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ABSTRACT

Banks are in the business of taking calculated risks. Expanding the geographic footprint of an organization's profit-making activities changes the geographic pattern of its exposure to loss in ways that are hard for regulators and supervisors to observe. This paper tests and confirms the hypothesis that differences in the character of safety-net benefits that are available to banks in individual EU countries help to explain the nature of cross-border merger activity. If they wish to protect taxpayers from potentially destabilizing regulatory arbitrage, central bankers need to develop statistical procedures for assessing supervisory strength and weakness in partner countries. We believe that the methods and models used here can help in this task.

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Risk is the salt and sugar of finance. When stock markets are calm, investors reward banking organizations that manage to increase their size, complexity, leverage, or maturity mismatch. This is partly because safety nets subsidize aggressive risk taking in good times and the accounting frameworks used by banks and government officials do not make anyone directly accountable for reporting or controlling these subsidies until and unless markets sour.

In the wake of the most recent financial crisis, the European System of Central Banks (ESCB) is striving to identify and to eliminate inconsistencies and gaps in the EU's regulatory framework (Lannoo, 2009). This paper shows that, in the years leading up to the crisis, differences across countries in rules and enforcement allowed cross-border mergers by EU banks to expand their access to safety-net subsidies. As long as the problem of establishing a fair and efficient system for fiscal burden sharing remains intractable (Goodhart and Schoenmaker, 2006), financial stability requires that home and host authorities assess the safety-net consequences of cross-border mergers. We believe the methods and models deployed in this paper provide the ESCB with a good place to start.

I. The Need to Reassess the Benefits and Costs of Cross-Country Banking Mergers

How, why, and for whom individual mergers and acquisitions generate net economic benefits becomes an increasingly important policy issue as industries globalize and consolidate. For nonfinancial firms, analysis focuses on two overlapping possibilities: postmerger improvements in efficiency (which benefit firms and customers alike) and increases in market power (which benefit firms at the expense of their less-footloose customers).

In the financial sector, the existence of safety-net subsidies introduces two further sources for concern: opportunity costs generated by individual-country policies of entry or exit resistance and the possibility that the merger or acquisition represents a form of regulatory arbitrage. When policymakers resist the exit or foreign takeovers of inefficient

domestic institutions, they subsidize particular firms and increase their market power. Opportunities for regulatory arbitrage occur when, by changing the geographic footprint of their activities, financial institutions (and some of their counterparties) can shift poorly monitored risk exposures to taxpayers in one or another country on advantageous terms (Kane, 2000; Carbo, Kane, and Rodriguez, 2008; Campa and Hernando, 2008). In the absence of explicit procedures for assessing and redressing supervisory failings across countries, such transactions threaten to increase the fragility of financial systems around the world.

Evidence regarding the ex ante efficiency, market, and regulatory effects of cross-border banking combinations comes mainly from event studies. Researchers first use one or more forms of market-model regression to identify significant shifts in parametric measures of either value or risk-taking at partner banks during or after merger events. When significant parameter shifts are observed, the estimated shift is regressed on various characteristics of one or the other merger partner and on structural characteristics of the markets, economies, or regulatory systems within which these firms operate (Amihud, DeLong, and Saunders, 2002; Buch and DeLong, 2008). Perhaps because the second stage of such studies has limited power to reject the hypotheses of no effect, these papers conclude that regulatory arbitrage has posed little problem for EU authorities. Based on a sample of 214 transactions, the first paper determined that EU banks making cross-border acquisitions in the years 1985-1998 did not change their risk exposures "in any significant way." Looking at data for 81 EU cross-border mergers announced during the years 1998-2002, the second paper opines that the supervisory structures of parent countries influence an institution's total risk, but do not "greatly influence the systematic risk [i.e., the market or beta risk] of the merged bank" and that banks from "countries with strong supervision" were not trying to escape regulatory

discipline in their home countries or to extract safety-net benefits by extending their operations into countries where supervision is weaker.

Although these results are comforting, they are not fully convincing. They leave open some critical loose ends. First, neither paper directly estimates or controls for differences in safety-net benefits across countries. Second, while both papers incorporate indirect measures based on differences across countries in the scope of regulatory and supervisory powers, the models used do not and cannot control for variation in enforcement. Enforcement varies with the intensity with which authorities monitor individual-bank risk exposures and with the manner in which exercise their supervisory authority when excessive leverage or other forms of inappropriate risk-taking is observed. Vallascas and Hagendorff (2009) show that bidder banks in Europe managed to increase their exposure to default risk. Third, the possibility that merger partners differ from other banks with respect to the second-stage regressors (i.e., the issue of sample-selection bias) is not explored.

To address these concerns, this paper examines whether and how EU banks that engage in cross-border mergers (CBM banks) differ from other EU banks with respect to the safety-net benefits they extract or how effectively risk-shifting controls restrain their incremental risk-taking. Carbo, Kane, and Rodriguez (2008) synthetically estimate differences in safety-net benefits and in supervisory effectiveness for EU-15 countries excluding Greece. These estimates use Hovakimian and Kane's (2000) adaptation of the two-equation model of capital discipline and safety-net control devised by Duan, Moreau, and Sealey (1992).

Applying an improved maximum-likelihood method of estimation (Duan 1994; Duan and Simonato, 2002) to the same model and the same 1993-2004 Bancscope dataset, this paper shows that -- both within and across countries -- significant differences exist in risk-taking and access to safety-net subsidies between CBM and other commercial banks. The

new method yields smaller, but similar differences between banks that Carbo, Kane and Rodriguez (2008) designate as "country-champion banks" and other banks in the sample. In this paper, we label these champion banks as too difficult to fail and unwind (TDFU) on the grounds that they are large and complex enough to compete in international markets and politically and administratively difficult to force into receivership.[1] On average across countries, CBM and TDFU banks are more leveraged and extract larger safety-net subsidies than other EU banks. More importantly, after CBM institutions complete a cross-border merger, even though their accounts show less leverage, their incremental access to safety-net benefits increases substantially -- presumably because they can game cross-country differences in regulatory systems to mask off-balance-sheet activity or to increase portfolio risk. Postmerger effects turn out to be greater at acquirers than at targets. These findings prove robust to introducing a companion Heckman equation to select CBM banks.

The crucial policy implication of our study is that cross-border mergers and individual-country exit resistance contributed to the current global financial turmoil by undermining the effectiveness of capital requirements and other supervisory controls on risk-shifting in EU countries. EU taxpayers, consumers of financial services, and commercial and savings banks competing with CBM institutions must ultimately pay for the bill for this supervisory failure. If the goal of policy is to reduce the risk of failure for financial institutios, then regulators need to develop procedures for screening the adverse consequences that mergers and acquisitions might impose on individual-country and partner safety nets.

II. Modeling Safety-Net Benefits as a Function of Asset Volatility and Capital Controls[2]

[1] These banks are listed in an appendix to Carbo, Kane, and Rodriguez (2008).
[2] This section presents an abbreviated version of the explanation found in Carbo, Kane, and Rodriguez (2008).

