

Risk Weighting of EU Government Bonds



REPORT by Dorothea Schäfer and Dominik Meyland

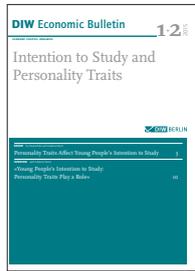
Stricter Capital Requirements for Investing
in EU Government Bonds as a Means of Creating
a More Stable Financial System

269

INTERVIEW with Dorothea Schäfer

»New Capital Requirements for EU Government Bonds
Would Lead to Problems for Greece«

280



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Impact of Renewable Energy Act Reform on Wind Project Finance

Stricter Capital Requirements for Investing in EU Government Bonds as a Means of Creating a More Stable Financial System

By Dorothea Schäfer and Dominik Meyland

In the wake of the European debt crisis, it has become clear that government bonds may actually be a risky form of investment. The Basel Committee and the Bundesbank have therefore opened an intense debate as to whether banks investing in EU government bonds should be subject to regulatory capital requirements in the future. Currently, banks do not need equity capital when investing in sovereign bonds.

Waiving this exemption privilege would result in an additional Tier 1-capital requirement of 3.34 billion euros for the German banks studied here. This represents just under 1.8 percent of available Tier 1-capital. For French banks, the calculated capital requirement is 3.52 billion euros (a good 1.2 percent), while Swedish banks have a requirement of an additional 80.6 million euros (0.14 percent). Raising these funds is not likely to cause any major problems for banks in these countries. It is an entirely different matter for Greek banks, however. The capital requirement in Greece is relatively high at almost 1.8 billion euros or almost nine percent of existing Tier 1-capital. Despite its modest impact on the leverage on banks' balance sheets, a regulatory obligation to finance investments in EU government bonds with some equity capital would be very welcome. The ratio of equity to total assets would improve, at least slightly, and the reform would probably loosen up the close link between bank risks and sovereign debt in the longer term. Both would help achieving a more stable financial system within Europe.

Regulations on the capital adequacy of investments are a key component of any banking regulation concept. The aim of this capital requirement regulation is to build up an equity capital buffer to enable banks to largely bear crisis-induced losses themselves, alleviating the need for government intervention in the event of a crisis. A specific problem is the special arrangement that applies to investments in EU government bonds: Banks are allowed to fully finance the investment in these bonds through debt capital. However, EU government bonds are not entirely risk-free investments for banks, as rating trends across the major European economies have clearly shown in recent years (see Table 1). As a result, the European Systemic Risk Board (ESRB) published a report in March 2015 on possible regulatory capital requirements for banks that invest in European government bonds.¹

Despite the increased risk, investments in government bonds have remained attractive for banks for various reasons. Government bonds, for example, are very liquid and can help banks meet the liquidity requirements of Basel III.²

Current Regulatory Requirements for Government Bonds

When a bank issues a loan, it must be partly financed through equity capital. How high this share is depends on its risk weight in accordance with Basel equity capital requirements (see Table 2). For a business loan with a risk weight of 100 percent, for example, the equity ratio is at least eight percent of the sum loaned (see Figure 1).³ If the risk weight is below 100 percent, less than

¹ European Systemic Risk Board, *Report on the regulatory treatment of sovereign exposures* (<https://www.esrb.europa.eu/pub/html/index.en.html>; last accessed April 9, 2015).

² Bank for International Settlements Basel III, *Mindestliquiditätsquote und Instrumente zur Überwachung des Liquiditätsrisikos Teil 1* (2013): 7 ff.

³ Equity capital and Tier 1-capital are used synonymously here.

Table 1

Ratings of European countries

Year	Italy	Spain	Germany	France	Greece	Portugal	Ireland
2008	AA-	AAA	AAA	AAA	A	AA	AAA
2010	AA-	AA+	AAA	AAA	BBB-	A+	BBB+
2012	A-	BBB	AAA	AAA	CCC	BB+	BBB+
2014	BBB+	BBB+	AAA	AA+	B-	BB+	BBB+

Source: Fitch Ratings.

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Over the last years the risk of European sovereign bonds increased.

Table 2

Risk weights in the standardized approach¹
In percent

Rating	Risk weight
AAA	0
AA+	0
AA	0
AA-	0
A+	20
A	20
A-	20
BBB+	50
BBB	50
BBB-	50
BB+	100
BB	100
BB-	100
B+	100
B	100
B-	100
CCC	150
CC	150
C	150

¹ AAA is the best rating and indicates the smallest risk of a default.

Source: Own illustration (according to Basel II-Basel III).

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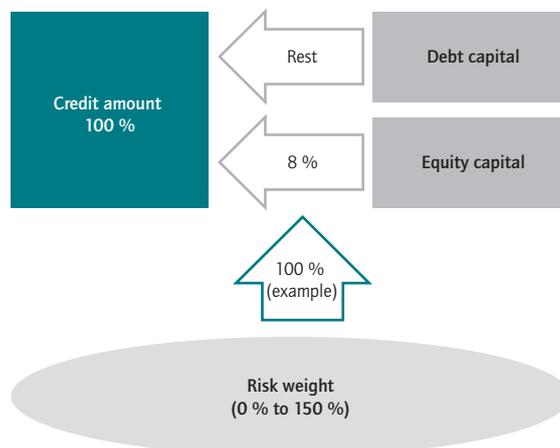
The risk weight is determined by the rating.

eight percent of the bank's own funds are required. If it is above 100 percent, the bank will have to finance a correspondingly higher share of the planned investment with its own funds.

