulate common regulatory standards.[1] Foremost among these is the Basle standard on capital adequacy of 1988. A proposal to update this standard was launched in 1999, and is currently under review. In the area of deposit insurance, no equivalent standard exists. However, the Financial Stability Forum has instituted a working group that aims to establish best practices regarding deposit insurance.[2]

What are the international externalities of domestic bank regulatory policy that can give rise to competition, and at the same time may motivate international cooperation? First, there is the potential impact of financial regulation on the location of financial intermediaries and activity and, second, there are concerns about financial stability. These two issues are, of course, related, as international financial linkages are an important channel by which national bank regulatory policies can have implications for international financial stability. On the second question of how bank regulation affects financial stability, several studies exist. Demirgüç-Kunt and Detriagiache (2000), for instance, find a positive relation between the existence of explicit deposit insurance and the occurrence of banking crises. Sundararajan, Marston, and Basu (2001) instead fail to find a relationship between the degree of

[1] Switzerland and Liechtenstein have agreed to a mutual recognition of home country supervision relating to the cross-border provision of insurance services (see OECD (2000)).

[2] See Financial Stability Forum (2001) for a progress report.

adherence to the 25 Basel Core Principles of bank regulation and several indicators of banking system stability.

Empirical research on the primal question of how bank regulation affects the location of financial activity, however, appears to be lacking. Anecdotal evidence, of course, can be found. One can, for instance, point at Switzerland and the UK as countries with banking systems that successfully compete for international business, while at the same time these countries have benefited from regulatory systems that managed to safeguard their banks from systemic crises in recent decades. This paper attempts to go beyond casual observations of this type by examining the relationship between a country's deposit insurance system and its attractiveness to international depositors.

Using the Bank for International Settlements (BIS) classification, we make a distinction between international deposits by non-bank entities and by banks. De jure deposit insurance schemes in the BIS area cover non-bank deposits, while they typically exclude interbank deposits from coverage. In line with this, we find some evidence that non-bank external liabilities are higher when explicit deposit insurance exists. Moreover, non-bank deposits are higher if the explicit deposit insurance scheme is characterized by some co-insurance by depositors, has a fund that is privately administered, and charges a low insurance premium.

A priori the relationship between deposit insurance and the volume of international inter-bank deposits is less clear. Even if bank deposits are de jure not covered by the scheme, one could surmise that the introduction of explicit deposit insurance for non-banks also increases the likelihood that bank deposits would be covered in the event of a banking failure. This could lead to a higher level also of international bank deposits. Conversely, a banking system that manages to attract additional non-bank deposits from abroad may need to recycle these funds as outgoing bank deposits. In this scenario, there would be less room for a banking system with explicit deposit insurance to attract incoming interbank deposits. Consistent with this, we find some evidence that forces that attract non-bank deposits, such as a low deposit insurance premium, in fact repel international interbank deposits.

We also examine how the ratio of incoming non-bank and bank deposits is affected by deposit insurance policies. By examining this ratio, we can control for some factors, such as banking costs, that over time should have a comparable influence on a banking system's ability to attract international deposits of any kind. The ratio of non-bank deposits to bank deposits is found to be positively related to the existence of explicit deposit insurance, and negatively to the deposit insurance premium, and to the extent of public involvement in its administration.

Overall, our evidence confirms that deposit insurance policies affect the international location of deposits. The sensitivity of deposits to the deposit insurance premium, in particular, suggests that countries have an incentive to charge a lower insurance premium to their banking system than would be justified on purely domestic grounds. This suggests that international cooperation to establish a standard as to the appropriate insurance premium may be justified.

Several studies, including Grilli (1989), Alworth and Andresen (1992) and Huizinga and Nicodème (2001), have previously examines the determinants of deposit location. Grilli (1989) finds some evidence that aggregate non-bank deposits are affected by the non-resident interest withholding tax and by bank secrecy. Alworth and Andresen (1992) conclude, among other things, that bilateral non-bank deposit outflows are positively related to the difference between the reserve ratios of the depositor and the bank countries. Huizinga and Nicodème (2001), in turn, provide some evidence that bilateral deposit are related to income and wealth taxes, and to bank reporting of domestic interest payments to the tax authorities.

In the remainder of this paper, section 2 discusses the data used in the study. Section 3 discusses the empirical results. Section 4 examines the implications of these results for the possibility of international competition in the area of deposit insurance. Section 5 concludes.

2. The data

This study combines data on the external liabilities of national banking systems with data on deposit insurance schemes. The data on external bank liabilities, from the BIS, is available for the period 1983-1999. External liabilities include foreign-owned deposits as well as bonds and short-term marketable instruments. The external liabilities for 1999 of individual countries reporting to the BIS, in all currencies, are represented in Table 1. From the table, we see that the UK and the US have the largest external liabilities at € 1.8 trillion and € 1.0 trillion, respectively. Among the smaller countries, the Cayman Islands and Switzerland have about € 0.6 trillion in foreign liabilities, while Luxembourg has around € 0.4 trillion. The total external liabilities of banks in the BIS area in 1999 amounts to € 9.0 trillion. The size of external liabilities relative to GDP varies considerably, as seen in the next column. External liabilities relative to GDP are seen to be especially large for Luxembourg, Bahrain, and Singapore.

Total liabilities can be divided into non-bank and bank liabilities. Non-bank liabilities are liabilities held by individuals and businesses, including non-bank financial firms such as mutual funds, hedge funds and insurance companies. Bank liabilities are liabilities held by banks. The third column of Table 1 indicates how important non-bank external liabilities are as a percentage of total external liabilities. Switzerland and the Cayman Islands have relatively high shares of non-bank liabilities, at 48 and 42 percent respectively. For the BIS area as a whole, non-bank liabilities stand at 24 percent of total liabilities.

For most countries, external liabilities consist mainly of external deposits, as seen in the fourth column of the table.[3] For the entire BIS area, 92 percent of external liabilities are in fact external deposits. External deposits can equally be divided into non-bank deposits and bank deposits. As seen in the last column of the table, non-bank external deposits are 25 percent of total external deposits. The BIS only started to compile data on external deposits in 1996. This is why data on external liabilities rather than deposits is used in the subsequent empirical work. External bank liabilities have increased considerably over time presumably as a result of the elimination of capital controls and advances in information technology that have facilitated

[3] Note that not all countries report separate data for external liabilities and deposits.

international financial transactions. The development of total external liabilities and non-bank external liabilities for the BIS area is represented in Figure 1. The data reflect that especially in the last several years non-bank external liabilities have declined as a share of total external liabilities.

The data on deposit insurance schemes is available from Demirgüç-Kunt and Sobaci (2000). Information on deposit insurance schemes in individual BIS reporting countries for 1999 is represented in Table 2. For the 27 countries listed, 21 countries had explicit deposit insurance in 1999. Of these, 9 countries adopted explicit deposit insurance during the 1983-1999 period (see the year of establishment in the second column). Six countries, all EU member states, are next shown to have enabled deposit co-insurance by the insured depositors. The coverage limit is next shown to vary widely. By the year 2000, all EU member states were required to have met the minimum insured coverage of € 20,000 (per financial institution). Most countries are shown to also insure deposits in foreign currencies, while interbank deposits are only insured in Canada and the United States[4]. Next, 13 countries out of the 21 countries with explicit deposit insurance have established a permanent fund to meet any future deposit insurance obligations, while funds differ in whether the source of funding is private or jointly private and public. The annual deposit insurance premium is shown to be rather low in most countries. The administration of the deposit insurance scheme can be official, private or joint. Finally, bank membership of the scheme can be voluntary or compulsory. Of the countries listed, only Switzerland is shown to allow voluntary bank membership of the scheme.