Risk-shifting occurs when creditors or guarantors are exposed to loss without receiving adequate compensation. This section describes the model we use to estimate effective capital controls and risk-shifting benefits at individual banks. This model linearizes Merton's model of deposit insurance (1977, 1978). Merton portrays safety-net access as an option that allows bank owners to put the bank to safety-net managers for the face value of the bank's debt. However, we follow Ronn and Verma (1986) in scaling down the price at which examination lags and political pressures allow authorities to enforce their takeover rights. The variable IPP expresses the fair premium for safety-net support per Euro (or per pound) of debt as an increasing function of a bank's asset risk (σ_v) and leverage. Leverage is measured as the ratio of the face value of an institution's debt (B) to the estimated market value of its assets (V).

The contribution of Duan, Moreau, and Sealey (1992) is to recognize that market and regulatory disciplines prevents B/V from being chosen independently of σ_v. To control risk-shifting, counterparties and regulators may be expected to require B/V to fall when and as σ_v increases. Conveniently treating σ_v as the model's exogenous regressor leads to the following reduced-form equations for B/V and IPP:

$$B/V = \alpha_0 + \alpha_1\sigma_v + \varepsilon_1 \quad , \qquad (1)$$

$$IPP = \beta_0 + \beta_1\sigma_v + \varepsilon_2 \quad . \qquad (2)$$

Equation (1) expresses the idea that regulators and creditors constrain banks to a mutually acceptable set of perceived leverage and volatility pairs. If safety-net managers could observe σ_v and control B/V perfectly, they would set B/V so that IPP equaled the value of the sum of explicit and implicit premiums they could impose on the bank. The slope coefficients in (1) and (2) may be interpreted as follows:

$$\alpha_1 \equiv \frac{d(B/V)}{d\sigma_v} \, , \qquad (3)$$

$$\beta_1 \equiv \frac{\partial IPP}{\partial \sigma_v} + \frac{\partial IPP}{\partial (B/V)} \alpha_1 = \gamma_1 + \gamma_2 \alpha_1 . \qquad (4)$$

By themselves, the positive partial derivatives that are shown in equation (4) tell us how much value bank stockholders could extract from the safety net if managers were free to make unconstrained adjustments in volatility and leverage, respectively. However, in practice, safety-net officials and important private counterparties insist on having at least some power to monitor and constrain bank risk taking.

Given the external discipline a bank faces, the sign of β_1 in equation (2) indicates whether, in a country's particular contracting environment, increases in asset volatility can increase the value of the implicit and explicit access to government credit support that is imbedded in the bank's stock price. To neutralize risk-shifting incentives at the margin, disciplinary penalties that induce a decline in B/V must be large enough to offset fully whatever increase in IPP would otherwise be generated by choosing a higher σ_v. Empirically, as long as the total derivative β_1 is positive, risk-shifting incentives are not completely neutralized.

Thus, for market and regulatory pressure to discipline and potentially to neutralize incremental risk-shifting incentives, two conditions must be met:

Bank capital increases with volatility: $\alpha_1 < 0$,

Guarantee values do not rise with volatility: $\beta_1 \leq 0$.

None of the three variables featured in our equations is directly observable. However, Marcus and Shaked (1984) show how to use option-based models of deposit insurance to track these variables synthetically. The first step in the Marcus-Shaked procedure is to obtain tracking values for V and σ_v by numerical methods. These values are then used to estimate IPP as the value of a put option on bank assets (the so-called "default put." A key step is to use Îto's lemma to transform σ_v into σ_E, the instantaneous standard deviation of equity returns.

III. A Preliminary Look at the Focal Variables

To identify cross-border merging banks, we use the Thompson One-Banker M&A database for the European Union. This source permits us to identify target and acquirer banks. We further require that the selected mergers be registered as completed deals in the European Central Bank registry of banks. Balance-sheet and income statement data for the merging banks come from the Bankscope database.

Table 1 compares mean values for B/V, IPP, and σ_v for other banks in a country with those for CBM banks. Because no Danish or Finnish bank engaged in a cross-border merger during 1993-2004, these countries join Greece in dropping out of our analysis.

Except for Spain and Germany, CBM banks extract from country EU safety nets higher mean benefits than other banks do. Leverage is higher for CBM banks in three-fourths of the cases, while increases and decreases in asset volatility divide almost equally.

Table 2 shows for all banks and for CBM banks separately that leverage, fair premiums, and asset volatility differ significantly between most country pairs. This supports the hypothesis that selectively extending a bank's operations into another EU country creates an opportunity for lowering a firm's overall regulatory burden. For example, a bank can book risk exposures on which a home country enforces a high effective capital requirement in subsidiaries located in countries that treat these particular exposures less onerously.

Tables 3 and 4 aggregate the data globally. Table 3 shows that the link between leverage ratios and risk-taking is on average more closely policed at TDFU and CBM banks than for other banks. Without such policing (i.e., if α_1 were ≥ 0), equation (4) shows that the correlation between B/V and IPP could not be negative. Table 4 establishes that on average CBM banks achieve slightly and insignificantly higher leverage and safety-net benefits than TDFU banks do, while other banks trail significantly in both respects. It also shows that, after a cross-border merger, leverage and safety-net benefits increase substantially.

IV. Evidence that Cross-Border Mergers Offer Partner Institutions Incremental Regulatory Relief and Safety-Net Benefits

Our next array of tables explore a series of difference-on-difference regression equations in which errors are clustered at the individual-bank level. The first column of Table 5 shows that across the 12 sample countries, accounting capital is subject to less and less discipline as asset size increases. However, although the leverage decisions of CBM banks receive more discipline, the second column shows that this discipline is not strong enough to prevent them from extracting incremental safety-net benefits. At the margin, CBM banks find ways to expand their portfolio risk that extract safety-net subsidies.

Table 6 contrasts CBM banks' pre-merger and post-merger experience, suppressing the size term. It shows that, although accounting capital is policed roughly twice as closely after a cross-border merger, CBM banks' incremental access to safety-net benefits doubles. Wald tests confirm that these differences are highly significant.

Table 7 indicates that discipline and benefits accrue differently at target and acquiring banks. Although acquiring banks (who presumably initiate cross-border deals) face significantly more capital discipline, they extract significantly more safety-net benefit at the margin than targets do. These findings strongly support the hypothesis that the pursuit of safety-net benefits helps to motivate cross-border merger activity.

