TECHNISCHE UNIVERSITÄT DRESDEN

CEPIE Working Paper No. 07/17

Center of Public and International Economics

EUROZONE EXIT RISK

June 2017

Stefan Eichler
Ingmar Rövekamp

Editors: Faculty of Business and Economics, Technische Universität Dresden.

This paper is published on the Open Access Repository Qucosa.
The complete Working Paper Series can be found at the CEPIE Homepage | EconStor | RePEc

ISSN 2510-1196

Eurozone Exit Risk

Stefan Eichler[†]
TU Dresden
IWH

Ingmar Rövekamp[‡]
TU Dresden

June 2017

Abstract

In the course of eurozone exit, the underlying stocks of American Depositary Receipts (ADRs) would be redenominated from euros into the new national currency. We exploit ADR investors' exposure to currency redenomination losses to derive a novel measure of eurozone exit risk. We find that while domestic bank stocks are not significantly affected by domestic exit risk, there is a negative exposure to exit risk of other countries that is channeled through bilateral credit risk. For the real sector, exposure to eurozone exit risk is heterogeneous among industries and is less negative for more indebted companies.

JEL classification: F31; F32; G01; G12; G15

Keywords: Eurozone Exit Risk; American Depositary Receipts

[†]TU Dresden, Faculty of Business and Economics, Chair of International Monetary Economics and Halle Institute for Economic Research, Halle, Germany. E-Mail: stefan.eichler@tu-dresden.de.

[‡]TU Dresden, Faculty of Business and Economics, Chair of International Monetary Economics, E-Mail: ingmar.roevekamp@tu-dresden.de.

1. Introduction

We introduce a novel indicator of eurozone exit risk based on American Depositary Receipts (ADRs). Our measure exploits the exposure of ADR investors to potential losses after currency redenomination of the underlying stocks in the course of eurozone exit. This measure has the advantage that it does not rely on investors' awareness of contractual differences (such as assumed in the CDS-bond basis approach (Krishnamurthy et al. (2014)). Furthermore, it allows accounting for company and country-specific confounding factors thereby improving identification. Employing our daily measure, we are – to the best of our knowledge – the first to examine how financial and non-financial stocks are exposed to eurozone exit risk and how this exposure is determined by company-specific factors.

ADRs represent ownership of a specific number of underlying shares in the home market (in our case, the eurozone countries) on which the ADR is written. The ADR and the underlying stocks represent the same ownership rights. The only difference is the currency denomination: ADRs trade in the United States and are denominated in U.S. dollars, while underlying shares trade on the European market and are denominated in the domestic currency – the euro. In the course of eurozone exit, domestic shares would be redenominated into the new domestic currency, which would most probably be associated with a large devaluation against the U.S. dollar. As investors anticipate this currency risk, eurozone exit risk will be priced in ADR returns. ADRs appear to be an ideal laboratory to derive eurozone exit risk as the currency redenomination loss associated with eurozone exit is the only systematic risk factor that can explain the exchange rate adjusted pricing of ADRs relative to the underlying stock (after controlling for company-specific factors and the U.S. dollar/euro exchange rate).

Using 143 ADRs from eight eurozone countries for the period 2008-2015, we find significantly higher eurozone exit risk for the five crisis countries (Greece, Ireland, Italy, Portugal and Spain) as compared to the relatively stable countries (France, Germany and the

Netherlands). Moreover, exit risk of GIIPS countries shows remarkable time series variation, while exit risk in stable countries fluctuates much less.

We find that eurozone exit risk does not significantly affect the stock returns of domestic banks. This result suggests that investors expect that the present value of the long run benefits (restructuring and recapitalization of the domestic banking sector, higher credit demand) may outweigh the (short run) costs of eurozone exit (such as balance sheet losses and a cut-off from ECB refinancing). Analyzing cross-border spillovers of eurozone exit risk to other banking sectors, we document that Portuguese bank stock returns are adversely affected by Greek exit risk and that the Spanish banking sector is affected by Portuguese exit risk. Investigating the channels of these cross-country spillovers of exit risk, we find that higher credit risk exposure (taken from the 2011 EBA stress test) is associated with a larger exposure to eurozone exit risk.