Banks essentially have two ways of determining the risk weight (RW) of a certain type of investment. Either they determine it using the Internal Risk Based (IRB) approach itself, or they calculate it with the aid of an external rating and the Standardized Approach (SA) (see

Figure 1

Scheme for the calculating the required equity capital share within a bank's investment¹



¹ The risk weight determines to the equity share needed to finance the credit amount.

Source: Own illustration/CRD IV.

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The standardized approach determines the risk weight and therefore the required amount of equity capital which is needed to finance the credit amount.

Table 2). External ratings must come from a recognized rating agency registered with the European Securities and Market Authority, ESMA.⁴

Special Conditions for Holding EU Government Bonds

As defined in Basel III/CRD IV⁵, separate conditions apply to investments in EU government bonds. Accordingly, the bank does not have to use any of its own funds, but can finance them entirely from debt capital, for example, using client savings. This is possible because the risk weight of EU government bonds is zero percent. Consequently, the ratings of EU countries are not relevant to the capital requirement for investments in EU government bonds. Equally, no equity capital has been required thus far for the purchase of Greek government bonds.

⁴ See credit rating agencies regulation, (<http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32013R0462>; last accessed April 9, 2015).

⁵ CRD IV (Capital Requirements Directive) is the European Directive on the implementation of Basel III in the European context. (http://ec.europa.eu/finance/bank/regcapital/legislation-in-force/index_de.htm; last accessed April 9, 2015).

Box

Relationship between cost of equity and interest expense of government bonds

The tightening of capital requirements in order to equalize investments in corporate loans and in EU government bonds might also increase the availability of corporate loans. Under the premise of zero profits, this relationship can be represented as follows.¹

$$R \times B - r \times (B - K) - ROE \times K = 0$$

R represents the return on a government bond and B is the nominal value of this government bond. The product is the return on an investment in a government bond. The bank deducts its costs of financing the government bond from these returns. The costs consist of the ROE (return on equity) for equity capital K and the interest costs on the debt $r(B - K)$. Rearranging this, we now have:

$$R \times B = r \times (B - K) + ROE \times K$$

According to the current regulatory framework, K is zero in the case of an investment in an EU government bond, since European government bonds do not have to be backed by equity capital. Positive capital requirements for EU government bonds would mean $K > 0$. Since $ROE > r$, the right side of the equation is greater. The cost to the banks of financing government bonds rises.² To avoid making a loss, the banks must pass the increased costs on to the government by increasing interest rates. Interest on EU government bonds would therefore rise depending on the regulations.

At the same time, government bonds now have the same profile of financing costs as corporate loans. Assuming the same risk/rating, it would then make no difference whether banks choose investments in European government bonds or corporate loans. Companies are therefore likely to benefit from a new regulatory framework.

¹ See European Systemic Risk Board, *Report on the regulatory treatment of sovereign exposures; Quantitative Impact Assessment* (2015): 160.

² Deutsche Bank's ROE in 2013 was 2.6 percent. Almost no interest is due on deposits.

Banks are the prime beneficiaries of the current regulatory framework for European government bonds. They can borrow to increase the liability side of their balance sheets and use all the funds raised to purchase EU government bonds, which in turn increases the assets side. With this type of balance sheet expansion, the banks' equity capital will remain at a constant level, increasing balance sheet leverage.⁶ The increase in total assets with unchanged equity capital generally drives up the return on equity.⁷

There are also many incentives for policy-makers in the EU to retain the existing regulatory requirements for government bonds. Of course, politicians are keen to have the greatest possible scope in making their financial decisions. If capital requirements for investments in EU government bonds were more stringent, many governments might well have higher interest rates to contend with, since the resulting higher costs incurred by banks are likely to be passed on to the government (see box). The actual increase in costs for individual coun-

tries, however, would depend on how banks compete with each other to purchase government bonds. The more sought-after government bonds are as liquidity reserves, and the greater the competition among banks, the more difficult it would be to pass these higher costs on.

Current Regulatory Requirements Are a Risk for Taxpayers

In 2011, a stress test was implemented by the European Banking Authority, EBA, from which it became apparent that banks had, among other things, high balance sheet leverage. In the following, the ratio of Tier 1-capital to total assets is used as an indicator of a bank's debt leverage.

In the course of the emergency bank bailouts during the financial crisis, it became clear that many banks have insufficient equity. This increases the risk of bankruptcy if investments lose value and/or borrowers default on their loans. If banks cannot go bankrupt because of their size and interlinking with other banks or financial institutions, low equity capital ultimately becomes a risk for taxpayers, as the banks' risks are passed on to them. As a consequence of the financial crisis, a regulatory minimum leverage ratio of three per cent was in-

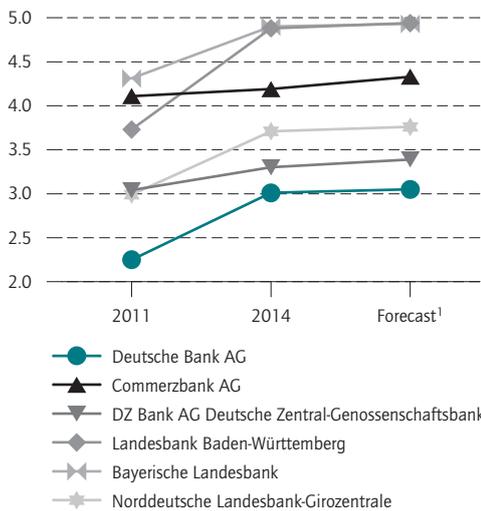
⁶ The lower the ratio of equity capital to total assets, the higher the balance sheet leverage.

