Online Appendix

Banks, Government Bonds, and Default: What do the Data Say?

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This Online Appendix presents the details of a number of analyses and robustness tests that are referred to in the main paper. Section A1 analyses the implication of measuring bonds at book value, as it is done by our data source BANKSCOPE, as opposed to market value. Section A2 reports additional statistical analyses and robustness tests.

A.1 Book Value v. Market Value Measures of Bonds

As we pointed out, BANKSCOPE measures bondholdings at book value. It is important to discuss the effects that this may have on our empirical exercise. First, book values are critical for regulation and for bank operations and they are likely to be important determinants of bank lending. As a result, they are highly relevant for their own sake. Second, book value data is arguably better than market value data for analyzing the relationship between bondholdings and lending. Using market value data, it would be impossible to tell whether the negative correlation between bondholdings and bank lending is due to changes in the relative price of government bonds and loans or whether it actually reflects a decline in lending. It is true, though, that market values provide a more accurate economic measure of a bank's true exposure to government defaults. Insofar as we wish to assess the role of such exposure (rather than the role of book values per se), it is important to understand under what specific circumstances book values can be viewed as providing a good proxy for market values.

In normal times, away from default episodes, the price of bonds is fairly stable. As a result, book and market value measures during these times are likely to be similar to one another, both providing an accurate description of a bank's exposure to government default. This is important. It suggests that our measures of bonds purchased outside of crises are not significantly contaminated by fluctuations in the market value of bonds. In Section 3.1 we show that our coefficient estimates are very robust when we restrict our analysis to the bonds that banks bought well before sovereign crises. This indicates that our results are not due to the discrepancy between the market and book value of bonds.

Around default episodes, book and market values can in principle be far apart, because in these periods the prices of government bonds and of other assets in the bank´s balance sheet vary substantially. Here book value measurement may over- or under-state the exposure of banks relative to market value measurement. In particular, the book value of bonds will tend to overstate the market value of bonds if during crises bond prices drop more than the price of other bank assets. Book values will instead understate market values if the reverse is true.

To see this formally, let q_t and p_t respectively denote the average market price of bonds and the average market price of all bank assets in year t. Suppose that time t is the time at which sovereign default risk materializes. Until time $t-1$, the economy is instead assumed to be in tranquil times. Then, the book value measure of bonds at t is $BV_t = \frac{q_{t-1}b_{t-1}+q_t\Delta b}{p_{t-1}a_{t-1}+p_t\Delta a}$. In this expression, b_{t-1} and a_{t-1} denote the

quantities of bonds and bank assets in year $t-1$, while Δb and Δa are the quantity changes between years $t-1$ and t.[1] The bank's true risk exposure at t, measured using market values, is instead equal to $MV_t = \frac{q_t(b_{t-1}+\Delta b)}{p_t(a_{t-1}+\Delta a)}$. Under market value accounting, all assets are evaluated using current market prices. After some algebra, one can find that the two measures are linked as follows:

$$MV_t = BV_t\left[\left(\frac{p_{t-1}-p_t}{a_{t-1}+\Delta a}\right)\frac{a_{t-1}}{p_t}+1\right]-\left(\frac{q_{t-1}-q_t}{a_{t-1}+\Delta a}\right)\frac{b_{t-1}}{p_t}. \quad (1)$$

Inspection of this equation allows us to formally derive our previous claims. First, if the price of bonds and assets is fairly stable (i.e., $q_{t-1} \approx q_t$ and $p_{t-1} \approx p_t$) the measures of book and market value will tend to be similar. Thus, as we already discussed, in tranquil times the book value measure will provide a good proxy of its market value counterpart. Second, whether the book market measure over- or under-estimates the market value measure during default episodes depends crucially on the fluctuation in the price of bonds relative to that of other assets held by banks. This allows us to compute an empirically implementable measure of the discrepancy between the book and the market value of bonds. To obtain such measure, note that if a bank's book and market values of bondholdings roughly coincide during normal times, i.e., $BV_{t-1} \approx MV_{t-1}$, and there is a sovereign default in period *t*, the book value of bonds over-estimates their market value ($BV_t > MV_t$) if and only if:

$$\frac{BV_t}{BV_{t-1}} < \frac{(q_{t-1}-q_t)/q_{t-1}}{(p_{t-1}-p_t)/p_{t-1}}. \quad (2)$$

Thus, book value of bonds over-estimates their market value when the growth of the book value is lower than the drop in bond prices relative to the drop in asset prices. Intuitively, if the drop in the price of government bonds is larger than the drop in the price of other bank assets, there is a tendency for the market value of bonds to drop more than their book value. In this case, equation (2) is likely to hold and book value over-states market value. If instead the drop in bond prices is lower than the drop in the price of other assets, Equation (2) is likely to be violated and book value under-states market value.