Moreover, we analyze the exposure of 333 stocks from different industries (excluding financials) to domestic eurozone exit risk. We find that Health Care and Telecommunications stocks are significantly negatively affected by eurozone exit risk, while Oil and Gas stocks respond positively to eurozone exit risk. Obviously, investors expect gains and losses to be unequally distributed among industries. Looking at the cross-sectional differences of euro exit risk exposures, we conclude that companies with higher debt to assets ratios are less negatively (or even positively) exposed to eurozone exit. This suggests that eurozone exit would benefit highly indebted companies by reducing their real debt burden.

There are a few papers proposing alternative indicators of eurozone exit risk. Krishnamurthy et al. (2014) use the credit default swap (CDS) bond basis to derive an indicator of redenomination risk. They build on contractual differences between CDS and bonds. For Italy, for example, CDS do not cover losses caused by the redenomination from euros into a new national currency and thus purely reflect default risk of the underlying bond. Yields of euro denominated bonds, on the contrary, reflect default risk and redenomination risk. Sovereign bond yields above the CDS premium would thus indicate redenomination risk. For Portugal and

Spain, CDS cover losses from both default and redenomination. Consequently, the authors use the difference between CDS premiums and the yields from U.S. dollar denominated bonds (which are purely driven by default risk). Similarly, De Santis (2015) uses the differences in the premiums on euro denominated and U.S. dollar denominated sovereign CDS and interprets widening spreads as evidence for larger redenomination risk.

We argue that the CDS bond basis approach has some limitations. First, it relies on contractual details of CDS, which differ, for example, between Italy on the one hand and Spain and Portugal on the other. If investors are not aware of these contractual differences, the pricing of CDS may not result in an unbiased measure of eurozone exit risk. Second, during the eurozone crisis, CDS became increasingly illiquid for countries such as Greece and Portugal, and therefore should not be used to study exit risk in these periods. Moreover, it is not entirely clear if claims from bonds or CDS would be redenominated into a new national currency after eurozone exit.

Our approach is based on ADRs, which are available for all GIIPS countries in the eurozone. The same pricing assumptions hold for all ADRs alike and ADRs are sufficiently liquid. Moreover, contrary to claims from bonds or CDS, where it is not clear (and may depend on contractual details) if currency redenomination occurs after eurozone exit, it is certain that domestic stocks would be traded in the new domestic currency and that ADRs would still trade in U.S. dollars after eurozone exit. Since investors are most likely aware of currency redenomination of the ADRs' underlying stocks, the pricing of ADRs offers a unique laboratory to derive a high frequency indicator of eurozone exit risk.

Klose and Weigert (2014) use survey data on eurozone exit risk taken from the electronic trading platform INTRADE and find that exit risk is priced in sovereign bond prices. However, these surveys were only available for a short period of time and may not be representative. Kriwoluzky et al. (2015) calibrate a structural small open economy model to construct counterfactuals without exit risk expectations for Greece. Though the authors do not

propose an empirical indicator of eurozone exit, the present the interesting result that sovereign and corporate bond spreads would be significantly lower in a state without exit risk expectations.

Our paper is also related to other strands of the literature analyzing the European debt crisis. One strand looks at the drivers of and contagion in sovereign default risk in the eurozone (e.g. Aizenman et al. (2013); Ang and Longstaff (2013); Corsetti et al. (2013); Costantini et al. (2014); Benzoni et al. (2015)). Other papers focus on the bank-sovereign risk nexus (e.g. Acharya et al. (2014); Acharya and Steffen (2015); Popov and van Horen (2015); Bocola (2016); Engler and Große Steffen (2016); Gaballo and Zetlin-Jones (2016)). A third strand of literature relates to the effects of policy measures implemented during the eurozone crisis, especially the (unconventional) monetary policy measures of the ECB (e.g. Krishnamurthy et al. (2014); Drechsler et al. (2016); Eser and Schwaab (2016)). Others focus on the real effects of the eurozone crisis. For example, Meinen and Roehe (2017) document how investment in the eurozone is adversely affected by uncertainty shocks.