The data on deposit insurance scheme in Table 2 has been used in several earlier studies. In particular, Demirgüç-Kunt and Detragiache (2000) examine the impact of the existence of deposit insurance and its various design elements on banking system stability. The authors find that the existence of explicit insurance in fact makes the occurrence of a banking crisis more likely. Demirgüç-Kunt and Huizinga (2000) instead examine how the existence and design of deposit insurance schemes affect the effective market discipline imposed on banks. This is done by examining whether a bank's funding interest rate is less responsive to indicators of bank-level risk when there is an explicit deposit insurance system. Indeed, explicit deposit insurance is found to reduce market discipline. These and several other recent studies on deposit insurance are surveyed in Demirgüç-Kunt and Kane (2001).

All these studies use cross-country data on deposit insurance policies, but they nonetheless focus on the domestic implications of deposit insurance. This paper instead addresses the international implications of deposit insurance and in particular the international allocation of deposits. These international implications are of interest in an integrating financial area such as the EU. Also, the international implications of deposit insurance may be one of the root causes of the financial crises in East Asia of 1997-98, as the large initial capital inflows into the area were in part covered by deposit insurance (see, for instance, Dekle and Kletzer, 2001). The present study, however, uses only data for the relatively developed countries that report to the BIS. Hence, it only indirectly addresses the relationship between deposit insurance schemes and international capital flows to developing countries.

[4] Following article 7(2) of the 1994 directive, some EU countries exercise their rights to exclude non-EU currencies. See Table 10.

The subsequent empirical work relates the data on national external bank liabilities also to data on the origin of national legal systems. Variables identifying legal system origin are included following research by La Porta et al. (1997) showing that the outside equity and debt finance raised by firms depends importantly on the legal system. These authors distinguish legal systems of English, French, German and Scandinavian origins, as also reflected in Table 3. The table also provides information on the minimum non-resident interest withholding tax levied on outgoing interest payments. By 1999, the minimum withholding taxes levied on interest payments accruing to non-residents are zero for all listed countries, with the exception of Australia, Japan, and Portugal.

3 . Empirical results

This section examines the empirical relationship between deposit insurance schemes and the external liabilities of banking systems. We start by examining the impact of the existence of explicit deposit insurance on external bank liabilities. In particular, we examine how deposit insurance affects non-bank external liabilities, bank external liabilities, and the ratio of these two. Subsequently, we investigate the impact of particular design features of explicit deposit insurance systems. All regressions use pooled cross-section time series data.

The analysis of the role of explicit deposit insurance starts from the following estimating equation:

$$I_{it} = \alpha_t + \beta_{1i} D_{it} + \beta_{2i} X_{it} + \varepsilon_{it}$$

where I_{it} is a measures of the external liabilities of country *i*'s banking system; next, D_{it} is a dummy variable flagging the existence of explicit deposit insurance, and X_{it} are a set of control variables such as the indices of legal origin. Further, α_t is a set of time-varying constants, the β's are vectors of coefficients, and ε_{it} is an error term. Finally, several regressions include country dummies. The sample period is 1983-1999.

The results of the regressions of the non-bank liabilities, the bank liabilities, and their ratio are reported in Tables 4, 5, and 6, respectively. The liability variables are in real ECU's or Euro and in logs (see Appendix A for variable definitions and data sources). Starting with Table 4, we see that regressions (1)-(6) contain the creditor rights variable as a control. Regressions (4)-(6) in addition contain indices of a country's legal origin as explanatory variables. These time-invariant controls are excluded from regressions (7)-(12), which instead include country fixed effects. Regressions (1)-(9) contain the GDP variable as a scale variable, while regressions (10)-(12) instead include the international trade variable. Regressions in the table further differ in whether they include the inflation and minimum non-resident withholding tax variables as additional controls. Finally, the regressions differ in whether of not the deposit insurance dummy variable is lagged. Specifically, regressions in Panel A include only the contemporaneous value of the deposit insurance variable, while Panels B, C and D include lagged values.

From panel A, regressions (1)-(6) suggest that external non-bank liabilities are positively related to GDP and the quality of credit rights, while they are negatively related to inflation and the minimum non-resident withholding tax, and to variables flagging the existence of non-English legal traditions. Turning to the role of explicit deposit insurance, we see that the deposit insurance variable enters several of regressions (1)-(5) positively and significantly, but it is negative and significant in regression (6). In fact, adding the minimum withholding tax variable – going from regression (5) to (6) - turns the coefficient on the deposit insurance variable from positive (and significant at the 10 percent level) to negative (and significant at the 5 percent level). The withholding tax variable in essence serves as a fixed effect for the set of countries with such a tax. Thus, the estimation of the coefficient on the deposit insurance variable depends importantly on how country-level fixed effects are structured. Therefore, we prefer the estimates of regressions (7)-(12), which include separate country fixed effects for all countries. The deposit insurance variable enters positively and significantly in regressions (7)-(8) at the 5 percent level, while it is significant at the 10 percent level in regression (9). Note from the table that the number of deposit insurance regime changes (adoptions) in the regressions varies from 2 to 7.

Depositor response to changes in a deposit insurance regime may in practice be sluggish. To reflect this, Panels B and C report estimates that are based on one-year and two-year lags of the deposit insurance variable, respectively. Lagging the deposit insurance variables improves the fit in some of the regressions suggesting that some of the depositor response to deposit insurance regime change indeed is with some delay. In Panel D, only the twice-lagged deposit insurance variable is positive and statistically significant in some of the regressions. This suggests that the cumulative effect after two years is more pronounced than the effect in any of the single preceding years. Overall, the evidence suggests that explicit deposit insurance helps to attract foreign non-bank depositors (or liability holders in general).

Next, results for the external bank liabilities regressions are presented in Table 5. The regression are analogous to those in Panel A of Table 4, with the exception that no regressions are reported that include the withholding tax variable. The reason is that interbank deposits are generally excluded from non-resident withholding taxation. Regressions (5)-(8) now include country fixed effects. All countries in the sample apart from Canada and the United States de jure exclude interbank deposit from deposit insurance coverage. So, formally interbank deposits are largely uncovered, and hence the existence of deposit insurance may not be expected to affect interbank deposit inflows. However, informally the existence of explicit deposit insurance for non-bank entities may be thought to increase the likelihood that also interbank deposits are de facto covered. This would suggest that explicit deposit insurance also helps to attract interbank deposits.

There are at least two reasons, however, why the opposite may be true. First, the coverage of deposits of individuals implies that ‘small savers’ are made whole in case of a bank failure. This may lead bank regulators to more readily accept a bank failure rather than provide additional liquidity or other support to an ailing bank. This suggests that countries with explicit deposit insurance can be less attractive to interbank depositors. At the same time, banking systems that attract ample non-bank deposits on the basis of their deposit insurance system may have a need to re-export

these deposits in the form of outgoing interbank deposits. If so, countries with explicit deposit insurance have less room to attract interbank deposits. In Table 5, we see that the deposit insurance variable is largely insignificant with the exceptions of regressions (1) and (7) where it enters positively. Overall, we conclude that there is no strong evidence that explicit deposit insurance affects interbank deposit inflows.