To assess the problems of book value measurement during default, we compute the empirical proxy to each side of Equation (2) in our data. For each bank, we use the BANKSCOPE measure of bondholdings to compute the left hand side of the expression for the first year of default. As for the right hand side, we compute the numerator using our bond return index, while we assess the denominator by using the change in the bank's (quasi-) market value of assets, which is the sum of the bank's stock market capitalization and the book value of its liabilities, during the first year of default. Theory tells us that this last measure should in fact depend on the change in the market value of all bank assets. The change in the (quasi-)market value of assets indeed proxies for the change in the market value of all bank assets (reliable data on the change in the market value of liabilities are unavailable for the main default episodes in our sample).[2]

Using this method, we compute empirical proxies for the right and left-hand sides of Equation (2) for a sample of 30 publicly listed banks in Argentina, Greece, Ecuador, and Indonesia in their first year of

[1] Note that, precisely because until $t-1$ we are in tranquil times, we can safely assume that the average book values of bonds and other banks assets at $t-1$ are equal to the market prices q_{t-1} and p_{t-1} of these assets at $t-1$. In general terms, the average book value of assets is a weighted average of past market prices.

[2] While this proxy is imperfect, as market values of debt might fall more than book values in a sovereign default, it is a standard proxy in the corporate finance literature whenever market values of debt are not observed.

default. Figure A1 plots the difference between the computed LHS and the RHS of Equation (2) for these 30 banks, as a function of their bond-to-assets ratio.

[Figure A1 here]

Our quantification reveals two noteworthy aspects. First, according to our calculations, the LHS and RHS of the Equation (2) are fairly close to each other, indicating that the discrepancies between book and market values are unlikely to be very large. In our sample, the average estimation error is 0.14% of the banks' bonds-to-assets ratio (median 0.62%, standard deviation 2.73%): these are very small numbers. Second, in about two thirds of the cases the above inequality is violated, implying that the book measure of bank bondholdings actually underestimates banks' exposure to government bonds at market value. In the remaining one third of the cases, the opposite is true.[3]

These considerations notwithstanding, we stress once again that – as will be shown in Section 3.1 – the negative correlation between bank bondholdings and lending during sovereign defaults is significant also when we restrict ourselves to average bondholdings held by banks in the years prior to a default. This is important because any discrepancies between book and market values are likely to be small when averaged over many "normal" or non-default years. As a result, as we conclude in Section 3.1, our findings on the relationship between bondholdings and bank lending are unlikely to be spuriously driven by our use of book values.

A.2 Additional Analyses and Robustness Tests

Table A1 presents pair-wise correlations among the variables used in the analysis. Table A2 lists the default events that we consider in our empirical analysis. Table A3 describes our variables and their sources. Table A4 reports descriptive statistics on realized sovereign bond returns.

Table A5 presents results related to the estimation of Equation (1) in the paper, namely, the first stage of our estimation of expected sovereign bond returns, whereby realized sovereign returns are regressed on economic, financial, and political risk scores provided by the International Country Risk Guide (in the following ICRG). High ICRG scores signal low risk, and the literature (e.g., Comelli, 2012) has shown that they predict low subsequent returns.

The purpose of this exercise is very narrow, as we simply want to determine whether, in our sample, the country risk measures provided by the ICRG constitute valid instruments and can thus be used to construct our proxy of expected government bond returns. Our purpose is not to determine whether future government bond returns are predictable using current information publicly available to investors,

[3] Figure A2 suggests that the inequality is mostly violated – and thus book values understate exposure to sovereign risk – for banks holding low levels of government bonds to begin with. Hence, book values mostly understate the exposure of banks having low levels of government bonds. As a result, dispersion in book values is likely to be larger than dispersion in market values of bondholdings. This suggests that, if anything, the coefficient on bondholdings in our loan regressions is likely to be lower than the one that would arise if loans were to be regressed on the market value of bonds. Importantly, the logic here also applies to the issue of bonds held in the trading or in the banking book of bonds. Indeed, when there is little difference between book value and market value then it is also of little consequence whether the bonds are held in the banking or in the trading book. In any event, as noted by Acharya et al. (2014) in their Table I, EU banks on average hold 85% of them in their *banking book*, not in the trading book. The importance of the banking book is likely even larger in the developing economies, which represent the focus of our analysis and the bulk of defaults in our sample.

which is discussed for example in Comelli (2012) and others. As a result, among other things, we are not concerned about the out-of-sample properties of our instruments.