V. Controlling for the Effects of Selection Bias

A growing empirical literature seeks to predict individual firms' propensity to engage in merger and acquisition (M&A) transactions in a time-series, cross-section framework. Among other things, this literature emphasizes the role of size and relative profit performance as motives for banks to combine. This leads us to hypothesize that targets or acquirers might be especially large and, when a cross-border deal is initiated, might be seeking to counteract

regulatory efforts to reduce safety-net benefits. In Table 8, the negative sign that ΔIPP receives in predicting year-by-year cross-border activity among CBM banks confirms the hypothesis that -- as the Regulatory Dialectic (Kane, 2000 and 2009) would predict -- declines in the size of incremental safety-net benefits tend to call forth a benefit-restoring response from CBM banks. This suggests the usefulness of modeling a bank's willingness to combine with a cross-border partner in any year in a two-equation framework. We do this by introducing the Mills odds ratio from time-series or cross-section Heckman selection equations as a regressor in our baseline models. This ratio lets separate from the influence of asset size and other potential M&A determinants the effects of a bank's leverage and access to safety-net benefits on a bank's decision to participate in a cross-border deal.

Hernando, Nieto, and Wall (2008) survey the literature on bank takeovers. An overarching theme of this research is that acquisitions should transfer control of assets from poorly managed targets to better managed acquirers. We amend this sentiment to underscore the possibility that unexploited opportunities for improved management of safety-net benefits may be a key concern. Ahern and Weston (2007) stress that firms that engage in successful merger and acquisition (M&A) programs do so over many years as a way of confronting various challenges posed by their economic environments. Carletti, Hartmann, and Ongena (2007) stress that such challenges include differences in the transparency and effectiveness of prudential and competition controls on M&A activities. To account for environmental differences, the expanded versions of equations (1) and (2) reported in this section incorporate country fixed effects.

Table 8 reports year-by-year and pooled equations for selecting CBM banks (acquirers and targets) from our full sample of EU-12 banks. The year-by-year decline in sample size reflects the rapid pace of consolidation in the EU-12 financial sector. The nine included regressors combine the values of IPP and B/V with seven other variables that have

proved significant in previous studies of bank takeovers in the EU. Measures of safety-net benefits, leverage, asset size, tangible capitalization, intangible capital, and nondeposit debt prove highly significant in most years. High values of IPP, size, nondeposit debt, and intangible assets consistently encourage CBM activity, while leverage and tangible capital restrain it. In contrast to studies that examine within-country mergers, measures of operating inefficiency, liquidity, and ownership concentration are never significant.

Coefficients of the significant variables move over time, but they usually remain within two standard errors of the values obtained in the pooled run. Appealing to Occam's Razor (i.e., invoking the econometric norm of parsimony), we use the pooled selection equation to investigate and correct for sample-selection bias that might have crept into simpler models of IPP and B/V.

An approved way to account for the potential endogeneity of any classificatory variable is to adopt Heckman's procedure (1976, 1978). This introduces into our previous models a variable Heckman calls "Lambda." This variable is also known as Mill's inverse odds ratio ("Mills ratio"). It measure the covariance between the error terms of the single-equation regression for an endogenous variable with the residuals from the selection equation. In our tables, the coefficient assigned to the Mills ratio measures how "surprising" it is to learn that a particular bank is either engaging in a cross-border merger or (in Tables 11 and 13) acquiring a bank in another country.

In Table 9, Lambda proves significantly negative in both panels. This indicates that incremental leverage and safety-net benefits are algebraically larger, the less surprising it seems for a particular bank to be engaging in a cross-border M&A. Compared to the estimates shown in Table 5, other coefficients move up or down by only one or two points at the third decimal place.

Table 7 indicates that safety-net benefits increase significantly more at acquirers than at targets. Within the class of CBM banks, Table 10 reports year-by-year and pooled equations for selecting acquirers from targets. Sample sizes are small, but grow over time. Again, our findings contrast with the literature on strictly domestic M&As in that leverage, size, inefficiency, nondeposit debt, and ownership concentration are never significant. Instead, safety-net benefits, intangible capital, and liquidity prove to be positive predictors for being an acquirer. The magnitude and significance of IPP and liquidity become especially large from 2000 on. Other things equal, tangible capitalization exerts a hard-to-interpret negative influence on the acquisition decision.

Table 11 expands on the experiment reported in Table 7. It introduces the Mills ratio that emerges from using the pooled equation in Table 10. While other coefficients are not much affected, the more likely (i.e., the less surprising) it is for a particular bank to be the acquirer, the less incremental capital discipline it faces and the more safety-net benefits it can extract. We interpret this to mean that investors and creditors recognize that EU banks with an established cross-border acquisition program are adept at creating value through regulatory arbitrage.

Allowing for sample-selection bias, Tables 12 and 13 report the outcomes of two final regression experiments. Table 12 investigates whether and how risk-shifting behavior at CBM banks varies before and after a cross-border merger. The coefficient of the Mills ratio is always negative, but becomes much larger and more significant after the transaction than it was before. Unsurprising combinations attract less capital and supervisory discipline than surprising ones. Although, other things equal, postmerger discipline grows with the size of the resulting conglomerate, incremental benefits from expanding asset risk increase as well.

Table 13 contrasts the behavior of leverage and safety-net benefits at acquirers and targets prior to the cross-border transaction using Heckman's two-equation framework. Other

things equal, target-bank access to incremental safety-net benefits (i.e., the coefficient of $\Delta\sigma_v$) is twice that of acquirers. Taken together with our other results, this suggests that CBM acquirers identify targets that possess unexploited opportunities for extracting safety-net benefits.

VI. Summary Implications

This paper confirms two complementary and worrisome hypotheses about the purposes that led EU banks to undertake cross-border M&A activity during our 1993-2004 sample period. Regression evidence suggests first that these banks were not responding to opportunities for increasing their operating efficiency, at least as measured conventionally by their expense ratios. Instead, statistical analysis indicates that these banks were responding principally to opportunities for shifting risk onto EU safety nets. What makes this form of arbitrage hard to supervise is that in the short run a merger's safety-net benefits tend to generate stock-price increases consistent with an apparent strengthening of the combined enterprise. However, over time, policies that do not adequately monitor and discipline merger-created safety-net benefits end up subsidizing risk–taking and dangerously increasing the fragility of a country's banking system by making it more vulnerable to disruptive movements in the prices of important bank assets. The existing framework for supervising cross-border M&A activity at EU banks failed to monitor and control the ways in which merger-related regulatory arbitrage shifted risk onto national safety nets. Not just in the EU but throughout our globalizing economy, efforts to re-work cross-country supervisory arrangements deserve great priority. Our methods and models generate a metric that authorities can use to determine the extent to which safety-net benefits attach to merger deals.