Our paper is also related to studies investigating the pricing of ADRs during currency crises. Several interesting studies document that the returns on U.S. dollar denominated ADRs are negatively affected by currency crises as the devaluation of the local currency depresses the dollar value of the underlying stock (Bailey et al. (2000); Kim et al. (2000); Bin et al. (2004)). Pasquariello (2008) reveals that the outbreak of financial crises is associated with a disintegration of the local capital market as the pricing dynamics of ADRs and their underlying stocks change. Another interesting strand of the literature shows how capital controls can lead to price wedges between ADRs and their underlyings, with underlyings being typically overpriced (Melvin (2003); Levy Yeyati et al., (2004); Auguste et al. (2006); Arquette et al. (2008); Levy Yeyati et al. (2009)). Several papers use ADRs to derive exchange rate forecasts (e.g. Eichler et al. (2009)) and to show that financial fragility measures affect the relative pricing of ADRs and their underlyings (Eichler (2011)).

The paper is organized as follows: Section 2 introduces the methodology and data and provides some descriptive evidence. Section 3 analyzes the exposure of the banking sector to eurozone exit risk. Section 4 looks at the exit risk exposure of stocks in different industries and investigates the channels establishing this risk exposure. Section 5 concludes.

2. Methodology and Data

2.1 ADR pricing and eurozone exit risk

An American Depositary Receipt (ADR) represents ownership of a specific number of underlying shares in the home market on which the ADR is written. While the underlying stock is traded on the stock exchange of the respective eurozone country and is denominated in euros, the ADR trades in the United States and is denominated in US dollars.

Since the ADR provides the same rights to the owner as the underlying stock (e.g. dividend claims and voting rights), and the ADR and underlying stock can be converted into each other at a fixed conversion ratio, the exchange rate adjusted prices of both stocks should be equal (Gagnon and Karolyi (2010)):

$$P_{ADR_{i,t}} = \frac{P_{UND_{i,t}} * \gamma_i}{S_t}, \tag{1}$$

with $P_{ADR_{i,t}}$ and $P_{UND_{i,t}}$ representing the prices of the ADR and its corresponding underlying stock, respectively, γ_i a fixed conversion parameter and S_t the EUR/USD exchange rate.

For a fully credible eurozone membership of the country from where the underlying originates, ADR returns are thus governed by the returns of the underlying stock and the exchange rate:

$$ret_{i,t}^{ADR} = \alpha_i + \beta_1 ret_{i,t}^{UND} + \beta_2 ret_{j,t}^{S} + \varepsilon_{i,t}. \tag{2}$$

If ADR investors do anticipate some risk that a country may leave the eurozone, ADR returns should reflect such risk. The ADR market is an ideal laboratory for testing eurozone exit risk. By controlling for the underlying stock and EUR/USD exchange rate returns, we capture company or macro risk factors that could affect ADR investors (by influencing the value of the underlying stock or the euro) – except for country-specific eurozone exit risk. Any unobserved omitted variables that could influence the value of the underlying stock and potentially bias the estimations (such as news on financial stability, the health of the firm, or the real economy), should be absorbed by the underlying stock returns, which are control variables in the regression equation. Any omitted variables that could influence the external value of the euro (such as systemic risk in the eurozone, the ECB's or Fed's monetary policies, capital flight, macroeconomic imbalances), should be absorbed in the EUR/USD returns, which are also controlled for in the regressions.

The currency redenomination and potential price loss of the underlying stock in U.S. dollar terms associated with eurozone exit is the only systematic risk factor that affects ADR returns (after controlling for underlying stock and EUR/USD exchange rate returns). This is because any other company-specific or macroeconomic shock affects the ADR and underlying stock in the same way. Currency risk associated with eurozone exit is the only shock that can lead to a one-time price drop of the ADR stock (relative to the redenominated underlying stock price) of the same company, and is thus the only systematic risk factor that may influence ADR returns after controlling for underlying stock returns.