⁷ The total return on assets must be higher than the return on borrowed capital (interest rate on debt).

Figure 2

The ratio of Tier 1-capital and total assets between 2011 and 2014¹

In percent



¹ Forecast on the basis of the Standardized Approach.

Source: Stress test 2011, Stress test 2014, own calculation.

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The leverage of German banks decreased between 2011 and 2014.

roduced and will take effect from 2019.⁸ The new rules are already having an impact. In the course of preparations to meet the more stringent capital requirements, the ratio of Tier 1-capital to total assets has improved slightly,⁹ as shown in a comparison of the relevant data for German banks in the stress tests conducted in 2011 and 2014 (see Figure 2).¹⁰ However, if Tier 1-capital of at least five percent of total assets is used as a benchmark then progress is small.¹¹

⁸ The regulatory leverage ratio is based on a relatively complex calculation. Tier 1-capital plus supplementary capital forms the numerator, while the denominator is the leverage exposure. This indicator may turn out to be either lower or higher than total assets due to added and withdrawn risk items. See CRR Directives of the EU/EBA (<http://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook/-/interactive-single-rulebook/toc/504>; last accessed April 10, 2015).

⁹ Among other things this was achieved by introducing a leverage ratio in Basel III.

¹⁰ The datasets for the 2011 and 2014 stress tests can be downloaded from the EBA's website (<http://www.eba.europa.eu/riskanalysis-and-data/eu-wide-stress-testing/2014/results>; last accessed March 23, 2015); data from the ECB's Comprehensive Assessment can be obtained from the ECB (<https://www.bankingsupervision.europa.eu/banking/comprehensive/html/index.en.html>; last accessed March 21, 2015).

¹¹ In the US, for example, there is a minimum leverage ratio of five percent for the major banks. In Switzerland, the minimum leverage ratio is more than 4.5 percent for the major banks. For a more detailed discussion on leverage ratio, see D. Schäfer, "Die Leverage Ratio ist das bessere Risikomaß,"

Against the background of the recent European sovereign debt crisis, the preference for EU government bonds no longer makes sense given the minimum capital requirements. The concomitant incentive to increase total assets while keeping equity constant promotes high balance sheet leverage, thus increasing the risk to the general public of a bailout scenario. This problem was also addressed by the German *Bundesbank* in its monthly report in March 2015.¹² However, if capital requirement regulations for investments in EU government bonds are changed, the banks would need more equity for the same stock of government bonds. So far, however, it is unclear what order of magnitude the additional capital requirement would need to be.

Estimated Capital Requirement for European Banks

An estimation of how much additional Tier 1-equity banks would require if EU government bonds were no longer privileged can be found below. The calculations were performed for German, French, Greek, and Swedish banks. The two largest economies of the EU, Germany and France, are also included. Greece is a country in acute crisis, meaning that any required recapitalization is likely to be particularly difficult. Sweden was chosen because it is not a member of the euro area.

The impact of increasing equity capital requirements for investment in EU government bonds can be estimated using the standardized approach and the stress test data. Such an estimation for 2011 and 2007 is published in the ESRB report.¹³ However, the ESRB conducted the capital requirement estimation only at the national level. In 2007, German banks required an additional 83 million euros according to the ESRB, French banks required an extra 518 million euros, and Swedish banks 44 million euros. ESRB calculations for 2011 showed an additional capital requirement at that time of 1.35 billion euros for German banks, 1.53 billion euros for French banks, and nine million euros for Swedish banks. Figures were not calculated for the Greek banking sector.¹⁴ No calculations were performed based on the 2014 stress tests. In the estimate conducted here, the capital requirements

DIW Wochenbericht, no. 46 (2011) and B. Klaus and D. Schäfer, "Implizite Staatsgarantien verschärfen die Probleme—Trennbankensystem allein ist keine Lösung," *DIW Wochenbericht*, no. 18 (2013).

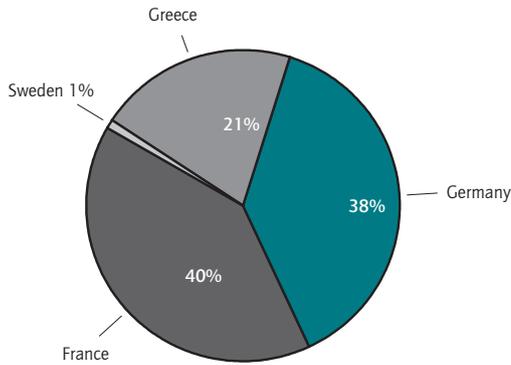
¹² German *Bundesbank*, Monthly Report, series 67, no. 3 (http://www.bundesbank.de/Redaktion/DE/Downloads/Veroeffentlichungen/Monatsberichte/2015/2015_03_monatsbericht.html; last accessed on March 26, 2015).