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TABLE 1
MEAN LEVERAGE RATIOS (B/V), MEAN FAIR PREMIUM (IPP), AND VOLATILITY OF RETURN ON ASSETS (σ_V): ALL BANKS VS. CROSS-BORDER MERGING BANKS

Value of fair premiums generated by the procedure of Ronn and Verma-RV (JF, 1986) and Duan's Maximum-Likelihood (MF, 1994)

	All banks (excluding cross-border merging banks)						**Cross-border merging banks**					
Country	**B/V (%)**		**IPP (%)**		**σ_V (%)**		**B/V (%)**		**IPP (%)**		**σ_V (%)**	
	RV	*ML*	*RV*	*ML*	*RV*	*ML*	*RV*	*ML*	*RV*	*ML*	*RV*	*ML*
Austria	*84.3*	*89.6*	*0.128*	*0.093*	*1.428*	*1.232*	*94.9*	*95.8*	*0.262*	*0.203*	*0.866*	*0.633*
Belgium	*89.3*	*92.4*	*0.116*	*0.071*	*1.893*	*1.631*	*96.5*	*97.6*	*0.242*	*0.116*	*1.762*	*1.369*
Denmark	*88.6*	*92.7*	*0.280*	*0.186*	*2.937*	*2.525*	-	-	-	-	-	-
Finland	*90.3*	*94.2*	*0.192*	*0.164*	*2.329*	*2.003*	-	-	-	-	-	-
Luxembourg	*90.8*	*92.1*	*0.124*	*0.096*	*1.328*	*1.012*	*94.4*	*96.3*	*0.151*	*0.115*	*2.903*	*2.296*
Netherlands	*84.3*	*87.5*	*0.131*	*0.088*	*1.906*	*1.639*	*84.4*	*88.5*	*0.193*	*0.143*	*1.713*	*1.367*
Portugal	*85.0*	*88.6*	*0.122*	*0.093*	*1.922*	*1.637*	*92.9*	*94.6*	*0.194*	*0.151*	*1.179*	*0.805*
Sweden	*89.3*	*93.3*	*0.139*	*0.114*	*1.998*	*1.556*	*94.6*	*98.2*	*0.199*	*0.160*	*0.197*	*0.156*
Ireland	*85.4*	*86.9*	*0.141*	*0.119*	*1.628*	*1.420*	*91.1*	*94.3*	*0.192*	*0.155*	*2.284*	*1.692*
United Kingdom	*83.3*	*85.0*	*0.274*	*0.185*	*3.193*	*2.512*	*80.7*	*82.8*	*0.318*	*0.263*	*4.930*	*2.930*
Spain	*81.0*	*83.7*	*0.218*	*0.193*	*1.558*	*1.323*	*87.1*	*90.0*	*0.205*	*0.188*	*1.058*	*0.503*
France	*85.2*	*88.8*	*0.192*	*0.151*	*1.539*	*1.291*	*84.7*	*86.7*	*0.250*	*0.203*	*1.282*	*0.626*
Italy	*83.9*	*85.7*	*0.183*	*0.163*	*1.102*	*0.096*	*93.4*	*96.5*	*0.301*	*0.256*	*2.693*	*1.897*
Germany	*85.6*	*88.8*	*0.153*	*0.122*	*1.819*	*1.623*	*91.5*	*93.4*	*0.106*	*0.085*	*1.055*	*0.602*

All estimated parameters are significant at the 1% level

The differences between the RV and the ML estimated parameters where found to be statistically significant in all cases according to the mean-difference tests.

TABLE 2A. MEAN-DIFFERENCE TESTS: DIFFERENCES IN B/V ACROSS COUNTRIES: ALL BANKS

The test is the p–value of a one–tailed t–test on equal means in both groups. Duan's ML method applied to obtain B/V values.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Austria (1)	-													
Belgium (2)	**0.006**	-												
Denmark (3)	0.204	**0.004**	-											
Finland (4)	**0.007**	**0.530**	**0.004**	-										
Luxembourg (5)	**0.003**	**0.008**	**0.004**	**0.136**	-									
Netherlands (6)	0.104	**0.006**	0.326	**0.002**	**0.003**	-								
Portugal (7)	**0.051**	**0.025**	0.182	**0.005**	**0.006**	0.102	-							
Sweden (8)	**0.021**	**0.061**	**0.007**	0.171	**0.025**	**0.027**	**0.061**	-						
Ireland (9)	0.116	**0.003**	0.385	**0.006**	**0.001**	0.317	0.115	**0.006**	-					
United Kingdom (10)	**0.010**	**0.001**	**0.009**	**0.001**	**0.002**	**0.018**	**0.008**	**0.004**	**0.008**	-				
Spain (11)	**0.003**	**0.001**	**0.003**	**0.001**	**0.004**	**0.004**	**0.004**	**0.001**	**0.004**	**0.004**	-			
France (12)	0.144	**0.010**	0.208	**0.011**	**0.001**	0.210	0.191	**0.006**	0.326	**0.016**	**0.007**	-		
Italy (13)	0.120	**0.007**	0.326	**0.0100**	**0.004**	0.268	0.201	**0.004**	0.416	**0.018**	**0.004**	0.325	-	
Germany (14)	0.316	**0.005**	0.116	**0.016**	**0.003**	0.201	**0.031**	**0.006**	0.171	**0.032**	**0.003**	0.118	**0.081**	-

TABLE 2B. MEAN-DIFFERENCE TESTS: DIFFERENCES IN IPP ACROSS COUNTRIES: ALL BANKS

The test is the p–value of a one–tailed t–test on equal means in both groups. Duan's ML method applied to obtain B/V values.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Austria (1)	-													
Belgium (2)	**0.021**	-												
Denmark (3)	**0.001**	**0.006**	-											
Finland (4)	**0.006**	**0.008**	**0.004**	-										
Luxembourg (5)	**0.020**	**0.014**	**0.003**	**0.006**	-									
Netherlands (6)	0.252	0.303	**0.002**	**0.004**	**0.011**	-								
Portugal (7)	**0.263**	0.325	**0.001**	**0.006**	**0.021**	0.451	-							
Sweden (8)	**0.008**	**0.032**	**0.003**	0.048	**0.006**	**0.041**	**0.031**	-						
Ireland (9)	0.273	0.311	**0.004**	**0.008**	**0.019**	0.402	0.401	**0.025**	-					
United Kingdom (10)	**0.006**	**0.004**	**0.003**	**0.060**	**0.004**	**0.014**	**0.008**	**0.011**	**0.005**	-				
Spain (11)	**0.007**	**0.006**	**0.002**	**0.044**	**0.002**	**0.011**	**0.009**	**0.016**	**0.004**	0.401	-			
France (12)	**0.005**	**0.003**	**0.006**	**0.032**	**0.005**	**0.010**	**0.004**	**0.018**	**0.008**	0.392	0.466	-		
Italy (13)	**0.007**	**0.002**	**0.004**	**0.031**	**0.007**	**0.006**	**0.006**	**0.020**	**0.009**	0.407	0.281	0.322	-	
Germany (14)	**0.032**	0.340	**0.002**	**0.005**	**0.002**	**0.003**	**0.003**	**0.011**	**0.110**	**0.006**	**0.004**	**0.006**	**0.008**	-