Table A5 present the results of the first stage estimation of sovereign returns. The first three columns present the univariate correlation of annual government bond returns at year t with the economic, political, and financial risk score measured at year t-1, respectively. The correlations are large and strongly statistically significant. A higher score implies less risk, so for example, a 1-percent increase in the economic risk score translates into a 0.31% lower government return; and a 1-percent increase in the economic risk score translates into a 0.27% lower government return. Importantly for our purposes, the F-test in these three columns is very high, around 10 or higher, which suggests that our instruments are unlikely to be weak according to the 'rule-of-thumb' proposed by Stock and Yogo (2005). By comparison, column (4) present the result of regressing government bond returns at t on past returns at t-1. While there is also a negative and significant univariate correlation, the F-test is around 3, indicating that past government bond returns is a likely weak instrument, and as a result we do not use it in our analysis.

Column (5) presents the specification that we use in the empirical analysis as the first stage of Table 5, in Columns 3 and 5. We use as instruments the economic score and the political score, and we include time dummies to capture variations in the global riskless interest rate. It turns out that our results in Table 5 are not sensitive to the choice of any combination of instruments, within the three risk scores of ICRG.

The remainder of the table shows that in-sample predictability comes from both the cross section and the time series, that is, our coefficients of interest remain strongly significant when adding time dummies and country dummies; and our main specification is also robust to the inclusion of past returns as an additional explanatory variable.

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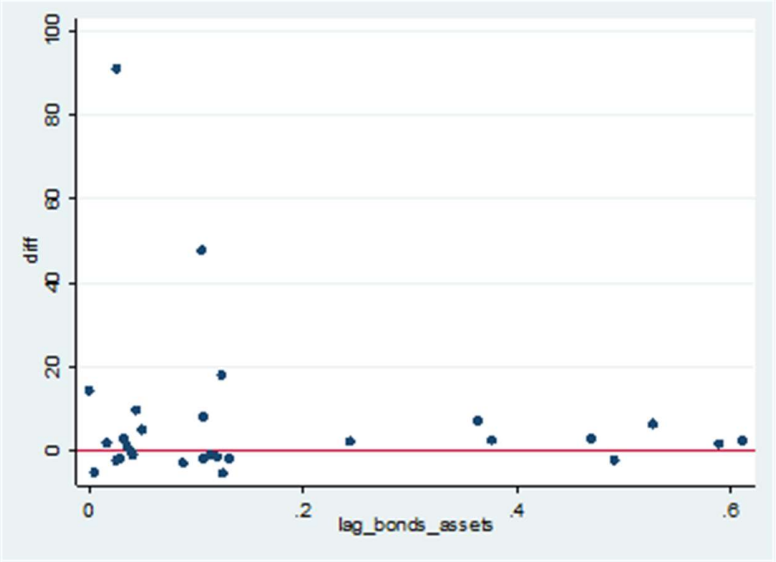

Figure A1. Book Value and Market Value Measurement in Default. The figure plots the empirical proxy for the quantity defined in Equation (2) for 30 banks in five defaulting countries (Argentina 2001-2004, Russia 1998-2000, Ecuador 1998-2000 and 2009, Greece 2012, Indonesia 1998-2000 and 2002). Above the horizontal line at 0 is the region where book value under-estimates the banks' exposure to government bonds at market value. Below the horizontal line at 0 the reverse occurs.

Table A1 – Pair-wise Correlations

The table reports pair-wise correlations among the main variables used in the empirical analysis. *** indicates significance at the 1% level; ** indicates significance at the 5% level; * indicates significance at the 10% level.