We aim to identify eurozone exit risk by introducing a country-specific eurozone exit incentive indicator into the ADR pricing framework which captures fundamental vulnerabilities explaining why a country may leave the eurozone (such as sovereign default risk or fragility in the banking sector and in the real economy in the country under consideration). We argue that if ADR returns respond to such an indicator, eurozone exit risk is priced in ADR returns and

thus ADR investors perceive such risk. On the contrary, if no eurozone exit risk is perceived, such a vulnerability indicator would not be priced in ADR returns.

In order to obtain a single variable that comprises different incentives to leave the eurozone, we calculate the first principal component out of three market-based factors: the 10-year sovereign bond yield spread (relative to Germany),[3] the returns of the country's bank stock index, and the intraday volatility of the local stock index. Intraday stock market volatility is calculated using five-minute ticks from Thomson Reuters Tick History. Data on bank indices are also taken from Thomson Reuters Tick History. Sovereign yield spreads are taken from Thomson Reuters Eikon.

We select these three market-based measures for two reasons. First, these measures are available at high frequency and thus can be used in an asset pricing framework of ADRs. Second, each of these three indicators captures an economic vulnerability that represents an incentive to leave the eurozone. Higher sovereign default risk (as indicated by higher sovereign bond spreads) indicates that the domestic government is less able to avert sovereign default within the eurozone, and would rather opt to exit the eurozone in order to minimize the real value of its public debt. A more fragile banking sector (measured by lower bank stock returns) may also be recapitalized and restructured more effectively outside the eurozone. Larger economic fragility (as indicated by higher intraday volatility of stock market returns) increases the incentive to leave the eurozone and restore the competitiveness of the domestic economy through external devaluation (rather than the long-lasting process of internal devaluation). The relationship between stock market volatility and real economic activity has been well documented in the literature (e.g. Errunza and Hogan (1998); Engle et al. (2013)).

Since we expect each of these three factors to have a distinct influence on each of the countries in our sample, we conduct the PCA for each country separately so that the

[3] For Germany, we use CDS with maturity of ten years instead.

eigenvectors are able to vary between countries. We obtain the variable euro exit incentive (*EEI*) by multiplying the respective values of each of the three variables considered with the corresponding eigenvector derived from the PCA:

$$EEI_{j,t} = \lambda_{SMV_j} * SMV_{j,t} + \lambda_{\Delta Bank_j} * \Delta Bank_{j,t} + \lambda_{\Delta SYS_j} * \Delta Sov_{j,t} \quad (3)$$

$SMV \ldots intraday\ stock\ market\ volatility$

$\Delta\ Bank \ldots bank\ index\ return$

$\Delta\ Sov \ldots daily\ change\ in\ the\ sovereign\ yield\ spread\ of\ 10y\ sovereign\ bonds\ vs. Germany$

Table 1 in the appendix shows the resulting eigenvectors and the number of observations by country. As a robustness check, we conduct the principal component analysis using a rolling window of 500 trading days. We find that the resulting principal components are almost perfectly correlated with those resulting from the time-invariant approach, suggesting that the relation between returns of the bank index, stock market volatility and changes in the sovereign yield spread are fairly stable over time, at least for our sample period from 2008 to 2015. Table 2 in the appendix shows averages of the time-varying eigenvectors and correlations with the principal components obtained through the time-invariant approach by country.[4]

In order to derive an indicator of eurozone exit risk based on ADR data, we estimate the following equation in a rolling time series regression framework, with an estimation window of 60 trading days:

$$ret_{i,j,t}^{ADR} = \alpha_{i,T} + \beta_{1,i,j,T}\, ret_{i,j,t}^{UND} + \beta_{2,i,j,T}\, ret_t^S + \beta_{i,j,T}^{exit\ risk} EEI_{j,t} + \sum_{l=1}^{L} \beta_{l,i,j,T} * X_{l,t} + \varepsilon_{i,j,t} \quad (4)$$