TABLE 2C. MEAN-DIFFERENCE TESTS: DIFFERENCES IN σ_V ACROSS COUNTRIES: ALL BANKS

he test is the p–value of a one–tailed t–test on equal means in both groups. Duan's ML method applied to obtain B/V values.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Austria (1)	-													
Belgium (2)	**0.020**	-												
Denmark (3)	**0.002**	**0.001**	-											
Finland (4)	**0.003**	**0.008**	**0.008**	-										
Luxembourg (5)	**0.021**	**0.009**	**0.001**	**0.003**	-									
Netherlands (6)	**0.018**	0.363	**0.004**	**0.005**	**0.018**	-								
Portugal (7)	**0.020**	0.270	**0.003**	**0.005**	**0.025**	0.101	-							
Sweden (8)	**0.016**	0.233	**0.004**	**0.003**	**0.029**	0.082	**0.335**	-						
Ireland (9)	**0.012**	0.311	**0.005**	**0.004**	**0.015**	0.290	0.205	0.107	-					
United Kingdom (10)	**0.001**	**0.003**	**0.019**	**0.006**	**0.004**	**0.003**	**0.002**	**0.004**	**0.006**	-				
Spain (11)	0.121	**0.011**	**0.002**	**0.002**	0.027	**0.028**	**0.016**	**0.007**	**0.004**	**0.003**	-			
France (12)	0.182	**0.015**	**0.003**	**0.004**	**0.033**	**0.014**	**0.014**	**0.006**	**0.012**	**0.004**	0.396	-		
Italy (13)	0.063	**0.005**	**0.002**	**0.003**	**0.012**	**0.006**	**0.008**	**0.010**	**0.008**	**0.006**	0.185	0.104	-	
Germany (14)	**0.021**	**0.021**	**0.004**	**0.004**	**0.019**	**0.029**	0.094	**0.044**	**0.028**	**0.008**	0.072	**0.025**	**0.011**	-

TABLE 2D. MEAN-DIFFERENCE TESTS: DIFFERENCES IN B/V ACROSS COUNTRIES AMONG CROSS-BORDER MERGING BANKS

he test is the p–value of a one–tailed t–test on equal means in both groups. Duan's ML method applied to obtain B/V values.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Austria (1)	-													
Belgium (2)	**0.030**	-												
Denmark (3)	-	-	-											
Finland (4)	-	-	-	-										
Luxembourg (5)	0.193	**0.040**	-	-	-									
Netherlands (6)	**0.004**	**0.002**	-	-	**0.002**	-								
Portugal (7)	**0.028**	**0.016**	-	-	**0.035**	**0.005**	-							
Sweden (8)	0.304	**0.044**	-	-	**0.020**	**0.004**	**0.040**	-						
Ireland (9)	**0.010**	**0.008**	-	-	0.452	**0.012**	0.106	**0.030**	-					
United Kingdom (10)	**0.002**	**0.001**	-	-	**0.026**	**0.004**	**0.002**	**0.002**	**0.004**	-				
Spain (11)	**0.004**	**0.004**	-	-	**0.002**	**0.007**	**0.008**	**0.006**	**0.008**	**0.004**	-			
France (12)	**0.004**	**0.005**	-	-	**0.004**	0.262	**0.006**	**0.004**	**0.005**	**0.018**	**0.018**	-		
Italy (13)	0.088	**0.028**	-	-	**0.003**	**0.004**	0.172	0.090	**0.019**	**0.002**	**0.006**	**0.007**	-	
Germany (14)	**0.014**	**0.011**	-	-	**0.005**	**0.012**	0.072	**0.033**	0.326	**0.005**	**0.012**	**0.005**	**0.023**	-

TABLE 2E. MEAN-DIFFERENCE TESTS: DIFFERENCES IN IPP ACROSS COUNTRIES AMONG CROSS-BORDER MERGING BANKS

he test is the p–value of a one–tailed t–test on equal means in both groups. Duan's ML method applied to obtain B/V values.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Austria (1)	-													
Belgium (2)	**0.014**	-												
Denmark (3)	-	-	-											
Finland (4)	-	-	-	-										
Luxembourg (5)	**0.005**	**0.006**	-	-	-									
Netherlands (6)	**0.008**	**0.007**	-	-	**0.008**	-								
Portugal (7)	**0.007**	**0.010**	-	-	**0.010**	0.301	-							
Sweden (8)	**0.012**	**0.011**	-	-	**0.008**	0.319	0.305	-						
Ireland (9)	**0.008**	**0.010**	-	-	**0.011**	0.326	0.363	0.303	-					
United Kingdom (10)	**0.010**	**0.011**	-	-	**0.003**	0.431	**0.008**	**0.006**	**0.006**	-				
Spain (11)	**0.018**	**0.018**	-	-	**0.006**	**0.003**	0.119	0.340	0.351	**0.003**	-			
France (12)	0.060	0.052	-	-	**0.003**	0.287	**0.014**	**0.014**	**0.015**	**0.011**	**0.016**	-		
Italy (13)	**0.012**	**0.013**	-	-	**0.005**	**0.010**	**0.006**	**0.006**	**0.004**	0.251	**0.010**	**0.015**	-	
Germany (14)	**0.003**	**0.005**	-	-	**0.008**	**0.006**	**0.008**	**0.010**	**0.011**	**0.003**	**0.007**	**0.002**	**0.003**	-

TABLE 2F. MEAN-DIFFERENCE TESTS: DIFFERENCES IN σ_V ACROSS COUNTRIES AMONG CROSS-BORDER MERGING BANKS

he test is the p–value of a one–tailed t–test on equal means in both groups. Duan's ML method applied to obtain B/V values.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Austria (1)	-													
Belgium (2)	**0.004**	-												
Denmark (3)	-	-	-											
Finland (4)	-	-	-	-										
Luxembourg (5)	**0.002**	**0.003**	-	-	-									
Netherlands (6)	**0.001**	0.312	-	-	**0.005**	-								
Portugal (7)	**0.009**	**0.006**	-	-	**0.004**	**0.013**	-							
Sweden (8)	**0.005**	**0.002**	-	-	**0.003**	**0.004**	**0.008**	-						
Ireland (9)	**0.005**	**0.008**	-	-	**0.001**	**0.015**	**0.006**	**0.001**	-					
United Kingdom (10)	**0.001**	**0.001**	-	-	**0.010**	**0.001**	**0.003**	**0.001**	**0.005**	-				
Spain (11)	0.032	**0.005**	-	-	**0.007**	**0.013**	0.087	**0.003**	**0.007**	**0.001**	-			
France (12)	**0.009**	**0.010**	-	-	**0.005**	**0.019**	0.071	**0.004**	**0.008**	**0.004**	**0.040**	-		
Italy (13)	**0.005**	**0.006**	-	-	**0.020**	**0.012**	**0.002**	**0.003**	**0.020**	**0.002**	**0.007**	**0.008**	-	
Germany (14)	0.055	**0.008**	-	-	**0.005**	**0.013**	**0.103**	**0.005**	**0.013**	**0.001**	0.593	**0.031**	**0.006**	-

TABLE 3. CORRELATIONS BETWEEN B/V AND IPP ACROSS COUNTRIES FOR THREE GROUPS OF BANKS

	RV	*ML*
TDFU BANKS	*-0.629*	*-0.723*
CROSS-BORDER MERGING BANKS	*-0.721*	*-0.805*
OTHER BANKS (excluding TDFU and cross-border merging banks)	*-0.302*	*-0.439*