	Bonds	Bank Size	Non-cashAssets	Leverage	Loans	Profitability	Exposure	Balances
Banks size	-0.063***							
Non-cash assets	-0.835***	0.202***						
Leverage	-0.141***	0.335***	0.207***					
Loans	-0.376***	0.016***	0.202***	0.238***				
Profitability	0.102***	0.059***	-0.071***	-0.286***	-0.100***			
Exposure to Central Bank	0.096***	0.209***	-0.374***	-0.218***	-0.231***	0.140***		
Interbank Balances	-0.136***	-0.087***	0.117***	-0.173***	-0.553***	0.061***	0.367***	
Government Owned	0.082***	0.141***	-0.026***	-0.031***	-0.073***	0.009***	0.027***	0.022***

Table A2 – Default Episodes and Bank-Years in Default in our Sample

The table reports episodes of sovereign defaults over 1998-2012 for which we observe bank-level data from BANKSCOPE. A default episode is an uninterrupted sequence of years in default by a country. Default S&P reports the years in which a country is in default according to the definition of sovereign default by Standard & Poor's, which is based on whether an outstanding debt issue is not repaid in full, or is renegotiated with worse terms for the creditors. Haircut is the average creditors' haircuts from the work of Cruces and Trebesch (2013) and Zettelmeyer et al. (2012). Spread or Default considers countries with available data on sovereign spreads and reports the years in which a country is in default according to whether at least once in a given year the spreads of the sovereign bond with the corresponding U.S. or German bonds exceed a given threshold; or it is in default according to the S&P definition.

Country	Default S&P	Haircut	Spread or Default	No Bank-Years in any default	No Bank-Years In S&P Default	No Banks In any default
Argentina	2001-2004	76.8%	2001-2004	231	231	87
Ecuador	1998-2000; 2009	38.3%		8	8	8
Ethiopia	1998-1999	92.0%		2	2	1
Greece	2012	64.8%	2011-2012	12	6	9
Guyana	1998-2004	91.0%		20	20	3
Honduras	1998-2004	82.0%		79	79	21
Ireland			2011	7	0	7
Indonesia	1998-2000; 2002			17	17	13
Jamaica	2010			5	5	5
Kenya	1998-2004	45.7%		160	160	33
Nigeria	2002			41	41	41
Portugal			2011-2012	24	0	15
Russia	1998-2000	51.1%	1998-2000	40	40	31
Serbia	1998-2004	70.9%		2	2	2
Seychelles	2000-2002; 2010	56.2%	2010	1	1	1
Sudan	1998-2004			2	2	1
Tanzania	2004	88.0%		1	1	1
Ukraine	1998-2000	14.8%	1998-2001	17	14	8
Zimbabwe	2000-2004			6	6	3
Total				675	635	290
No Countries	17	12	7			
No Episodes	20	13	7			