Next, it is interesting to consider how deposit insurance affects the ratio of non-bank to bank external liabilities. By examining this ratio, we implicitly control for variables - such as banking costs - that are expected to have a similar impact on either type of deposit, and that are left out from the regressions in Tables 4 and 5. The results, reported in Table 6, are very similar to those reported in Table 4, panel A. In fact, the deposit insurance variable is positive and significant in regressions (8), (9), and (11) that all include country fixed effects. Hence, the results suggest that deposit insurance has a positive impact on the ratio of non-bank to bank deposit external liabilities.

There is wide variation in the design of deposit insurance systems, as seen in Table 2. Thus, it is interesting to see whether explicit deposit insurance systems with different features differ in their attractiveness to international depositors. To do this, we estimate regressions of the type:

$$I_{it} = \alpha_t + \beta_{1i} D_{it} + \beta_{2i} F_{it} + \beta_{3i} X_{it} + \varepsilon_{it}$$

where F_{it} now is a variable representing a particular design feature. Typically, F_{it} is a qualitative variable that indicates whether or not a deposit insurance system has a particular feature. For instance, the co-insurance variable is a dummy variable indicating whether or not the deposit insurance system has some co-insurance. In the case of the coverage limit and the deposit insurance premium, F_{it} is a scale variable.

Again, separate regressions are reported for external non-bank liabilities, external bank liabilities, and their ratio. Table 7 reports the regressions for the external non-bank liabilities. All regressions start from regression (9) in Table 4, panel A, and hence include time and country fixed effects. A particular design feature is estimated in each regression in Table 7. However, the two features 'permanent fund' (flagging the existence of a permanent fund) and 'source of funding' (flagging the existence of joint private/public funding against the alternative of purely private funding) turn out to be indistinguishable in these regressions. Hence, these two features here are merged into the composite feature 'permanent fund/source of funding'. This feature enters equation (4) negatively suggesting that the establishment of a permanent fund combined with joint funding repels international non-bank depositors. Otherwise, we see that the co-insurance feature is positive and significant in regression (1), that the annual premium feature is negative and significant in regression (5). Finally, the administration feature (with a value of 0 for official administration, a value of 1 for joint administration, and a value of 2 for private administration) is positive and significant in equation (6). Overall, these results suggest that non-bank depositors are attracted to deposit insurance schemes that

display co-insurance, have no public fund or public involvement in the funding and administration, and charge a low deposit insurance premium.

Next, we consider whether external bank deposits are responsive to particular deposit design features. The regressions results are reported in Table 8. In this instance, the regressions start from regression 6 in Table 5. Again, in each regression in Table 8 one particular design feature is added. Now it turns out that the 'permanent fund' and 'source of funding' features can be estimated separately. In fact, the 'source of funding' feature enters regression (5) positively and significantly, which suggests that government involvement in the funding helps to attract interbank deposits. Further, we see that the 'annual premium' feature enters regression (6) positively. Also, more extensive coverage in the form of a higher 'coverage limit' enters regression (2) positively and significantly, while for the non-bank external liabilities we saw an opposite result, as less extensive coverage - in the form of 'co-insurance' - serves to attract non-bank depositors. Thus, factors that appear to attract non-bank depositors appear to push away bank depositors.

This outcome is consistent with the view that larger net deposit inflows from non-bank entities have to lead to larger net deposit outflows from the banking sector. This would be one way to ensure that the overall capital account of a country remains unaffected by the introduction of explicit deposit insurance, even if it serves to attract additional non-bank deposits. Additional evidence for the view that non-bank external liabilities are recycled as outgoing bank deposits is presented in Appendix B. There we present some data on a country's net non-bank liabilities exports (defined as the holdings of foreign non-bank liabilities by the country's residents minus external non-bank liabilities), and the net bank liabilities exports (defined as the foreign bank liabilities held by the country's financial institutions minus external bank liabilities). The two variables are shown to be highly negatively correlated, consistent with bank recycling of external non-bank liabilities.

To conclude, we consider how deposit insurance features affect the ratio of non-bank liabilities to bank liabilities. Apart from the different dependent variable, the regressions, as reported in Table 9, are the same as those in Table 7. Note that the deposit insurance variable is significant in regressions (2)-(5) suggesting that a deposit insurance system without the features under consideration leads to a higher ratio of non-bank to bank liabilities. The estimates of the various feature variables are largely consistent with those of the previous two tables. In particular, if a higher insurance premium leads to lower non-bank liabilities (in Table 7), and higher bank liabilities (in Table 8), then it should lead to a lower ratio of non-bank to bank liabilities (in Table 9). The non-bank/bank liability ratio further appears to be positively and significantly related to the presence of co-insurance in regression (1), and to the presence of a private fund administration in regression (6).

4. Discussion of results

Countries have an incentive to introduce banking policies that assist in attracting international deposits, as these potentially lead to higher domestic banking employment and profits (and correspondingly a higher domestic tax base). International depositors may in practice be considering various possible destinations

for their deposits. If so, countries find themselves in direct competition to attract international deposits. The results of this paper suggest that deposit insurance policies can be a policy instrument in this competition. Specifically, the adoption of explicit deposit insurance may prove helpful in attracting additional foreign deposits. Countries also have an incentive to design their deposit insurance schemes with the preferences of international depositors in mind. The apparent sensitivity of non-bank external liabilities to the deposit insurance premium, for example, suggests that countries have an incentive to charge a lower deposit insurance premium than would be optimal in a closed economy setting.

Of course, it is difficult to say precisely whether countries are in fact designing their deposit insurance systems with the foot-loose international depositor in mind. Deposit premiums in many countries are rather low, and this suggests that such competition may indeed exist, even if there may be other factors such as the political influence of banks that keep the cost of (public) deposit insurance low. If countries indeed compete internationally by way of their deposit insurance policies, is this harmful? One way such competition could be harmful is by distorting international competition at the bank level, if competition leads banks in different countries to be subject to, say, very different deposit insurance premiums. A second important way in which bank regulatory competition can be harmful is by undermining financial stability. Thus it would be important to assess whether countries that redesign their deposit insurance schemes to make them more attractive to international depositors in fact are endangering financial stability.

A tentative answer to this question can be found by comparing the results in this paper to those in Demirgüç-Kunt and Detragiache (2000), and in Demirgüç-Kunt and Huizinga (2000). These latter two papers examine the impact of deposit insurance and its design on the probability of a banking crisis and on market discipline on the banking sector, respectively. A trade-off between attractiveness to international deposits and bank safety may indeed exist, as explicit deposit insurance is found to be attractive to non-bank deposits in the present study, while it appears to increase the probability of a banking crises and to lower market discipline in the other two studies. One qualification is that the present study is based on a sample of highly developed countries, while the earlier two studies are based on larger data sets containing information for developed and developing countries. Indeed, Demirgüç-Kunt and Detragiache (2000) find that the deposit insurance is less of a contributing factor to banking crises in (mostly developed) countries with stronger institutional environments. In developed countries, deposit insurance, while attractive to international depositors, thus may have only a weak tendency to contribute to banking instability.[5]

As indicated before, the EU directive on deposit insurance of 1994 (see European Commission (1994)) places constraints on the design of deposit insurance

[5] When looking at individual design features, there appear to be opportunities to design systems that are attractive to depositors and at the same time promote financial stability. Co-insurance and private fund administration, for instance, are found to be attractive to international non-bank depositors in the present study, while they appear to lower the probability of a banking crisis and to increase market discipline in the other two studies.

schemes by EU member states.[6] To start, the directive makes a system of deposit insurance compulsory in member states, and thus it has forced countries that did not yet have such a system to introduce one.[7] While deposit insurance always tends to have multiple objectives – including the protection of small savers and financial stability (for instance, by preventing bank runs) –, it is clear that the EU directive had as an important objective to improve the functioning of the European banking market by leveling the playing field. Thus an interesting question is whether the EU directive is successful in preventing European variation in those deposit insurance features that are found to affect non-bank deposit location. The answer to this question has to be no, as the EU deposit insurance directive regulates relatively little beyond the minimum insured amount of € 20,000, even if countries have some options as to items covered.[8] The directive allows, but does not prescribe, co-insurance up to 10 percent. In practice, we see that several, but not all, EU member states avail themselves of the opportunity to 'ingratiate' themselves with international depositors by opting for some co-insurance (see Table 10 for details on how different EU members have implemented the EU directive regarding the defined coverage and co-insurance).