[4] However, there might be certain sub-periods for single countries where the eigenvectors derived from the rolling window approach might not have the signs consistent with our interpretation of the eurozone exit incentive indicator, i.e. λ_{SMV_j} and $\lambda_{\Delta SYS_j}$ are not positive, respectively $\lambda_{\Delta BI_j}$ is not negative. Therefore, we opt against this more flexible approach, having shown, however, that the following results would not alter too much using this alternative specification.

where i is the ADR-underlying stock pair index, j represents the country in which the underlying stock is traded, and T denotes the day for which the respective rolling regressions window is estimated. $\sum_{l=1}^{L} X_{l,t}$ captures the returns of the S&P 500 and weekday dummies as control variables, $\alpha_{i,T}$ is the intercept, and $\varepsilon_{i,j,t}$the error term. Table 3 in the appendix reports the variables and their sources used in equation (4).

In order to derive an indicator of eurozone exit risk, we compute the semi-partial R^2 of $EEI_{j,t}$ drawn from the time series regressions in equation (4). The semi-partial R^2 is defined as the share of the total variation in the dependent variable that is explained by the variation in the part of the respective explanatory variable that contains additional information, i.e. orthogonal to the other explanatory variables.[5] The semi-partial R^2 indicates how much of the variation in the ADR returns from countries that might potentially leave the eurozone can be explained by the information contained in $EEI_{j,t}$ – additional to that already contained in the return of the EUR/USD exchange rate and the return of the respective underlying of the ADR. We hypothesize that the more probable it is that a specific country exits the eurozone, the more important $EEI_{j,t}$will be as a pricing factor in ADR returns, as identified by the semi-partial R^2.

Our panel consists of 143 ADRs from eight eurozone member countries: France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain over the period January 1st 2008 to June 30th 2015.[6] Table 4 in the appendix lists the ADRs used in the analysis. In order to analyze eurozone exit risk, we focus on the GIIPS countries (Greece, Ireland, Italy, Portugal, Spain). As a placebo test, we also apply our approach to three relatively stable countries (France, Germany and Netherlands) in order to check whether the patterns we observe for the crisis countries hold for these countries as well. We do not include ADRs from Austria, Belgium

[5] For discussions of the concept of semi-partial correlations, see e.g. Fisher (1924) and Baba et al. (2004)
[6] This ending of our sample period is determined by the closing of the Greek stock market on June 27th 2015.

and Finland due to a limited number of ADRs and insufficient trading activity for these countries.

We identify potential pairs of ADRs and underlying stocks using information from the ADR databases of JP Morgan and the Bank of New York Mellon, as well as from Thomson Reuters DATASTREAM. We consider Level I, II and Level III ADRs and make sure that only ADRs with satisfactory liquidity are considered. We keep all ADRs that have at least twenty observations per quarter for at least four consecutive quarters and whose mean daily trading volume exceeds 1,000. We check for correct matches of ADRs with their respective underlying stock by regressing ADR returns on the return of their underlying and the USD/EUR exchange rate, making sure that the estimated coefficients are significant. We exclude extreme outliers, which we define as observations with an abnormal return of greater than 20 % or lower than – 20 %. This yields a sample with a total of 148,844 observations.

Prices of ADRs and their respective underlyings, as well as the EUR/USD exchange rate and the values of the S&P 500 are taken from Thomson Reuters Tick History. In order to guarantee the most synchronous match possible between prices, we consider the last value available prior to 3:00 pm UTC for each day because at that time the U.S. and all eurozone stock markets operate in regular mode. The only exception is for Greece during DST, where we use the final prices prior to 2:00 pm UTC as otherwise an overlap of trading hours with the U.S. stock markets would not be guaranteed.

2.2 Descriptive Evidence and Results

Figure 1 – 8 in the appendix illustrate the evolution of our eurozone exit risk measure, i.e. the semi-partial R^2 of $EEI_{j,t}$ estimated within the rolling regressions framework as described in section 2.1, over the sample period from January 1st 2008 to June 30th 2015 by country.[7]

[7] For the analysis here and all future calculations, we calculate country-specific eurozone exit risk as the average of the semi-partial R^2 measures obtained from single ADRs from the country under consideration.