¹³ European Systemic Risk Board, *Report on the regulatory treatment of sovereign exposures; Quantitative Impact Assessment* (2015): 156 ff.

¹⁴ European Systemic Risk Board, *Report on the regulatory treatment of sovereign exposures*, Annex 9 (2015): 223.

Figure 3

Additional capital requirements of a country's banks in relation to total additional capital requirements
In percent



Source: Own calculations.

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The additional equity capital requirements of Greek banks account for 21 percent of the total additional equity capital requirements.

are calculated at bank- and country-level, including the Greek banking sector.

Data Used

As part of the EBA stress tests conducted in 2014 and the ECB's¹⁵ Comprehensive Assessment,¹⁶ all existing investments in government bonds were calculated for all participating European banks as of December 31, 2013. The corresponding data are grouped by country and term, and are accessible to the public.¹⁷ Since the capital privilege only applies to investments in government bonds of the 28 EU countries on the reference date, only these were factored in to the capital requirement estimate calculation. The standardized approach used to estimate the Tier 1-capital requirement, requires the ratings of the respective EU member states on the reference date. The ratings used here were taken from Fitch.¹⁸

¹⁵ The complete datasets for the 2014 stress test can be downloaded from the EBA website. (<http://www.eba.europa.eu/risk-analysis-and-data/eu-wide-stress-testing/2014/results>); Comprehensive Assessment data can be found at (<https://www.bankingsupervision.europa.eu/banking/comprehensive/html/index.en.html>).

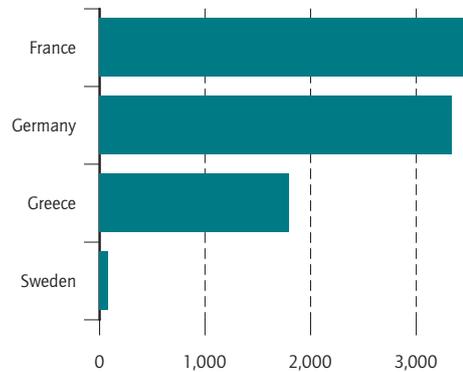
¹⁶ These investments are referred to as long positions in the stress test and can be found in Item 1.

¹⁷ In addition to government bonds, other bank assets are also shown. These were not included in the study and consisted mainly of derivative positions.

¹⁸ Ratings can be accessed on the Fitch Ratings website (<https://www.fitchratings.com/gws/en/sector/overview/sovereigns#>).

Figure 4

Equity capital requirements aggregated by country¹
In million euro



¹ Cut-off date for the bank data: end of 2013

Source: Own calculations on the basis of EBA data

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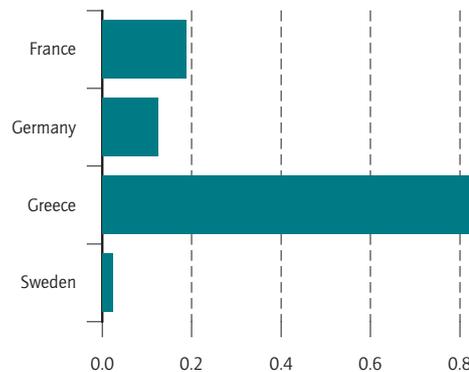
In absolute terms French banks would need the most additional Tier 1-capital.

Methodology

Each bank is given an associated risk weight for its investments in European government bonds. A bank's overall additional Tier 1-capital requirement (EKB) is calculated using the following formula:

Figure 5

Equity capital requirements in relation to the GDP by country
In percent



Source: Own calculations.

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New capital requirements for sovereign bond investments would have a strong influence on Greek banks.

$$EKB = \sum_{i=1}^{28} RW_i \times 8\% \times SE_i$$

RW refers to the risk weight of the government bonds of the respective EU member state (i) and SE stands for the scale of the bank’s investments in government bonds of the given EU country (i). For a risk weight of 100 percent, the equity capital requirement is eight percent. The equity capital requirement was determined for those German, French, Greek, and Swedish banks that participated in the stress test.

To calculate the ratio of Tier 1-capital to total assets, existing Tier 1-capital and the bank’s capital requirement are first added together in accordance with the standardized approach (ECR). This sum is then divided by

the bank’s total assets. The smaller this ratio, the greater the balance sheet leverage of the bank concerned.

How Much Additional Equity Capital Is Required?

The findings of the estimate paint a mixed picture. The Swedish banks would only need an additional 80 million euros in total and would therefore be virtually unaffected by the new regulation. This is because Swedish banks preferred to invest in German, Finnish, and Swedish government bonds. Bonds from these countries have a rating of AAA and therefore a risk weight of zero. Even if the EU-sovereign bonds’ capital privilege were removed, they could still be fully financed through debt capital.

Greek banks, however, would have to obtain additional equity capital of nearly 1.8 billion euros. This sum is nearly nine percent of the existing Tier 1-capital on the reference date. Greek banks would therefore be particularly affected by a change in the regulation. The capital requirement of Greek financial institutions makes up 21 percent of the total additional capital requirement of banks studied from the four EU member states (see Figure 4). The French and German banks would require a total of 3.5 and 3.3 billion euros of fresh capital, respectively (see Figure 3). This represents 1.2 percent and 1.8 percent of available existing Tier 1-capital.