On other important deposit insurance design features, the EU directive is entirely agnostic. For instance, no guidance is given on whether a permanent fund should be established, and on the public/private mix of the funding and scheme administration. This provides countries with the incentive, for instance, to opt for a private fund administration, as this feature appears to be attractive to international non-bank depositors.

EU banks have a right of establishment and freedom to provide financial services throughout Europe, following the first and second banking directives. A bank that wishes to serve its foreign customers by way of a permanent foreign establishment can open a foreign branch or a foreign subsidiary. The EU deposit insurance directive prescribes that a foreign branch is in principle covered by the home country's deposit insurance scheme, while a foreign subsidiary should participate in the deposit insurance system of the country of operation[9]. Foreign bank branches thus are covered by a different deposit insurance scheme from their domestic competitors. Deposits placed with foreign bank branches are recorded as external liabilities of the country of bank origin, but from the perspective of the depositor these are purely domestic deposits – as he deals with a domestically located bank. This brings the competition for international deposits close to home, and underscores that

[6] This directive follows an earlier recommendation (see European Commission (1986)) concerning the adoption of deposit-insurance schemes in the community.

[7] Greece, Portugal, and Sweden have been late adopters, see Table 2.

[8] The directive explicitly excludes interbank deposits, but it provides member states with options regarding whether to insure the deposits of authorities, insurance companies, pension funds, and deposits in non-EU currencies (these options are listed in Annex I of the directive). Bank membership in the scheme, however, is made compulsory. Regarding potential competition, article 9 of the directive provides that information about the provisions of the deposit insurance scheme should be made available, but §3 calls on member States to establish rules limiting the use of advertising of the information. This is meant to prevent such use from affecting the stability of the banking system or depositor confidence.

[9] Known as the "topping-up" arrangement, § 2 of article 4 of the Deposit Guarantee Directive provides foreign branches with the option to participate in the host country's deposit insurance scheme if this provides more extensive coverage.

international bank regulatory competition in the EU is potentially an important issue[10].

5. Conclusion

The empirical results of this paper suggest that the location of international deposits is sensitive to the existence of a deposit insurance scheme and to various deposit insurance design features. Specifically, international non-bank depositors appear to favor banking systems covered by explicit deposit insurance, and they are attracted to systems with co-insurance, a private administration, and a low insurance premium. Depositor response to the adoption of explicit deposit insurance to some extent appears to be sluggish. Overall, these results suggest that countries can in principle tailor their deposit insurance systems to allow their banks to capture a larger market share in the international deposit market. This could lead to international regulatory competition in the area of deposit insurance policies.

To level the playing field, the EU has introduced a set of banking directives that impose common minimum standards to national bank regulators in EU member states. An example is the EU deposit insurance directive of 1994. This directive prescribes a minimum covered amount of € 20,000, but it is agnostic on several important aspects of deposit insurance – such as the level of the deposit insurance premium – that appear to matter to international deposits. The EU deposit insurance directive thus may not preclude regulatory competition in the area of deposit insurance in Europe.

The results of this paper will perhaps contribute to the development of a theory of international regulatory competition in the area of deposit insurance. Some of this theory could be analogous to the existing theory on trade and tax policy competition. Specifically, a low deposit insurance premium may allow banks to capture international market share in the same way that traditional export subsidies enable manufactures to increase their sales at the expense of foreign competitors. An important objective of deposit insurance, however, is to provide financial safety, at the level of individual saver as well as at the level of the entire banking system. These considerations should also be taken into account by a proper theory of international competition in the area of deposit insurance policies.

[10] The expiration in 1999 of the "export prohibition clause", in Article 4, paragraph 1 of the directive implies that several deposit guarantee levels can exist within the same member state side-by-side. Before, countries were not allowed to export a relatively high deposit insurance coverage into foreign territory.

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Appendix A. Variable definitions and data sources

External bank liability variables

Data on the external non-bank and bank liabilities are for all currencies. In the regressions, external non-bank and bank liabilities are in real ECU's or Euro and in logs. Inflation is estimated by a GDP deflator for the Euro-11. The GDP deflator has been constructed by the European Commission.

Data on external liabilities are from the BIS website. The bilateral data on external deposits underlying Appendix B are not publicly available.

Deposit insurance and taxation variables

All deposit insurance information in Table 2 is from Demirgüç-Kunt & Sobaci (2000) and EU Member States' national legislation (see appendix C for details). See Table 2 for definitions of deposit insurance features.

The minimum withholding tax is the minimum interest withholding tax on bank interest accruing to non-resident individuals in percent (between 0 and 100)

The minimum withholding tax variable is constructed on the basis of information from International Tax Summaries (Coopers & Lybrand), International Corporate Income Taxes, a Worldwide Summary (PriceWaterhouseCoopers), and the European Tax Handbook (International Bureau for Fiscal Documentation).

Other variables

GDP = log of GDP in real ecus or euros.
Trade = log of total trade (exports plus imports) in real ecus or euros.
Inflation = log of the inflation rate plus 1.
French law = dummy identifying French legal origin.
German law = dummy identifying German legal origin.
Scandinavian law = dummy identifying Scandinavian legal origin.
Creditors rights = index of creditor rights protection varying from 0 (low) to 4 (high).

Data on GDP, trade, and inflation are from Eurostat and the IMF. Information on legal origin is from La Porta et al. (1997) and the CIA's "world factbook". Creditors rights data are from La Porta et al. (1997).

Appendix B. The recycling of external non-bank liabilities by banks.

What do bank do with their non-bank deposit inflows? Some of these funds may be invested domestically, but a reasonable hypothesis is that they are largely recycled as outgoing interbank deposits. More broadly, one can hypothesize that a country's net exports of bank liabilities (defined as foreign financial institution liabilities held by the country's banks minus external bank liabilities) are negatively related to the net exports of non-bank liabilities (defined as the holdings of foreign financial institution bank liabilities by the country's non-bank residents minus external non-bank liabilities). These two net export variables can be seen to be the net contributions to national capital exports through bank-held and non-bank-held liabilities of financial institutions, respectively.

To construct the two net export variables, we need to have bilateral data on external bank and external non-bank liabilities, respectively. Using such data for 1999 as made available by the BIS, we are able to compute the figures reported in Table B1. The reported figures on the net exports of bank and non-bank liabilities have been computed using data on bilateral bank and non-bank liabilities flows only among those 21 countries for which we have both inflow and outflow data for both bank and non-bank liabilities to make the data comparable across countries.