The eurozone exit risk indicator shows remarkable time series variation for the crisis countries. Our indicator for the whole sample reaches its maximum for Greece in September 2011, when about 11 % of the total variation of ADR returns was explained by Greek exit risk.[8] On the contrary, for Germany only 0.2 % of the variation of ADR returns is explained by $EEI_{j,t}$, on average. For France and the Netherlands, the absolute size of the indicator is also negligible and the time series variation appears to be random. A simple pooled OLS regression approach with country dummies reveals that eurozone exit risk is significantly higher for the GIIPS countries than for France, Germany and Netherlands (see Table 5 in the appendix). Thus, we find evidence for a systematic difference in the pricing of ADRs between crisis and non-crisis countries, and attribute this to the presence of significant eurozone exit risk assessed by investors for the GIIPS countries.

3. Exposure to Eurozone Exit Risk in the Banking Sector

3.1 Evidence from aggregate country bank indices

In this section, we test whether eurozone exit risk, as identified by our measure extracted from the ADR market, is priced in European bank stocks. In Section 3.1, we focus on aggregate bank stock indices by country to study the exposure of the domestic banking system to domestic eurozone exit risk and to the exit risk of other countries. In Section 3.2, we analyse the determinants of the exposure to exit risk at the individual bank level.

A reasonable expectation would be that eurozone exit by the bank's home country will negatively affect a domestic bank.[9] On the one hand, credit and asset losses due to economic disruptions may occur. A sovereign default simultaneous with eurozone exit would depress the value of sovereign bond holdings. Cheap funding from the ECB would no longer be available. On the other hand, eurozone exit may also have positive implications for domestic banks, at

[8] Please note that this percentage cannot be directly transformed into the probability that Greece would leave the eurozone.

[9] However, effects might differ between domestic banks affected by the exit risk of their home country and banks in a third country affected by the exit risk of one of the crisis countries.

least in the medium and long term. External devaluation may restore the competitiveness of the domestic economy, thereby improving the economic outlook and credit demand. Also, a restructuring and recapitalization of weak domestic banks may resolve structural problems in the banking sector, thereby restoring trust and the functioning of the interbank market. Since the overall effect is not clear, it remains an empirical question to test how financial markets judge the exposure of domestic banks to eurozone exit risk.

When evaluating the exposure to foreign eurozone risk, effects might differ. We expect that higher eurozone exit risk of a foreign country should have clear negative effects on domestic banks, which would suffer under balance sheet losses caused by the imported asset write-downs.

In order to evaluate the exposure of domestic banks to domestic and foreign eurozone exit risk, we regress the domestic EUROSTOXX bank stock index returns on the ADR-based eurozone exit risk indicators derived in Section 2. Results are displayed in Table 6 and Table 7. For each of the GIIPS countries, we estimate a model including domestic eurozone exit risk, the exit risk indices of the other four crisis countries, and a battery of control variables.[10]

$$ret_{j,t}^{bank\ index} = \alpha_j + \beta_{exit\ risk,j,dom}\,\Delta exit\ risk_{j,t} + \sum_{m \neq j} \beta_{exit\ risk,j,m}\,\Delta exit\ risk_{m,t} + \sum_{l=1}^{L} \beta_{l,j,t}\,X_{l,t} + \varepsilon_{j,t} \quad (5)$$

We argue that if we find evidence for the impact of one country's exit risk on the banking sector of another country, this effect might be truly attributed to the exit risk of this country after controlling for potential correlations of markets and spillover effects. For each country, we run regressions for two samples: the whole sample from January 1st 2008 to June

[10] We control for banking sector, sovereign, and economic risks in the country under consideration, the GIIPS aggregate, and the eurozone. Control variables include the return of the stock market and the change in the sovereign yield spread of the respective country, the return of the EUR/USD exchange rate and the change in VSTOXX as proxies for systemic risk of the whole eurozone, as well as the return of EUROSTOXX Bank Index and first principal components of the GIIPS countries' bank indices (return bank GIIPS) and sovereign yield spreads (Δ sovereign spread GIIPS).