Table A3 – Definition of the Variables used in the Analysis

Variable	Definition
Bank-level variables	
Assets	Total book value of assets. Source: BANKSCOPE.
Bondholdings	Total holding of government securities, including treasury bills, bonds and other government securities, divided by total assets. Source: BANKSCOPE.
Size	Natural logarithm of total assets. Source: BANKSCOPE.
Non-cash assets	Total assets minus cash and due from banks, divided by total assets. Source: BANKSCOPE.
Leverage	One minus book value of equity (issued share capital plus other shareholders fund) divided by total assets. Source: BANKSCOPE.
Loans	Total loans outstanding divided by total assets. Source: BANKSCOPE.
Profitability	Operating income divided by total assets. Source: BANKSCOPE.
Exposure to Central Bank	Total exposure to central bank divided by total assets. Source: BANKSCOPE.
Interbank Balances	Interest-earning balances with central and other banks, excluding impairment allowance, but including amounts due under reverse repurchase agreements, divided by total assets. Source: BANKSCOPE.
Government Owned	Dummy variable that equals 1 if the government owns more than 50% of the bank's equity. Source: BANKSCOPE.
Country-level variables	
Sovereign Default	Dummy variable that equals 1 if the sovereign issuer is in default. Sovereign default is defined as the failure to meet a principal or interest payment on the due date (or within the specified grace period) contained in the original terms of the debt issue. In particular, each issuer's debt is considered in default in any of the following circumstances: (i) For local and foreign currency bonds, notes and bills, when either scheduled debt service is not paid on the due date, or an exchange offer of new debt contains terms less favorable than the original issue; (ii) For central bank currency, when notes are converted into new currency of less than equivalent face value; (iii) For bank loans, when either scheduled debt service is not paid on the due date, or a rescheduling of principal and/or interest is agreed to by creditors at less favorable terms than the original loan. Such rescheduling agreements covering short and long term debt are considered defaults even where, for legal or regulatory reasons, creditors deem forced rollover of principal to be voluntary. Source: Standard & Poor's (2008).
Sovereign Bond Return	Index aggregating the realized returns of sovereign bonds of different maturities and denominations in each country. Returns are expressed in dollars. The index takes into account the change in the price of the bonds and it assumes that any cash received from coupons or pay downs is reinvested in the bond. Source: the J.P. Morgan's Emerging Market Bond Index Plus file (EMBIG+) for emerging countries; and the J.P. Morgan's Global Bond Index (GBI) file for developed countries.
GDP Growth	Logarithm of gross domestic product per capita (Atlas method). Source: World Development Indicators.
Exchange Rate Devaluation	Percent change in the exchange rate of the local currency relative to the U.S. Dollar. Source: International Monetary Fund, International Financial Statistics (September 2014).
Aggregate Leverage	Country-year average of bank-level leverage. Source: BANKSCOPE.
Banking Crisis	Dummy variable that equals 1 if the country is experiencing a banking crisis. Banking crisis is defined as a situation in which the net worth of the banking system has been almost or entirely eliminated. Source: Caprio and Klingebiel (2002) and the updated data by Caprio et al. (2005).
Unemployment Growth	Annual percentage change in unemployment. Source: World Development Indicators (September 2008).
Inflation	Annual percentage inflation, GDP deflator. Source: World Development Indicators (September 2008).
Creditor Rights	An index aggregating creditor rights, following La Porta et al. (1998). A score of one is assigned when each of the following rights of secured lenders are defined in laws and regulations: First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization. Second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e., there is no automatic stay or asset freeze. Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers. Finally, if management does not retain administration of its property pending the resolution of the reorganization. The index ranges from zero (weak creditor rights) to four (strong creditor rights) and is constructed as of January for every year from 1978 to 2003 following Djankov et al. (2007).
Private Credit	Ratio of credit from deposit taking financial institutions to the private sector (International Financial Statistics lines 22d and 42d) to GDP (International Financial Statistics line 99b), expressed as a percentage. Line 22d measures claims on the private sector by commercial banks and other financial institutions that accept transferable deposits such as demand deposits. Line 42d measures claims on the private sector given by other financial institutions that do not accept transferable deposits but that perform financial intermediation by accepting other types of deposits or close substitutes for deposits (e.g., savings and mortgage institutions, post office savings institutions, building and loan associations, certain finance companies, development banks, and offshore banking institutions). Source: International Monetary Fund, IFS (September 2008).
Economic Score	Rating of economic risk that reflects indicators such as GDP, GDP growth, inflation, and current account balance. It ranges between 0 and 50, where 0 represents the highest risk. Source: ICRG (2013).
Political Score	Rating of political risk that reflects sociopolitical indicators including government stability, socioeconomic conditions, internal or external conflict, corruption, law and order, and public accountability. It ranges between 0 and 100, where 0 represents the highest risk. Source: ICRG (2013).
Financial Score	Rating of financial risk that combines variables such foreign debt as a share of GDP, foreign debt services as a share of exports, and exchange rate stability. It ranges between 0 and 50, where 0 represents the highest risk. Source: ICRG (2013).

Table A4 – Sovereign Bond Returns in Defaulting and non-Defaulting Countries

The table presents descriptive statistics of realized government bond returns.

	Default	No Default	OECD	No OECD	Overall
Mean	14.46%	9.70%	7.62%	11.61%	9.81%
Std Deviation	58.61%	19.76%	12.34%	26.47%	21.37%
Variance	34.35%	3.90%	1.52%	7.01%	4.57%
No Countries	6	70	27	43	70
No Country-year obs.	18	764	353	429	782

Table A5 – First-Stage Estimation of Government Bond Returns

The table presents results from the first stage estimation of government bond returns. The instruments are the economic score, a rating of economic risk provided by the ICRG and normalized to be between 0 and 1; the political score, a rating of political risk provided by the ICRG and normalized to be between 0 and 1; and the financial score, a rating of financial risk provided by the ICRG and normalized to be between 0 and 1. Standard errors (in parentheses below the coefficient estimates) are adjusted for heteroscedasticity using the Huber (1967) and White (1980) correction. *** indicates significance at the 1% level; ** indicates significance at the 5% level; * indicates significance at the 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Economic Score$_{c,t-1}$	-0.311***				-0.251**	-0.477**	-0.363*	-0.451**
	(0.090)				(0.110)	(0.202)	(0.224)	(0.196)
Political Score$_{c,t-1}$		-0.221***			-0.148*	-0.416**	-0.435**	-0.553***
		(0.075)			(0.081)	(0.185)	(0.184)	(0.205)
Financial Score$_{c,t-1}$			-0.270***				-0.198	
			(0.082)				(0.186)	
Return$_{c,t-1}$				-0.143*				-0.184**
				(0.078)				(0.076)
Constant	0.328***	0.257***	0.300***	0.121***	0.189**	0.515***	0.611***	0.896***
	(0.070)	(0.059)	(0.064)	(0.013)	(0.087)	(0.151)	(0.185)	(0.194)
Time dummies?					Yes	Yes	Yes	Yes
Country dummies?						Yes	Yes	Yes
F-test	12.02	8.69	10.91	3.37	11.37			
No Observations	766	766	766	719	766	766	766	712
R-squared	0.020	0.018	0.013	0.022	0.239	0.290	0.292	0.336