Greece’s high capital requirement compared to other countries is particularly evident when, in the event of privileges for EU government bonds being removed, the additionally required Tier 1-capital is compared to the GDP of the respective country (see Figure 5). Measured as a percentage of GDP, Greek banks would have to acquire 0.8 percent, more than four times that required by French banks. Compared with German banks, the Greek capital requirement would be more than six times higher.

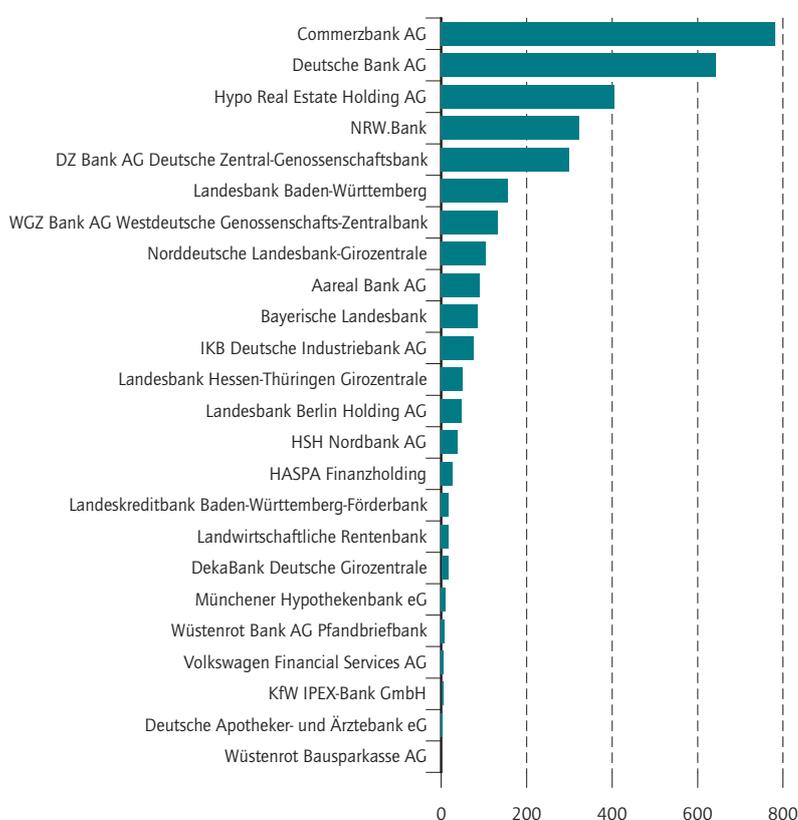
The reason for the high additional capital need is the poor rating of Greek government bonds. Domestic government bonds make up a large part of the investment portfolios of Greek banks. At the end of 2013, however, Greek government bonds had a B– rating. According to the Standardized Approach, Greek banks would be required to have eight percent of the total investment in domestic government bonds as equity capital.

German, French, and Swedish banks also prefer to hold domestic government bonds. However, their good rating would mean no additional capital would be needed using the Standardized Approach. The risk weight for these bonds is zero percent and banks would have to raise very little additional capital if capital requirements were tightened.

Figure 6

Additional equity capital requirements of German banks

In million euro



Source: Own calculations

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The two largest German banks would need the most additional Tier 1-capital, but in terms of the ratio of additional equity capital to existing Tier 1-equity capital, some banks show higher numbers than the Deutsche Bank and Commerzbank.

Greek Banks Would Be Worst Hit

In Germany, individual banks would have to raise between zero and 780 million euros of new Tier 1-capital (see Figure 6). In relation to its current Tier 1-capital, the *Hypo Real Estate Holding AG* would need to raise additional capital of about nine percent, which is the highest number among all German banks. The *IKB Deutsche Industriebank AG*, *WGZ-Bank*, and *Aareal Bank* would also have a fairly high capital requirement in relation to their current Tier 1-capital (see Table 3). Extending regulatory capital requirements to include EU government bonds would, however, only reduce their leverage slightly. With or without this extension, only seven of the Ger-

man banks studied here have a ratio of Tier 1-capital to total assets exceeding five percent.

This did not change substantially between the two stress tests in 2011 and 2014 (see Figure 2). By the end of 2013, none of the major German banks selected had achieved a ratio of Tier 1-capital to total assets of over five percent. The introduction of positive capital requirements for EU government bonds would not have significantly increased the banks' capital basis.

For the French banks, the capital requirement would be between zero and 1.03 billion euros (see Figure 7). The *Société de Financement Local* has made relatively large

Table 3

Existing Tier 1-capital and additional capital requirements of German banks if the standardized approach is applied