30th 2015 and a subsample from January 1st 2008 to the famous "whatever it takes"-speech by Mario Draghi on July 26th 2012.

We do not find evidence that domestic eurozone exit risk has a significant effect on bank stock returns in the GIIPS countries. A possible explanation for this result may be that – according to the investors' assessment – the costs and benefits of domestic eurozone exit may balance each other out in the GIIPS countries. While current discussions typically stress the negative effects of eurozone exit (short-term asset losses, disruptions in financing), investors may also see long-term benefits of leaving the eurozone such as a restructured domestic banking system and restored competitiveness of the domestic economy, which may spur credit demand and interest rate mark-ups. Overall, financial markets appear to believe that the discounted value of the long-term benefits of leaving the eurozone may be as large as the short-term costs of euro exit.

Considering cross-country spillover effects, we find robust evidence that Portuguese bank stock returns are adversely affected by Greek exit risk, especially during the subsample period January 2008 to July 2012. The same applies to Spanish bank stock returns, which load negatively on Portuguese exit risk. Looking at the aggregate EUROSTOXX Bank Index (which is dominated by banks from Spain and Italy), we find that Spanish eurozone exit risk significantly affected returns.

These cross-country spillover effects may be explained by an indirect and a direct channel. There might be an indirect channel through financial stability. If a country leaves the eurozone, one would expect significant short-term turmoil on financial markets with negative impacts on the banking system in the whole eurozone, e.g. due to asset losses or the worsening of refinancing conditions. We account for such effects by including control variables that proxy for pan-eurozone systemic risk such as the EUR/USD-exchange rate, ΔVSTOXX, the return of the EUROSTOXX Banks index, as well as the first principal component of the returns of GIIPS countries' individual banking indices and sovereign yield spreads. Therefore, we argue that the

effects we detect here should be attributed to the direct channel. Exit risk of one country will have an effect on the performance of a bank in another country if this bank has direct exposure to the country in question, either in the form of sovereign exposure or private credit exposure. Either way, the exit of the respective country would cause balance sheet losses to the bank if the exiting country were to introduce a new currency that subsequently devalued sharply against the euro.

The evidence provided in this section indicates a direct channel of eurozone exit risk of one country on the stock performance of a bank in another country. Banks in Portugal might be affected by Greek exit risk and banks in Spain by Portuguese exit risk because they have a high exposure to those countries. In order to test this hypothesis, we look at the performance of individual banks dependent on their exposure to the GIIPS countries in the next section.

3.2 Evidence from individual bank level data

In this section, we investigate why the exposure to eurozone exit risk differs among individual banks. A key finding of the previous section was that – while euro exit risk of the domestic country is not priced in domestic bank stocks – euro exit risk of other countries is a significant determinant of bank stock performance. A sensible explanation for these cross-country spillovers of eurozone exit risk are bilateral asset holdings of banks. We would expect that banks with higher credit exposure to the crisis countries should be affected more severely than banks with little to no credit exposure. In order to test this empirically, we consider all listed banks that were subject to the 2011 EU-wide stress test conducted by the European Banking Authority (EBA). Our sample includes 53 banks from 19 countries in the EU, including non-eurozone banks. Table 8 in the appendix provides an overview together with some balance sheet information for these banks.

We consider "Total Exposure at Default" (EAD) as provided by the EBA Stress Test Results 2011 with the information code "33021". This includes exposure "for securitisation

transactions, counterparty credit risk, sovereigns, guaranteed by sovereigns, public sector entities, central banks, equities, etc." (EBA 2011).[11] We scale this exposure variable by dividing it by "Total Assets" (information code "30029").[12]

At first glance, descriptive evidence in Table 8 seems to support our hypothesis that exit risk significantly affects those banks that have the highest credit exposure. For the three Portuguese banks in our sample, credit risk exposure to Greece relative to total assets is about 2.57%, on average, whereas it is only about 0.17% for all other banks outside of Greece, Cyprus or Portugal. Spanish banks also have a significantly higher credit risk exposure to Portugal than all other (excluding Portuguese) banks in our sample: 1.45% vs. 0.14%, on average.