For 11 countries in the table – including Switzerland, the UK and the US – net exports of bank and non-bank liabilities have the opposite sign. Data for all 21 countries in the table is available for the years 1997-1999. A simple regression using these three years of data yields the following result:

Net exports of bank liabilities = .000 – .550* Net exports of non-bank liabilities
(7.594) (.129)

with standard errors in brackets and N = 63 and $R^2 = 0.21$.

The negative and significant coefficient on the non-bank liabilities exports variable is some evidence for the hypothesis that banks recycle their incoming non-bank deposits.

Appendix C. Data sources for deposit insurance schemes in the EU.

For all EU member State, a source is "Opening a bank account in another member State" (European Commission, 1999). Additional information comes from the following:
Belgium: Arrêté Royal numéro 175 du 13/06/1935, Moniteur belge du 14/06/1935. Loi du 23/12/1994 relative aux systèmes de protection des dépôts auprès des Etablissements de crédit - Page 645.
Denmark: Fremsat den 31. Marts 1998 af okonomiministeren. Forslag til Lov om en garantifond for indskydere og investorer.
Germany: Bundesverband Deutscher Banken, The Deposit protection fund of the German Private Commercial Banks in brief, August 2000. And "By-laws of the deposit protection fund of the association of German banks", June 1999.
Greece: Loi numéro 2324/95, FEK A numéro 146 du 17/07/1995 Page 4891.
Spain: Real Decreto número 2606/96 de 20/12/1996, sobre fondos de garantía de depósitos de entidades de crédito, Boletín Oficial del Estado número 307 de 21/12/1996 Página 38102 (Marginal 28535).
France: Fonds de garantie des dépôts.
Italy: Decreto legislativo del 04/12/1996 n. 659, recepimento della direttiva 94/19/CEE relativa ai sistemi di garanzia dei depositi, Gazzetta Ufficiale - Serie generale - del 27/12/1996 n. 302 pag. 4.
Luxembourg: Loi du 11/06/1997 portant transposition de la directive 94/19/CE relative aux systèmes de garantie des dépôts dans la loi modifiée du 05/04/1993 relative au secteur financier et modification de la loi modifiée du 24/03/1989 sur la Banque et Caisse d'Epargne de l'Etat, Luxembourg, Mémorial Grand-Ducal A Numéro 47 du 07/07/1997 Page 1557.
Netherlands: Besluit van 25/06/1996 tot algemeen verbindendverklaring van de collectieve garantieregeling van 25/05/1996 op grond van artikel 84, tweede lid, van de Wet toezicht kredietwezen 1992, Staatsblad nummer 344 van 28/06/1996.
Finland: Laki luottolaitostoiminnasta annetun lain muuttamisesta (897/95) 30/06/1995 - Laki ulkomaisen luotto- ja rahoituslaitoksen toiminnasta Suomessa annetun lain muuttamisesta (898/95) 30/06/1995.
Sweden: Insättningsgarantinämnden , Description of the Swedish Deposit Guarantee Scheme.

TABLE 1. **External liabilities and deposits of banks in the BIS-area in 1999**

	External liabilities			External deposits	
	€ bn	% non-bank	as % of GDP	€ bn	% non-bank
Australia	146	8	38	47	26
Austria	80	12	41	65	15
Bahamas	225	33		224	33
Bahrain	82	31	1322	82	31
Belgium	272	31	116	261	28
Canada	100	32	16	95	34
Cayman Islands	604	42		597	43
Denmark	56	15	34	46	18
Finland	22	20	18	12	35
France	611	9	45	472	12
Germany	819	32	41	719	37
Hong Kong	349	23	28	348	23
Ireland	129	19	147	126	19
Italy	233	7	21	232	7
Japan	509	6	12	502	6
Luxembourg	371	37	2048	319	37
Netherlands	288	18	77	240	22
Norway	25	9	18	15	12
Portugal	65	17	61	55	13
Singapore	393	29	493	361	32
Spain	184	39	33	177	40
Sweden	72	13	32	53	10
Switzerland	560	48	230	560	48
United Kingdom	1,778	21	131	1,626	21
United States	1,035	9	12	1,035	13
Other	24	30		24	30
Total	9,031	24		8,292	25

Source: BIS (2000), Tables 2A, 2B, 3A, and 3B and own calculations.

TABLE 2. **Deposit insurance system features in 1999**

Implicit means no explicit scheme. If the scheme is explicit, the date of establishment is indicated. Co-insurance is a dummy. Coverage limits are in euro and include the influence of possible co-insurance. Foreign currency deposits is a dummy indicating if these deposits are covered or not. Foreign currencies are defined as covered if at least one foreign currency is covered. Further, a foreign currency is defined as a currency used by foreigners in their own country. Inter-bank deposits is a dummy indicating if these deposits are covered or not. Permanent fund is a dummy. Source of funding can be from private funds (0) or jointly private and public (1). Annual premium is in percentage of the base. Administration can be official (0), joint (1), or private (2). Membership is a dummy indicating whether membership is compulsory or not. Source of data is Demirgüç-Kunt & Sobaci (2000) and EU Member States' national legislation (see appendix C for details).

Countries	Type: Implicit (0) Explicit (date)	Date established	Co-insurance	Coverage Limit €	Foreign currency	Inter-bank deposits	Permanent fund	Source of funding Private (0) Joint (1)	Annual premium	Administration Official (0) Joint (1) Private (2)	Membership Voluntary (0) Compulsory (1)
Australia	0										
Austria	1	1979	1	18,895	1	0	0	1	callable	2	1
Bahamas	0										
Bahrain	1	1993	0	5,292	1	0	0	0	callable	1	1
Belgium	1	1985	0	15,000	1	0	1	1	0.02	1	1
Canada	1	1967	0	37,892	0	1	1	1	0.16	1	1
Cayman Islands	0										
Denmark	1	1988	0	33,624	1	0	1	1	0.2 max	1	1
Finland	1	1969	0	25,228	1	0	1	1	0.05	2	1
France	1	1980	0	60,980	1	0	0	0		2	1
Germany	1	1966	1	18,000	1	0	1	0	0.03	2	1
Greece	1	1995	0	20,000	1	0	1	0	0.025	1	1
Hong-Kong	0										
Ireland	1	1989	1	15,000	1	0	1	0	0.2	0	1
Italy	1	1987	0	432,177	1	0	0	1	0.4	1	1
Japan	1	1971	0		0	0	1	1	0.0084	1	1
Luxembourg	1	1989	1	13,500	1	0	0	0	callable	2	1
Netherlands	1	1979	0	20,000	1	0	0	1	callable	0	1
Netherlands Antilles	0										
Norway	1	1961	0	236,243	1	0	1	1	0.015	2	1

Countries	Type: Implicit (0) Explicit (date)	Date established	Co-insurance	Coverage Limit €	Foreign currency	Inter-bank deposits	Permanent fund	Source of funding Private (0) Joint (1) Public (2)	Annual premium	Administration Official (0) Joint (1) Private (2)	Membership Voluntary (0) Compulsory (1)
Portugal	1	1992	1	33,750	1	0	1	1	0.08	0	1
Singapore	0										
Spain	1	1977	0	15,000	1	0	1	1	0.2 max	1	1
Sweden	1	1992	0	28,040	1	0	1	1	0.5	0	1
Switzerland	1	1984	0	18,495	0	0	0	0	callable	2	0
United Kingdom	1	1982	1	22,175	1	0	0	0	callable	2	1
United States	1	1934	0	93,828	1	1	1	1	0	0	1

TABLE 3. **Legal origin and minimum withholding tax rate in 1999**

Country	Legal origin	Minimum withholding tax rate
Australia	English	10%
Austria	German	0%
Bahamas	English	0%
Bahrain	English	0%
Belgium	French	0%
Canada	English	0%
Cayman Islands	English	0%
Denmark	Scandinavian	0%
Finland	Scandinavian	0%
France	French	0%
Germany	German	0%
Hong Kong	English	0%
Ireland	English	0%
Italy	French	0%
Japan	German	10%
Luxembourg	French	0%
Netherlands	French	0%
Norway	Scandinavian	0%
Portugal	French	10%
Singapore	English	0%
Sweden	Scandinavian	0%
Switzerland	German	0%
United Kingdom	English	0%
United States	English	0%

For data sources see Appendix A.