TABLE 4
MEAN LEVERAGE RATIOS (B/V), MEAN FAIR PREMIUM (IPP), AND VOLATILITY OF RETURN ON ASSETS (σ_V): ALL BANKS, TDFU BANKS AND CROSS-BORDER MERGING BANKS

Country	**B/V (%)**		**IPP (%)**		**σ_V (%)**	
	RV	ML	RV	ML	RV	ML
OTHER BANKS (excluding TDFU and cross-border merging banks)	83.3	85.5	0.150	0.129	1.963	1.626
TDFU BANKS	89.3	92.3	0.198	0.171	1.721	1.502
CROSS-BORDER MERGING BANKS	90.1	93.1	0.226	0.196	1.662	1.410
Pre-merger	88.1	91.9	0.194	0.162	1.433	1.205
Post-merger	92.0	95.5	0.238	0.201	1.878	1.583
Mean difference tests: OTHER BANKS vs. TDFU BANKS	0.004	0.003	0.002	0.002	0.003	0.002
Mean difference tests: OTHER BANKS vs. CROSS-BORDER MERGING BANKS	0.003	0.002	0.001	0.001	0.002	0.001
Mean difference tests: TDFU BANKS vs. CROSS-BORDER MERGING BANKS	0.192	0.228	0.217	0.233	0.226	0.263

All estimated parameters are significant at the 1% level
The test statistics report the p–value of a one–tailed t–test of the hypothesis that the means are equal for the indicated groups.

TABLE 5
SINGLE-EQUATION ESTIMATES OF THE EFFECTIVENESS OF SAFETY-NET CONTROL IN THE EU-12 INCLUDING ASSET SIZE AS A REGRESSOR

Fixed-effects panel regressions relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair deposit insurance premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$. B is the face value of bank's debt, including deposits. V is the market value of bank assets. The second and third columns report the value of α_1 and β_1, respectively.
The errors are clustered at the firm level

	$\Delta(B/V)$		ΔIPP	
	RV	ML	RV	ML
$\Delta\sigma_V$	-0.003** (-32.15)	-0.005** (-44.85)	0.005** (24.19)	-0.009** (-36.71)
Size	0.015** (26.18)	0.012** (31.01)	-0.010** (-19.37)	-0.013** (22.23)
$\Delta\sigma_V$ *X cross-border M&A dummy*	-0.016** (-4.17)	-0.019** (6.33)	0.013** (3.81)	0.018** (5.88)
Observations	13104	13104	13104	13104
R^2	0.498	0.565	0.621	0.690

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 6
PRE- AND POST-MERGER RISK-SHIFTING BEHAVIOUR AT CROSS-BORDER MERGING BANKS

Fixed-effects panel regressions relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair deposit insurance premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$. B is the face value of bank's debt, including deposits. V is the market value of bank assets. The first entries of the second and third columns report the value of α_1 and β_1, respectively.

Pre-Merger				
	Δ(B/V)		***ΔIPP***	
	RV	ML	RV	ML
$\Delta\sigma_V$	-0.012** (-3.93)	-0.019** (5.95)	0.008** (6.16)	0.010** (8.27)
Observations	292	292	292	292
R^2	0.752	0.789	0.841	0.886
Post-Merger				
	Δ(B/V)		***ΔIPP***	
$\Delta\sigma_V$	-0.022* (-2.41)	-0.036** (3.58)	0.016** (7.74)	0.015** (7.87)
Observations	155	155	155	155
R^2	0.614	0.757	0.740	0.744
TEST OF THE DIFFERENCES IN $\Delta\sigma_V$ BETWEEN PRE AND POST-MERGER PERIODS (p-value)	0.004	0.002	0.003	0.003

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 7
PRE-MERGER RISK-SHIFTING AT CROSS-BORDER MERGING BANKS: ACQUIRING VS. ACQUIRED BANKS

Fixed-effects panel regressions relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair deposit insurance premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$. B is the face value of bank's debt, including deposits. V is the market value of bank assets. The second and third columns report the value of α_1 and β_1, respectively.
Errors are clustered at the firm level

	$\Delta(B/V)$		ΔIPP	
	RV	ML	RV	ML
$\Delta\sigma_V$	-0.008** (-7.18)	-0.010** (11.35)	0.003** (2.96)	0.005** (2.99)
$\Delta\sigma_V$ *X acquiring banks dummy*	-0.015** (-5.92)	-0.019** (-8.35)	0.008* (2.14)	0.005** (3.23)
Size	0.012** (24.15)	0.016** (30.18)	-0.009** (13.53)	-0.010* (2.30)
Observations	13104	13104	13104	13104
R^2	0.584	0.696	0.695	0.702

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 8

SELECTION EQUATION FOR CBM BANKS: FIXED-EFFECTS PROBIT REGRESSIONS FOR EACH SAMPLE YEAR AND 1993-2004 EXPLAINING THE CBM-BANK DUMMY (1=CROSS-BORDER MERGING BANK; 0=NON-MERGING BANK) AS A FUNCTION OF SELECTED BANK CHARACTERISTICS.