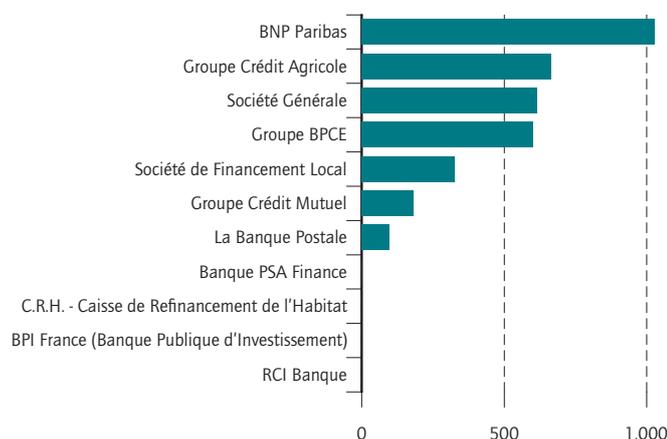
	Total assets	Existing Tier 1-capital	Required Tier 1-capital	Share of required Tier 1-capital to existing Tier 1-capital	Ratio of existing Tier 1-capital to total assets	
					EU-government bonds not included	EU-government bonds included
	In million euro			In percent		
Deutsche Bank AG	1,580,758	47,522.0	643.2	1.35	3.01	3.05
Commerzbank AG	561,384	23,523.0	782.4	3.33	4.19	4.33
DZ Bank AG Deutsche Zentral-Genossenschaftsbank	315,876	10,422.0	299.6	2.87	3.30	3.39
Landesbank Baden-Württemberg	273,523	13,345.0	156.2	1.17	4.88	4.94
Bayerische Landesbank	255,836	12,535.0	86.3	0.69	4.90	4.93
Norddeutsche Landesbank-Girozentrale	197,663	7,333.0	105.2	1.43	3.71	3.76
Landesbank Hessen-Thüringen Girozentrale	176,999	7,392.0	50.2	0.68	4.18	4.20
NRW.Bank	145,350	17,973.0	322.4	1.79	12.37	12.59
Hypo Real Estate Holding AG	122,454	4,578.0	404.6	8.84	3.74	4.07
DekaBank Deutsche Girozentrale	116,073	3,856.0	15.9	0.41	3.32	3.34
HSB Nordbank AG	109,279	5,402.3	38.1	0.70	4.94	4.98
Landesbank Berlin Holding AG	101,157	3,089.0	48.7	1.58	3.05	3.10
Volkswagen Financial Services AG	98,024	7,772.1	5.3	0.07	7.93	7.93
WGZ Bank AG Westdeutsche Genossenschafts-Zentralbank	90,926	2,225.1	132.6	5.96	2.45	2.59
Landwirtschaftliche Rentenbank	81,932	2,906.0	16.6	0.57	3.55	3.57
Landeskreditbank Baden-Württemberg-Förderbank	70,682	2,933.0	18.0	0.62	4.15	4.18
HASPA Finanzholding	44,468	3,929.6	26.3	0.67	8.84	8.90
Aareal Bank AG	42,982	2,601.2	90.8	3.49	6.05	6.26
Münchener Hypothekbank eG	34,899	810.6	9.2	1.13	2.32	2.35
Deutsche Apotheker- und Ärztebank eG	34,695	1,884.2	3.6	0.19	5.43	5.44
IKB Deutsche Industriebank AG	24,706	1,663.3	75.1	4.52	6.73	7.04
KfW IPEX-Bank GmbH	23,437	3,168.4	4.3	0.14	13.52	13.54
Wüstenrot Bausparkasse AG	22,546	777.8	0.0	0.00	3.45	3.45
Wüstenrot Bank AG Pfandbriefbank	13,444	393.1	7.4	1.87	2.92	2.98

Source: Own calculations.

Figure 7

Additional equity capital requirements of French banks

In million euro



Source: Own calculations.

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The Equity capital requirements of French banks are between 0 and more than one billion euros.

investments, particularly in Italian government bonds. In relation to the existing Tier 1-capital, it would need to raise the most additional capital (see Table 4). Here, too, removing the risk weight of zero for EU government bonds would not result in any substantial reduction in leverage. Only three French banks have a ratio of Tier 1-capital to total assets that exceeds five percent.

The capital requirement of individual Swedish banks relative to their existing Tier 1-capital is very low across the board. None of the Swedish banks have Tier 1-capital to total assets ratio of five percent or higher (see Figure 8). The leverage of the four Swedish banks is thus relatively high, regardless of whether investments in EU government bonds require equity capital or not (see Table 5).

Greek banks would need to raise new Tier 1-capital of between 170 and 864 million euros to meet the capital requirements in the Standardized Approach (see Figure 9, Table 6). In relation to existing Tier 1-capital, Greek banks would thus be affected far more by the removal of the capital privilege than banks in the other countries in this study.

Overall, the banks studied would need to increase their ratios of Tier 1-capital to total assets as a result of the inclusion of EU government bonds under the Standardized

Table 4

Existing Tier 1-capital and additional capital requirements of French banks if the standardized approach is applied

	Total assets	Existing Tier 1-capital	Required Tier 1-capital	Share of required Tier 1-capital to existing Tier 1-capital	Ratio of existing Tier 1-capital to total assets	
					EU-government bonds not included	EU-government bonds included
					In percent	
	In million euro			In percent		
BNP Paribas	1,640,314	72,043.0	1029.2	1.43	4.39	4.45
Groupe Crédit Agricole	1,456,338	64,531.2	663.0	1.03	4.43	4.48
Société Générale	1,141,579	42,559.1	615.6	1.45	3.73	3.78
Groupe BPCE	1,065,430	45,518.1	602.7	1.32	4.27	4.33
Groupe Crédit Mutuel	539,007	34,575.4	180.7	0.52	6.41	6.45
La Banque Postale	199,225	6,547.8	98.0	1.50	3.29	3.34
Société de Financement Local	83,528	1,446.2	327.3	22.63	1.73	2.12
BPI France (Banque Publique d'Investissement)	53,922	13,158.5	0.0	0.00	24.40	24.40
C.R.H. - Caisse de Refinancement de l'Habitat	53,133	314.0	0.0	0.00	0.59	0.59
RCI Banque	29,225	2,562.0	0.0	0.00	8.77	8.77
Banque PSA Finance	25,151	2,679.0	0.2	0.01	10.65	10.65

Source: Own calculations.