TABLE 4. **Determinants of external non-bank liabilities**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PANEL A												
GDP	.627**	.665**	.819**	.337**	.192**	.349**	-.081	-.474	-.510			
	(.058)	(.070)	(.065)	(.051)	(.072)	(.056)	(.258)	(.350)	(.477)			
Trade										.610**	.559**	.564*
										(.119)	(.141)	(.234)
Creditors rights	.177*	.275**	.219**	.287**	.314**	.316**						
	(.082)	(.081)	(.081)	(.064)	(.347)	(.088)						
Inflation		.469	.583		-1.380**	-.036*		-.800**	-1.326**		-.627**	-1.769**
		(.371)	(.377)		(.448)	(.363)		(.286)	(.033)		(.199)	(.431)
Minimum withholding tax			-.164**			-.186**			-.006			-.022
			(.016)			(.015)			(.014)			(.018)
French law				-.574**	-.586**	.131						
				(.119)	(.148)	(.109)						
German law				-.828**	-1.266**	-.325						
				(.222)	(.238)	(.219)						
Scandinavian law				-2.405**	-2.761**	-2.550**						
				(.156)	(.220)	(.174)						
Explicit deposit insurance	.728**	.739*	-.047	.524*	.529	-.462*	.325**	.363**	.279	.315**	.376*	.135
	(.197)	(.213)	(.240)	(.218)	(.347)	(.191)	(.103)	(.126)	(.166)	(.117)	(.156)	(.216)
Adjusted R^2	.325	.308	.442	.598	.575	.738	.913	.911	.907	.912	.914	.912
No. of observations	287	246	205	287	246	205	353	311	254	316	268	210
No. of deposit insurance changes	5	3	2	5	3	2	7	5	4	6	4	3

TABLE 4. **Determinants of external non-bank liabilities (cont.)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PANEL B												
Explicit deposit insurance$_{-1}$	.706**	.691**	-.077	.507*	.459	-.462*	.392**	.437**	.391*	.393**	.482**	.286
	(.182)	(.206)	(.227)	(.202)	(.313)	(.179)	(.107)	(.136)	(.177)	(.125)	(.178)	(.249)
Adjusted R^2	.326	.309	.442	.599	.574	.739	.915	.913	.908	.914	.916	.913
PANEL C												
Explicit deposit insurance$_{-1}$	.588**	.487*	-.116	.428*	.364	-.398*	.440**	.505**	.532**	.456**	.584**	.513*
	(.183)	(.210)	(.209)	(.192)	(.268)	(.175)	(.112)	(.134)	(.170)	(.130)	(.171)	(.240)
Adjusted R^2	.322	.303	.442	.597	.573	.739	.916	.915	.911	.915	.919	.916
PANEL D												
Explicit deposit insurance	.254	.356	.185	.189	.439	-.028	-.016	.005	-.087	-.017	-.008	-.177
	(.379)	(.528)	(.537)	(.494)	(.751)	(.486)	(.198)	(.230)	(.280)	(.220)	(.296)	(.392)
Explicit deposit insurance$_{-1}$	.504	.643	.028	.325	.058	-.313	.084	.051	-.035	.075	.060	-.043
	(.599)	(.733)	(.598)	(.632)	(.837)	(.645)	(.269)	(.298)	(.353)	(.298)	(.374)	(.493)
Explicit deposit insurance$_{-2}$	-.013	-.262	-.272	.025	.034	-.126	.384	.465*	.606*	.408	.547*	.634
	(.509)	(.537)	(.345)	(.454)	(.505)	(.484)	(.214)	(.215)	(.250)	(.236)	(.252)	(.340)
Adjusted R^2	.322	.304	.436	.596	.571	.736	.916	.914	.910	.915	.918	.915

Data on liabilities is for 1983-1999. All regressions include unreported time dummies. Columns (7) to (12) include bank country dummies. Panels B, C, and D include the same control variables as in panel A although these are not reported in the table. In panels B and C, the explicit deposit insurance variable is replace by its one-year lag and two-year lag, respectively. Detailed variable definitions and data sources are given in Appendix A. Heteroskedasticity consistent errors are given in parentheses. * and ** indicate significance levels of 5 and 1 percent, respectively.

TABLE 5. **Determinants of external bank liabilities**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP	.871**	.842**	.758**	.618**	.153	.349		
	(.027)	(.031)	(.024)	(.033)	(.258)	(.229)		
Trade							.631**	.536**
							(.137)	(.110)
Creditors rights	.178**	.229**	.223**	.280**				
	(.051)	(.054)	(.047)	(.050)				
Inflation		-.082		-1.262**		.437*		.247
		(.211)		(.283)		(.205)		(.142)
French law			.008	.072				
			(.112)	(.131)				
German law			-.145	-.557**				
			(.109)	(.135)				
Scandinavian law			-.824**	-1.097**				
			(.111)	(.129)				
Explicit deposit insurance	.345*	.162	.218	.145	.143	-.140	.217*	-.032
	(.113)	(.108)	(.121)	(.170)	(.073)	(.074)	(.083)	(.077)
Adj. R^2	.723	.688	.772	.754	.935	.938	.938	.940
No. of obs	287	246	287	246	353	311	316	268

Data on liabilities is for 1983-1999. All regressions include unreported time dummies. Columns (5) to (8) include bank country dummies. Detailed variable definitions and data sources are given in Appendix A. Heteroskedasticity consistent errors are given in parentheses. * and ** indicate significance levels of 5 and 1 percent, respectively.

TABLE 6. **Determinants of the ratio of external non-bank liabilities and external bank liabilities.**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GDP	-.244**	-.177**	-.034	-.421**	-.426**	-.219**	-.234	-.822**	-.644			
	(.048)	(.003)	(.050)	(.045)	(.069)	(.053)	(.229)	(.315)	(.417)			
Trade										-.021	.023	.092
										(.115)	(.110)	(.198)
Creditors rights	-.001	.046**	.035	.064	.034	-.006						
	(.051)	(.002)	(.057)	(.045)	(.051)	(.064)						
Inflation		.551**	.399		-.118	.604		-1.237**	-1.419**		-.874**	-1.666**
		(.010)	(.300)		(.423)	(.384)		(.252)	(.481)		(.202)	(.397)
Minimum withholding tax			-.155**			-.172**			-.025			-.035
			(.014)			(.014)			(.016)			(.023)
French law				-.583**	-.657**	-.332**						
				(.109)	(.133)	(.116)						
German law				-.683**	-.709**	.284						
				(.179)	(.127)	(.198)						
Scandinavian law				-1.581**	-1.665**	-1.277**						
				(.133)	(.199)	(.159)						
Explicit deposit insurance	.383*	.577**	-.068	.306	.384	-.501*	.182	.503**	.409**	.098	.408**	.248
	(.164)	(.026)	(.190)	(.168)	(.233)	(.199)	(.099)	(.103)	(.142)	(.117)	(.125)	(.178)
Adj. R^2	.031	.030	.303	.280	.238	.523	.807	.843	.827	.823	.853	.843
No. of obs	287	246	205	287	246	205	353	311	254	316	268	210

Data on liabilities is for 1983-1999. All regressions include unreported time dummies. Columns (7) to (12) include bank country dummies. Detailed variable definitions and data sources are given in Appendix A. Heteroskedasticity consistent errors are given in parentheses. * and ** indicate significance levels of 5 and 1 percent, respectively.