σ_V , IPP and B/V correspond to Duan's ML estimations

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	**1993-2004**
IPP	1.362**	1.215**	1.102**	1.415**	1.886**	1.632**	1.693**	1.763**	1.709**	1.564**	1.311**	1.644**	**1.719****
	(3.30)	(5.02)	(4.98)	(3.75)	(3.62)	(4.62)	(5.63)	(6.82)	(6.52)	(3.22)	(5.20)	(5.84)	**(4.96)**
B/V	-2.158**	-2.256**	-3.329**	-2.226*	-3.114**	-3.251**	-3.225*	-3.623**	-3.339**	-4.202**	-3.417**	-3.947**	**-2.822****
	(-3.51)	(-2.78)	(-5.64)	(-2.25)	(-4.08)	(-4.24)	(-2.22)	(-4.61)	(-9.59)	(-8.62)	(-6.74)	(-8.05)	**(-8.55)**
Bank size	0.064**	0.077**	0.093*	0.072**	0.075**	0.062**	0.086**	0.180*	0.078*	0.041*	0.138**	0.092*	**0.091****
	(2.86)	(2.72)	(2.20)	(5.16)	(8.62)	(5.44)	(8.02)	(2.19)	(2.19)	(2.19)	(3.17)	(5.31)	**(6.18)**
Bank inefficiency	0.010	0.015	0.016	0.040	0.019	0.029	0.049	0.044	0.063	0.024	0.032	0.031	**0.038**
	(0.58)	(0.15)	(0.60)	(0.55)	(0.42)	(0.16)	(0.32)	(0.62)	(0.41)	(0.60)	(0.71)	(0.20)	**(0.74)**
Bank capitalization	-0.019**	-0.017**	-0.031**	-0.030*	-0.021**	-0.017**	-0.061**	-0.095**	-0.096**	-0.044**	-0.061**	-0.072*	**-0.063****
	(-3.28)	(-3.33)	(-3.85)	(-2.24)	(-2.75)	(-2.92)	(-5.63)	(-7.19)	(-4.85)	(-3.96)	(-3.80)	(-9.05)	**(-4.51)**
Bank liquidity	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	**0.001**
	(0.89)	(1.28)	(1.93)	(1.03)	(1.01)	(1.10)	(1.45)	(1.18)	(1.05)	(0.90)	(1.21)	(1.18)	**(1.40)**
Intangible capital ratio	15.20**	14.62**	18.56**	15.75**	19.32**	11.52**	12.03**	18.08**	14.16**	14.01**	16.11**	14.82**	**17.62****
	(2.19)	(3.85)	(5.48)	(3.93)	(6.61)	(5.06)	(6.93)	(6.33)	(6.08)	(4.67)	(7.27)	(9.33)	**(4.22)**
Non-deposit debt ratio	1.54**	1.19**	1.19**	1.01**	1.35**	1.62**	1.44**	1.55**	1.39**	1.55**	1.53**	1.25**	**1.38****
	(6.88)	(4.63)	(3.61)	(8.02)	(3.28)	(9.02)	(2.95)	(5.67)	(5.86)	(6.15)	(6.42)	(5.94)	**(5.16)**
Ownership concentration	0.119	0.145	0.102	0.213	0.163	0.085	0.118	0.159	0.152	0.145	0.217	0.171	**0.193**
	(0.11)	(0.58)	(0.78)	(0.31)	(0.61)	(0.32)	(0.38)	(0.32)	(0.25)	(0.31)	(0.82)	(0.67)	**(0.50)**
Observations	1325	1296	1215	1137	1103	1064	1032	1008	998	992	971	963	**13104**
Log-likelihood	-488.25	-496.32	-441.14	-492.02	-698.23	-632.06	-772.19	-696.18	-696.16	-684.11	-688.80	-678.73	**-624.44**
Fraction of correct predictions	0.95	0.94	0.96	0.97	0.98	0.99	0.99	0.99	0.98	0.98	0.99	0.99	**0.99**

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 9
PRE- AND POST-MERGER RISK-SHIFTING AT CROSS-BORDER MERGING BANKS

Fixed-effects panel regressions relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair deposit insurance premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$**.** *B* is the face value of bank's debt, including deposits. *V* is the market value of bank assets. The second and third columns report the value of α_1 and β_1, respectively.
σ_V , IPP and B/V correspond to Duan's ML estimations
Errors are clustered at the firm level

	$\Delta(B/V)$	ΔIPP
$\Delta\sigma_V$	-0.020** (-5.62)	0.017** (4.72)
Lambda (Mills ratio)	-0.024** (-3.18)	-0.018** (-5.77)
$\Delta\sigma_V$ *X pre-merger dummy*	-0.005** (18.01)	0.003** (7.93)
Size	0.011** (10.88)	-0.006** (-8.89)
Observations	13104	13104
R^2	0.90	0.93

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 10

SELECTION EQUATION FOR ACQUIRING BANKS: FIXED-EFFECTS PROBIT REGRESSIONS FOR EACH YEAR AND FOR 1993-2004 EXPLAINING THE ACQUIRING-BANKS DUMMY (1=ACQUIRING BANK; 0=TARGET BANK) AS A FUNCTION OF SELECTED BANK CHARACTERISTICS.

σ_V , IPP and B/V correspond to Duan's ML estimations

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	**1993-2004**
IPP	0.936*	0.863**	1.058**	1.096*	1.093	1.004*	1.349**	1.358**	1.202**	1.239**	1.392**	1.293**	**1.156****
	(1.97)	(3.32)	(5.25)	(1.92)	(1.62)	(2.31)	(1.76)	(6.32)	(5.15)	(6.03)	(4.18)	(3.33)	**(4.62)**
B/V	0.084	0.035	0.099	0.074	1.018	1.112	1.085	1.019	0.988	1.018	1.225	1.094	**1.014**
	(0.63)	(0.72)	(0.85)	(1.02)	(0.62)	(0.71)	(0.65)	(1.04)	(1.16)	(0.71)	(1.28)	(1.06)	**(0.99)**
Bank size	-0.016	-0.014	-0.018	-0.036	-0.015	-0.032	-0.012	-0.035	-0.018	-0.015	-0.064	-0.025	**-0.023**
	(-0.91)	(-0.36)	(-0.53)	(-0.92)	(-0.91)	(-0.94)	(-0.77)	(-0.85)	(-0.35)	(-0.98)	(-1.19)	(-0.93)	**(-0.96)**
Bank inefficiency	-0.072	-0.082	-0.036	-0.085	-0.074	-0.063	-0.092	-0.096	-0.099	-0.073	-0.106	-0.081	**-0.085**
	(-0.10)	(-0.03)	(-0.05)	(-0.18)	(-0.06)	(-0.19)	(-0.06)	(-0.42)	(-0.28)	(-0.19)	(-0.46)	(-0.17)	**(-0.18)**
Bank capitalization	-0.123**	-0.177**	-0.193*	-0.164*	-0.171*	-0.180**	-0.171*	-0.183*	-0.179**	-0.171**	-0.190*	-0.161**	**-0.164****
	(-3.71)	(-6.03)	(-2.12)	(-2.030)	(-1.93)	(-2.99)	(-2.26)	(-2.19)	(-5.82)	(-6.13)	(-2.15)	(-4.48)	**(-4.43)**
Bank liquidity	0.006**	0.008**	0.011**	0.006**	0.011**	0.008*	0.011**	0.010**	0.012**	0.010**	0.011**	0.010*	**0.009****
	(3.52)	(4.38)	(6.72)	(3.27)	(6.61)	(2.33)	(4.66)	(4.93)	(6.85)	(7.34)	(6.06)	(2.28)	**(5.53)**
Intangible capital ratio	12.018**	14.031**	13.512**	15.073**	16.923**	15.950**	14.941**	13.026**	18.021**	16.686**	17.018**	18.019**	**16.027****
	(3.03)	(4.62)	(3.02)	(2.66)	(2.73)	(2.96)	(3.83)	(2.92)	(6.19)	(4.88)	(4.54)	(6.155)	**(3.47)**
Non-deposit debt ratio	-1.14	-1.26	-0.89	-1.30	-1.36	-1.44	-1.19	-1.27	-1.20	-1.19	-1.10	-1.31	**-1.22**
	(-1.76)	(-1.83)	(-1.52)	(-1.02)	(-1.18)	(-1.33)	(-1.04)	(-1.86)	(-1.40)	(-1.71)	(-1.83)	(-1.27)	**(-1.80)**
Ownership concentration	-0.002	-0.004	-0.007	-0.005	-0.006	-0.004	-0.007	-0.007	-0.006	-0.005	-0.007	-0.006	**-0.006**
	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	(-0.01)	**(-0.01)**
Observations	32	31	33	33	34	37	42	40	39	43	42	41	**447**
Log-likelihood	-96.18	-117.06	-115.83	-144.28	-168.33	-150.19	-175.25	-182.32	-188.36	-162.19	-186.70	-181.01	**-178.34**
Fraction of correct predictions	0.59	0.60	0.61	0.63	0.66	0.68	0.71	0.68	0.72	0.67	0.70	0.69	**0.67**