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The bank Société de Financement Local is the most affected French bank.

Approach. With the exception of Greek banks, however, the resulting increase would be small. Presumably, the interdependence of countries and banks, however, would be mitigated in the medium to long term if the equity capital privilege for EU government bonds were removed.¹⁹ This decoupling of risks would be an asset to financial stability.

Effects of an Equity Requirement for Investments in EU Government Bonds

Positive capital requirements would make EU government bonds less attractive as an investment for banks. Banks would need more capital, which, at least at the moment, would call for promises of returns that are higher than would be required in case of raising debt capital.²⁰ It would mean that business loans and government bonds would be on an equal footing in terms of capital regulation.

Greek banks, in particular, were likely to have problems meeting the capital requirements since they would need to raise relatively large amounts. The other banks studied, the globally systemically important major banks²¹ in particular, are not likely to face any major problems as a result of a change in capital requirements for EU gov-

¹⁹ See J. Pockrandt and S. Radde, "Reformbedarf in der EU-Bankenregulierung: Solvenz von Banken und Staaten entkoppeln," *DIW Wochenbericht*, no. 42 (2012): 3-10 and F. Bremus and C. Lambert, "Bankenunion und Bankenregulierung: Stabilität des Bankensektors in Europa," *DIW Wochenbericht*, no. 26 (2014): 614-625.

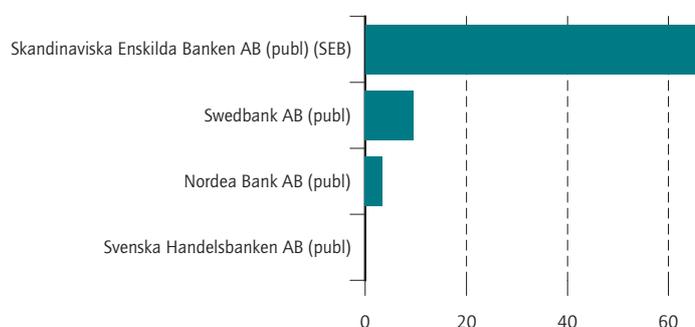
²⁰ European bank debt consists to a large extent of bank deposits.

²¹ The globally systemically important banks examined here are designated such by the Financial Stability Board; they are Deutsche Bank, BNP Paribas, Groupe BPCE, Société Générale, Crédit Agricole Group and Nordea.

Figure 8

Additional equity capital requirements of Swedish banks

In million euro



Source: Own calculations.

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The Swedish banks need about 80 Million Euro additional equity capital.

ernment bonds. Their additional capital requirement is low and they have shown in the past²² that it is relatively easy to meet it through the capital market. If some banks were to have problems raising the equity capital, they would still be able to reduce their investments in EU government bonds and thus reduce total assets. On the whole, banks would presumably be facing higher financing costs.

²² See capital increases at Deutsche Bank and Commerzbank in 2013.

Table 5

Existing Tier 1-capital and additional capital requirements of Swedish banks if the standardized approach is applied

	Total assets	Existing Tier 1-capital	Required Tier 1-capital	Share of required Tier 1-capital to existing Tier 1-capital	Ratio of existing Tier 1-capital to total assets	
					EU-government bonds not included	EU-government bonds included
In million euro				In percent		
Swedbank AB (publ)	205,588	23,820.7	3.4	0.01	3.78	3.78
Skandinaviska Enskilda Banken AB (publ) (SEB)	280,563	11,212.6	0.0	0.00	3.99	3.99
Svenska Handelsbanken AB (publ)	281,124	11,402.5	67.6	0.59	4.06	4.09
Nordea Bank AB (publ)	630,434	9,510.0	9.6	0.10	4.63	4.63

Source: Own calculation, total assets are obtained from the annual reports of the banks.

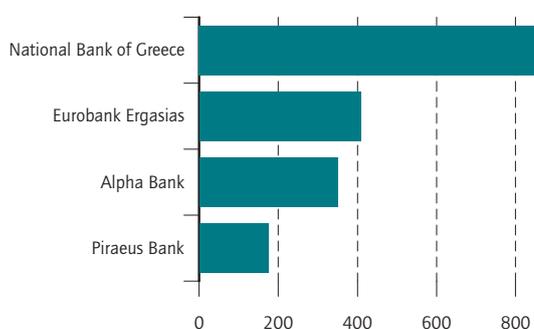
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A new regulatory framework would barely affect the Swedish banks.

Figure 9

Additional equity capital requirements of Greek banks

In million euro



Source: Own calculations.

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If the equity capital privilege for EU sovereign bonds were abolished, Greek banks would need additional equity capital between 170 and 864 million euro.

A change in regulatory stipulations would clearly disadvantage European governments because it would be less attractive for banks to invest in EU sovereign bonds with ratings below AA-. Finance ministers of countries with such ratings would therefore have to offer considerably higher interest rates for new bond issues to encourage banks to invest. Consequently, there is no incentive for policy-makers to push for a reform of capital requirements for EU government bonds.