TABLE 7. **External non-bank liabilities and deposit insurance features**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP	-1.394**	-.533	-.378	-1.057	-.596	-1.406**	-.517
	(.486)	(.478)	(.463	(.543)	(.475)	(.462)	(.479)
Inflation	-2.173**	-1.350**	-1.298**	-1.450**	-1.373**	-1.782**	-1.331**
	(.483)	(.508)	(.503)	(.495)	(.505)	(.443)	(.505)
Minimum withholding tax	-.005	-.007	-.006	-.004	-.004	-.003	-.007
	(.014)	(.014)	(.014)	(.014)	(.015)	(.014)	(.015)
Explicit deposit insurance	-.061	.279	.443	.570**	.320	-.349	.181
	(.177)	(.166)	(.246)	(.216)	(.164)	(.195)	(.273)
Co-insurance	1.520**						
	(.295)						
Coverage limit		.001					
		(.002)					
Foreign currency			-.241				
			(.232)				
Permanent fund/				-.639*			
Source of funding				(.295)			
Annual premium					-1.346**		
					(.292)		
Administration						.725**	
						(.142)	
Membership							.116
							(.201)
Adj. R^2	.916	.907	.907	.908	.908	.914	.907
No. of obs	254	254	254	254	254	254	254

Data on liabilities is for 1983-1999. All regressions include unreported time dummies and bank country dummies. Detailed variable definitions and data sources are given in Table 2 for deposit insurance features and in Appendix A for other variables. Heteroskedasticity consistent errors are given in parentheses. * and ** indicate significance levels of 5 and 1 percent, respectively.

TABLE 8. **External bank liabilities and deposit insurance features**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP	.410	.379	.419	.407	.560	.402	.372	.339
	(.257)	(.233)	(.230)	(.269)	(.293)	(.237)	(.273)	(.222)
Inflation	.473*	.379	.470*	.462*	.468*	.420*	.447*	.438*
	(.216)	(.211)	(.205)	(.218)	(.210)	(.206)	(.219)	(.200)
Explicit deposit insurance	-.112	-.215**	.028	-.175	-.311*	-.202*	-.114	.121
	(.082)	(.083)	(.114)	(.097)	(.130)	(.084)	(.112)	(.089)
Co-insurance	-.135							
	(.119)							
Coverage limit		.001**						
		(.000)						
Foreign currency			-.218					
			(.112)					
Permanent fund				.110				
				(.164)				
Source of funding					.329*			
					(.160)			
Annual premium						.612*		
						(.241)		
Administration							-.027	
							(.096)	
Membership								-.289**
								(.076)
Adj. R^2	.938	.939	.938	.938	.938	.938	.938	.939
No. of obs	311	311	311	311	311	311	311	311

Data on liabilities is for 1983-1999. All regressions include unreported time dummies and bank country dummies. Detailed variable definitions and data sources are given in Table 2 for deposit insurance features and in Appendix A for other variables. Heteroskedasticity consistent errors are given in parentheses. * and ** indicate significance levels of 5 and 1 percent, respectively.

TABLE 9. **The ratio of external non-bank and bank liabilities and deposit insurance features**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP	-1.444**	-.631	-.648	-1.364**	-.736	-1.511**	-.665
	(.402)	(.418)	(.425)	(.459)	(.416)	(.407)	(.428)
Inflation	-2.186**	-1.406**	-1.420**	-1.582**	-1.470**	-1.861**	-1.434**
	(.486)	(.478)	(.480)	(.465)	(.480)	(.443)	(.483)
Minimum withholding tax	-.024	-.024	-.025	-.022	-.023	-.022	-.026
	(.017)	(.017)	(.016)	(.016)	(.017)	(.016)	(.017)
Explicit deposit insurance	.101	.409**	.404*	.792**	.452**	-.200	.097
	(.136)	(.142)	(.198)	(.192)	(.140)	(.141)	(.252)
Co-insurance	1.376**						
	(.320)						
Coverage limit		-.001					
		(.002)					
Foreign currency			.008				
			(.208)				
Permanent funding/ Source of funding				-.842**			
				(.231)			
Annual premium					-1.441**		
					(.302)		
Administration						.702**	
						(.138)	
Membership							.367
							(.190)
Adj. R^2	.842	.827	.826	.832	.828	.841	.829
No. of obs	254	254	254	254	254	254	254

Data on liabilities is for 1983-1999. All regressions include unreported time dummies and bank country dummies. Detailed variable definitions and data sources are given in Table 2 for deposit insurance features and in Appendix A for other variables. Heteroskedasticity consistent errors are given in parentheses. * and ** indicate significance levels of 5 and 1 percent, respectively.

TABLE 10. **Deposit-insurance scheme application in EU Member States on September 1st, 1999**

Country	Exclusions (article 7(2))	Foreign currencies (article 7(2))	Co-insurance (article 7(4))	Coverage limit[11]
Austria	Mortgage bonds, municipal bonds, funded bank bonds, bonds issued by credit institutions, liabilities resulting from own acceptances, promissory notes.	Excluded if not denominated in ATS, ECU, or national currency of another member State.	No.	ATS 260,000 (€ 18,895)
Belgium	As listed in annex I of 94 directive[12].	Excluded if not denominated in BEF, ECU, or national currency of another member State.	No.	€ 15,000 (€ 20,000 from 2000)
Denmark	Points (1), (7)[13], and (9) of the annex I of 94 directive	All currencies are covered.	No.	DKK 300,000 (about €40,000)[14].
Finland	n.a.	All currencies are covered.	No.	FIM 150,000 (€ 25,228).
France[15]	As listed in annex I of 94 directive, except point (14)	All currencies from European Economic Area (EEA) and ECU are covered	No.	FRF 400,000 (€ 60,980)[16]
Germany[17]	Bearer bonds, points (7) and (8) of the annex I of 94 directive.	All currencies are covered.	90% covered.	€ 20,000[18]

[11] Per depositor and per financial institution (article 8 of 1994 directive). Co-insurance excluded

[12] The annex I of the 1994 directive lists the exclusions referred to article 7(2). (1) Deposits by financial institutions; (2) deposits by insurance undertakings; (3) deposits by government and central administrative authorities; (4) deposits by provincial, regional, local and municipal authorities; (5) deposits by collective investment undertakings; (6) deposits by pension and retirement funds; (7) deposits by a credit institution's own directors, managers, members personally liable, holders of at least 5% of the credit institution's capital, persons responsible for carrying out the statutory audits of the credit institution's accounting documents and depositors of similar status in other companies of the same group; (8) deposits by close relatives and third parties acting on behalf of depositors referred to in (7); (9) deposits by other companies in the same group; (10) non-nominative deposits; (11) deposits for which the depositor has, on an individual basis, obtained from the same credit institution rates and financial concessions which have helped to aggravate it financial situation; (12) debt securities issued by the same institution and liabilities arising out of own acceptances and promissory notes; (13) deposits in currencies other than those of the member States or ECU's; (14) deposits by companies which are of such size that they are not permitted to draw up abridged balance sheets pursuant to article 11 of directive 78/660/EEC.