Table A6 – Bondholdings, Sovereign Default, and Changes in Loans – Alternative Specifications

The table presents coefficient estimates from pooled OLS regressions. The dependent variable in Panel A is computed as loans outstanding in year t minus loans outstanding in year t-1, divided by total assets in year t-1. The dependent variable in Panel B is computed as the log of loans outstanding in year t minus the log of loans outstanding in year t-1. The main independent variable is bank bondholdings, computed as bondholdings divided by total assets. Standard errors (in parentheses below the coefficient estimates) are adjusted for heteroscedasticity using the Huber (1967) and White (1980) correction, as well as for clustering at the bank level using the Huber (1967) correction. *** indicates significance at the 1% level; ** indicates significance at the 5% level; * indicates significance at the 10% level.

Panel A – Dependent variable: changes in loans divided by lagged assets

	(1)	(2)	(3)	(4)	(5)
Bank Bondholdings$_{i,c,t-1}$ *	-0.397***	-0.434***	-0.207***	-0.252***	-0.164**
Sovereign Default$_{c,t-1}$	(0.061)	(0.066)	(0.057)	(0.066)	(0.076)
Bank Bondholdings$_{i,c,t-1}$	0.157***	0.164***	-0.013	-0.030**	-0.027*
	(0.012)	(0.012)	(0.014)	(0.014)	(0.014)
Sovereign Default$_{c,t-1}$	0.183***	0.179***	0.104***		
	(0.030)	(0.032)	(0.028)		
Loans$_{i,c,t-1}$ *	-0.258***	-0.243***	-0.256***	-0.252***	-0.194***
Sovereign Default$_{c,t-1}$	(0.047)	(0.049)	(0.044)	(0.052)	(0.059)
Loans$_{i,c,t-1}$	0.050***	0.058***	0.043***	0.048***	0.053***
	(0.007)	(0.006)	(0.006)	(0.006)	(0.008)
Other Controls and Interactions?					Yes
Year Dummies?		Yes	Yes	Yes	Yes
Country Dummies?			Yes	Yes	Yes
Country x Year Dummies?				Yes	Yes
Constant	0.023***	0.023***	0.041**	-0.406	-0.108
	(0.004)	(0.006)	(0.018)	(.)	(.)
No Observations	27,971	27,971	27,971	27,971	27,971
R-squared	0.012	0.170	0.305	0.472	0.476

Panel B – Dependent variable: changes in log (loans)

	(1)	(2)	(3)	(4)	(5)
Bank Bondholdings$_{i,c,t-1}$ *	-0.658***	-0.716***	-0.434***	-0.630***	-0.565***
Sovereign Default$_{c,t-1}$	(0.141)	(0.150)	(0.133)	(0.148)	(0.166)
Bank Bondholdings$_{i,c,t-1}$	0.301***	0.310***	0.065**	0.026	0.043
	(0.025)	(0.025)	(0.029)	(0.030)	(0.031)
Sovereign Default$_{c,t-1}$	0.299***	0.289***	0.233***		
	(0.058)	(0.062)	(0.052)		
Loans$_{i,c,t-1}$ *	-0.485***	-0.455***	-0.530***	-0.529***	-0.487***
Sovereign Default$_{c,t-1}$	(0.087)	(0.092)	(0.079)	(0.089)	(0.110)
Loans$_{i,c,t-1}$	-0.112***	-0.100***	-0.118***	-0.101***	-0.086***
	(0.015)	(0.015)	(0.014)	(0.015)	(0.016)
Other Controls and Interactions?					Yes
Year Dummies?		Yes	Yes	Yes	Yes
Country Dummies?			Yes	Yes	Yes
Country x Year Dummies?				Yes	Yes
Constant	0.134***	0.133***	0.189***	0.297***	0.214**
	(0.010)	(0.013)	(0.024)	(0.024)	(0.083)
No Observations	27,917	27,917	27,917	27,917	27,917
R-squared	0.034	0.174	0.284	0.448	0.451