Conclusion

In addition to the ESRB, the responsible regulatory authorities are now grappling with the question of whether investment in European government bonds really is as low risk as previously assumed. It is unlikely, however, that negatively affected banks and governments will support the motion put forward by the Basel Committee on Banking Supervision in January 2015.

Nevertheless, the regulatory obligation to also finance investments in EU government bonds with some equity capital should be welcomed. On the one hand, the unjustified preference for purchasing EU government bonds over corporate bonds or loans would diminish while, on the other hand, banks would be forced to raise more equity. The leveraging of banks' balance sheets would be somewhat more difficult, helping to create a more stable European financial system. Ultimately, taxpayers would benefit from equity privilege being removed because banks would be less able to pass on their risks to them, leading to a greater decoupling of bank and sovereign debt risks.

This reform is unlikely, however, to bring about a strong improvement in the ratio of equity capital to total assets. Even taking EU government bonds into account, the majority of banks examined would remain below the benchmark of five percent of Tier 1-equity capital to total assets. Given their current situation, it would be very difficult for Greek banks to raise the necessary Tier 1-capital from the capital market. The government is unlikely to step in as a potential investor because of the acute debt

Table 6

Existing Tier 1-capital and additional capital requirements of Greek banks if the standardized approach is applied

	Total assets	Existing Tier 1-capital	Required Tier 1-capital	Share of required Tier 1-capital to existing Tier 1-capital	Ratio of existing Tier 1-capital to total assets	
					EU-government bonds not included	EU-government bonds included
					In percent	
National Bank of Greece	109,111	4,261.7	864.1	20.28	3.91	4.70
Piraeus Bank	92,010	5,959.2	174.8	2.93	6.48	6.67
Eurobank Ergasias	76,693	2,978.6	408.1	13.70	3.88	4.42
Alpha Bank	73,598	7,268.9	350.3	4.82	9.88	10.35

Source: Own calculation, total assets are obtained from the annual reports of the banks.

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On average the Greek banks are significantly more affected than the other examined banks.

crisis. It is also hard to imagine Greek banks would reduce the stock of domestic bonds. In the acute debt crisis, the sale of bonds would probably lead to substantial losses. In addition, the Greek government would lose

an important source of funding in these circumstances. Short-term reform of the capital requirement for purchases of EU government bonds would therefore be especially challenging for Greece.

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EIGHT QUESTIONS TO DOROTHEA SCHÄFER

»New Capital Requirements for EU Government Bonds Would Lead to Problems for Greece«

1. Professor Schäfer, when banks invest in companies by issuing loans, these investments have to be partly financed through equity capital. Bank loans to European governments via the purchase of government bonds are exempt from this regulation. Why is this? For a long time, it was believed that these bond purchases were secure investments because they were backed by governments. The financial crisis, however, has shaken this certainty. The regulation has been in existence for some time already and was not even repealed during the financial crisis. This is because it gave governments easier access to financing.
2. In January 2015, the Basel Committee on Banking Supervision announced plans to review current recommendations on equity capital requirements for government bonds. What exactly is to be changed? In fact, the *Bundesbank* has also been active in this debate on numerous occasions. It believes the same equity capital regulations should apply to EU government bonds as to companies and countries outside the territory of the EU. Depending on the risk, EU government bond purchases would have to be partly financed through equity capital.
3. What are the implications for European banks? Banks would have to show they had sufficient equity capital for the many government bonds on their books. Since they probably do not have any spare equity, they would have to raise these funds. This is something they could either do on the capital market or they could hope for government assistance. Obviously, placing this additional demand on a government could present difficulties to some countries. We can therefore assume that the equity capital would probably have to be raised on the capital market.
4. How high will the additional capital requirement be? The capital requirement for Germany, France, and also Sweden is relatively manageable. For banks from these countries that have undergone the European Banking Authority stress test, the additional capital is in the low single-digit billions. For Greek banks, however, this is likely to be more difficult since they hold a very large number of Greek government bonds with currently poor ratings.
5. What would a change in the regulatory requirements mean for European governments? At least for those governments of EU countries with a poor rating, it will be harder to access funds from banks. We can assume that banks would purchase fewer government bonds with low ratings if their investments in these bonds had to be partly funded through equity capital. This would have a negative impact on these governments' financing options.
6. This is hardly likely to be welcomed by policy-makers. How feasible is a reform such as this? Policy-makers will not be happy and neither will the banks. The *Bundesbank* is a strong proponent of a reform of this type. However, it is likely to be confronted with strong political opposition. It therefore remains to be seen whether it will actually be possible to push through this reform.
7. So what are the advantages? The advantages are that banks would have to prove they had more equity capital which would give them a slightly bigger risk buffer. The additional equity requirement for German, French, and also Swedish banks would be relatively low, though, which essentially means that banks in these north European countries would have marginally larger capital basis. Their equity capital to total assets ratios, however, would not be much better.
8. How will this contribute to stabilizing, or even destabilizing, the euro area? We would not expect it to have a destabilizing effect. However, if the aim is to ensure banks have a higher equity capital buffer, this is not the right strategy. Not only would it have very little impact on most of the major banks, it is unlikely to substantially improve the banks' ratio of equity capital to total assets either.

Interview by Erich Wittenberg.