[13] Holders of at least 10% of the credit institution capital in the case of Denmark.

[14] No limit for retirement/designated savings accounts. Limit of € 20,000 for securities.

[15] As for commercial banks. France has separate systems for commercial banks and for mutual, savings and co-operative banks.

[16] Fixed recently at € 70,000.

[17] As for the 1998 scheme of German association of banks (Bundesverbandes Deutcher banken). Separate schemes exist to cover the commercial banks (Private Kreditbanken), saving banks (Sparkassen), central giro administrations (Girozentralen), and credit co-operatives (Kreditgenossenschaften).

[18] There is a state guarantee for public banks (Landesbanken) since the law stipulates that the guarantor will meet all liabilities of the bank that cannot be satisfied from its assets. Following pressures from the European Commission, Germany will drop this stipulation by 2002 as it was perceived to represent competition-distorting state aid.

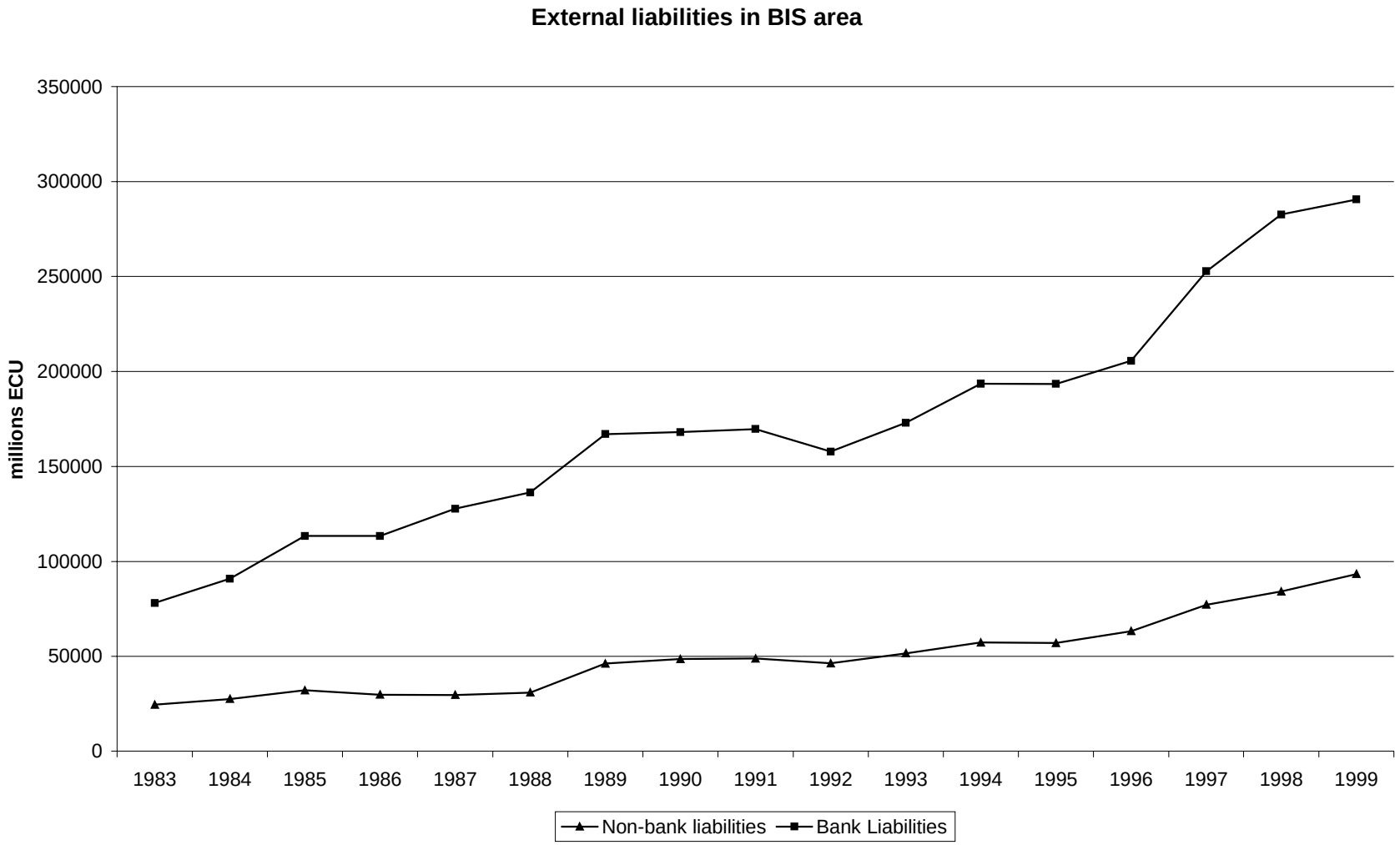
Greece	As listed in annex I of 94 directive.	Excluded if not denominated in GRD, ECU, or national currency of another member State.	No.	€ 20,000
Ireland	Points (1), (2), (5), (6), (7), (8), (9), (11) of the annex I of 94 directive.	All currencies are covered.	90% covered.	€ 15,000 (€ 20,000 from 2000)
Italy	Points (1), (2), (3), (4), (5), (6), (7), (8), (9), (10), (11), (12) of the annex I of 94 directive	All currencies are covered.	No.	LIT 200 millions (€ 103,291).
Luxembourg	As listed in annex I of 94 directive, except points (13) and (14)	All currencies are covered.	Legally authorised (up to 10%) but not implemented in practice by the scheme.	€ 15,000 (€ 20,000 from 2000)
The Netherlands	As listed in annex I of 94 directive except point (13) and (14)	All currencies are covered.	No.	€ 20,000.
Portugal	As listed in annex I of 94 directive except point (13) and (14)	All currencies are covered	No.	€ 25,000.
Spain	As listed in annex I of 94 directive, except point (13) and (14)	All currencies are covered.	No.	€ 15,000 (€ 20,000 from 2000)
Sweden	Point (6) of the annex I of 94 directive.[19]	All currencies are covered	No.	SEK 250,000 (about €25,000)
United Kingdom	Points (1), (2), (5), (6) of annex I of 94 directive and deposits which are part of a bank's capital.	All currencies from European Economic Area (EEA) and ECU are covered	90% covered	GBP 20,000 (or € 22,222 if higher).

Source: European Commission (2001), Gropp and Vesala (2001), Garcia (1999), and national legal sources[20]..

[19] Currently under discussion to come closer to provisions listed in Annex I of directive.

[20] See appendix C for details.

FIGURE 1. **Bank and non-bank external liabilities in BIS area**



Note. Figures reflect aggregates for all countries listed in Table 1 except Australia, Hong Kong, and Portugal.

TABLE B1. **Net exports of bank and non-bank liabilities in billions of euro, 1999**

Country	Bank liabilities	Non-bank liabilities
Australia	-70	3
Austria	-8	1
Bahamas	41	-60
Bahrain	-15	-2
Belgium	-23	-23
Canada	-13	-3
Denmark	-4	-4
Finland	6	1
France	-72	6
Germany	-66	-59
Hong Kong	14	12
Ireland	-32	2
Italy	-58	26
Japan	77	27
Norway	-3	1
Portugal	-17	-2
Spain	-36	9
Sweden	-12	-3
Switzerland	161	-63
United Kingdom	129	-121
United States	-2	250