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 11
DIFFERENCES IN PRE-MERGER RISK-SHIFTING AT ACQUIRING VS. ACQUIRED CBM BANKS

Fixed-effects panel regressions relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair deposit insurance premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$**.** *B* is the face value of bank's debt, including deposits. *V* is the market value of bank assets. The second and third columns report the value of α_1 and β_1, respectively.
σ_V , IPP and B/V correspond to Duan's ML estimations
Errors are clustered at the firm level

	$\Delta(B/V)$	ΔIPP
$\Delta\sigma_V$	-0.006**	0.006**
	(-5.16)	(3.06)
Lambda (Mills ratio)	-0.035**	-0.020**
	(-5.99)	(-3.58)
$\Delta\sigma_V$ *X acquiring banks dummy*	-0.016**	0.009**
	(-4.58)	(2.79)
Bank Size	0.009**	-0.006**
	(24.33)	(18.45)
Observations	13104	13104
R^2	0.69	0.75

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 12
PRE- AND POST-MERGER RISK-SHIFTING AT CROSS-BORDER MERGING BANKS WITH HECKMAN'S CORRCTION FOR SELECTION BIAS

Second-step panel regressions relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$, and to the *Lambda* parameter (inverse Mills ratio estimated from the selection equation shown at the bottom of the table). *B* is the face value of bank's debt, including deposits. *V* is the market value of bank assets. The second and third columns report the value of α_1 and β_1, respectively. σ_V *, IPP and B/V correspond to Duan's ML estimations*
Errors are clustered at the firm level

Pre-Merger		
	Δ(B/V)	***ΔIPP***
$\Delta\sigma_V$	-0.006** (-4.88)	0.004** (6.99)
Lambda (Mills ratio)	-0.005* (-2.96)	-0.016** (-6.86)
Bank Size	0.028** (31.05)	-0.004** (10.12)
Observations	292	292
R^2	0.98	0.97
Post-Merger		
	Δ(B/V)	***ΔIPP***
$\Delta\sigma_V$	-0.018** (-25.37)	0.013** (20.02)
Lambda (Mills ratio)	-0.161** (-9.15)	-1.394** (-18.16)
Bank Size	0.022** (20.03)	-0.009** (12.89)
Observations	155	155
R^2	0.89	0.86
Selection equation: Probit estimations with fixed-effects relating a cross-border merging banks' dummy (1=cross-border merging bank; 0=non-merging bank) to selected bank characteristics.		
IPP	1.739** (4.64)	
B/V	-4.137** (-7.21)	
Bank size	0.105** (7.05)	
Bank inefficiency	0.018 (0.93)	
Bank capitalization	-0.084** (-6.88)	
Bank liquidity	0.001 (1.22)	
Intangible capital ratio	14.14** (5.21)	
Non-deposit debt ratio	1.68** (8.96)	
Ownership concentration	-0.196 (-0.10)	
Observations	13104	
Log-likelihood	-564.05	
Fraction of correct predictions	0.99	

NOTE: Pre-merger banks are considered as a pro-forma combination of the values or partner merging banks in the pre-merger period.

* Statistically significant at 5% level
** Statistically significant at 1% level

TABLE 13
PRE-MERGER RISK-SHIFTING AT CROSS-BORDER MERGING BANKS WITH HECKMAN'S CORRECTION FOR SELECTION BIAS: ACQUIRING VS. TARGET BANKS

Second-step panel data estimations relating changes in a bank's leverage, ($\Delta B/V$), and changes in its fair deposit insurance premium, ΔIPP, to the riskiness of its assets, $\Delta\sigma_V$. and to the *Lambda* parameter (inverse Mills ratio estimated from the selection equation shown at the bottom of the table). *B* is the face value of bank's debt, including deposits. *V* is the market value of bank assets. The second and third columns report the value of α_1 and β_1, respectively. σ_V , *IPP and B/V correspond to Duan's ML estimations*
Errors are clustered at the firm level

Acquiring bank		
	Δ(B/V)	***ΔIPP***
$\Delta\sigma_V$	-0.015** (-2.96)	0.018* (1.99)
Lambda (Mills ratio)	-0.084** (-16.44)	-0.133** (-3.74)
Bank size	0.012** (16.94)	-0.004** (3.85)
Observations	282	282
R^2	0.98	0.96
Target bank		
	Δ(B/V)	***ΔIPP***
$\Delta\sigma_V$	-0.003** (-18.46)	0.028** (14.43)
Lambda (Mills ratio)	-0.048** (-7.19)	-0.295** (-18.68)
Bank size	0.004** (5.96)	-0.004** (7.33)
Observations	165	165
R^2	0.89	0.85

Selection equation: Probit estimations with fixed-effects relating the acquiring vs. acquired banks dummy (1=acquiring bank; 0=target bank) to selected bank characteristics.

IPP	1.133** (4.61)
B/V	1.015 (0.84)
Bank size	-0.020 (-0.42)
Bank inefficiency	-0.096 (-0.18)
Bank capitalization	-0.199** (-8.02)
Bank liquidity	0.011** (7.56)
Intangible capital ratio	16.046* (2.31)
Non-deposit debt ratio	-1.29 (-1.71)
Ownership concentration	-0.004 (-0.02)
Observations	447
Log-likelihood	-190.10
Fraction of correct predictions	0.69

* Statistically significant at 5% level
** Statistically significant at 1% level

APPENDIX: VARIABLES DEFINITION

- *IPP*, "fair" insurance premium, defined as the per-period flow of safety-net benefits that bank stockholders enjoy.
- *B/V*, leverage, measured as the ratio of the book value (*B*) of deposits and other debt to the market value of a bank's assets (*V*).
- σ_V:, volatility, defined as the standard deviation of the return on bank assets.
- *B*, total debt: computed as the difference between the book values of total assets and common equity.
- *E*, the market value of a bank's equity: computed as the end-of-period stock-market capitalization.
- σ_E, standard deviation of the return on equity: computed as the standard deviation of deleveraged quarterly holding-period returns on stock.
- δ, fraction of bank assets distributed yearly as dividends to stockholders.
- *Bank size*, defined as the logarithm of bank total assets.
- *Bank inefficiency*, measured as the ratio "operating costs/net income".
- Bank capitalization, measured as the ratio "capital/total assets".
- Bank liquidity, measured as the ratio "liquid assets/deposits & short-term funding".
- Intangible capital ratio: net intangible assets/total assets.
- Non-deposit debt ratio: non-deposit debt/total debt.
- Ownership concentration: percentage of the bank value of total shares which belong to companies or shareholders that own a portion of voting shares higher than 20%.

These variables are taken directly from the Bankscope database, provided by Bureau Van Dijk.