In order to investigate the relevance of bilateral asset claims (as measured using holdings of sovereign bonds and credit claims) to the exposure to eurozone exit risk of the GIIPS countries, we conduct a two-step regression approach. In the first step, we run time-series regressions for each of the 53 banks in our sample and each of the five GIIPS countries, where individual bank stock returns of all banks (excluding banks from country j) are regressed on exit risk of country j:

$$ret_{i,t}^{bank} = \alpha_i + \beta_{exit\ risk,i,j}\,\Delta exit\ risk_{j,t} + \sum_{l=1}^{L}\beta_{l,i,t}\,X_{l,t} + \varepsilon_{i,t} \quad (6)$$

where $\sum_{l=1}^{L} X_{l,t}$ represents a set of control variables (ΔVSTOXX, return of the respective home country stock index, Δ sovereign yield spread of the respective country, first principal component of the returns of GIIPS countries' bank indices and Δ of sovereign yield spreads).

[11] In a different specification, which we do not report here due to space limitations, we also use Sovereign Exposure (Gross Direct Long Positions, information code "34010"), but did not find any significant and robust results.
[12] Total Assets are defined as "Total assets after the effects of mandatory restructuring plans publicly announced and fully committed and equity raised and fully committed by 30 April 2011" (EBA 2011). Because the credit risk exposure data we use relate to December 31st 2010, we obtain a ratio EAD/Total Assets of greater than 100% for Italian credit risk exposure of Unione de Banche Italiane SpA.

In the next step, we use the resulting exposures to eurozone exit risk, $\beta_{exit\ risk,i,j}$, as the dependent variable in a cross-sectional framework. As potential determinants of bilateral eurozone exit risk exposures, we consider bank-specific variables such as the credit risk exposure to the GIIPS countries and other controls such as proxies for size (log assets), risk structure (risk-weighted assets to total assets) and capital adequacy (Tier 1 capital to risk-weighted assets):

$$\beta_{exit\ risk,i,j} = \alpha + \beta_{EAD,j}\, EAD_{ij} + \sum_{l=1}^{L} \beta_l\, X_l + \varepsilon_{i,j} \qquad (7)$$

For each of these cross-sectional regressions, we exclude the banks residing in country j, whose exit risk we use as the dependent variable to avoid possible issues with endogeneity due to the link between banking sector stability and exit risk, as well as to ensure that our results are not driven by extreme outliers. For Greece, we also exclude banks from Cyprus due to the close financial link between these two countries.

The results of the cross-sectional regressions are shown in Table 9 – Table 13. We estimate a variety of different specifications, including various control variables in both the first and second stage. Due to space limitations, we only report results from selected specifications. Specifications (1) – (2) relate to regressions where we do not include any control variables at all in the first stage, and specifications (3) – (4) to those regressions where we include all control variables.[13]Again, all models are estimated for the full sample and the subsample ending with the "whatever it takes" speech.

For all GIIPS countries except Italy, we find evidence for a significant effect of the bank's credit risk exposure on its exposure to eurozone exit risk. Stock returns of banks that have higher credit risk exposure react more sensitively to exit risk of the respective country, i.e.

[13] We consider the same control variables as above: the return of the EUR/USD exchange rate, ΔVSTOXX, return of the respective home country stock index, Δ sovereign yield spread of the respective country, return of EUROSTOXX Bank Index, first principal component of the returns of GIIPS countries' bank indices and of Δ sovereign yield spreads.

they are more negatively affected if exit risk rises. Effects are particularly strong for the subsample from January 2008 to July 2012. Regarding the other bank-specific control variables, we find that larger banks are more exposed to eurozone exit risk. For banks' exposure to Portuguese exit risk is stronger for less capitalized banks, i.e. banks with a lower ratio of Tier 1 Capital/Risk Weighted Assets.

4. Exposure to Eurozone Exit Risk in the Real Sector

4.1 Hypothesized company-specific determinants of the exposure to eurozone exit risk

Eurozone exit would be associated with a number of macroeconomic shocks, including devaluation of the new domestic currency, disintegration of domestic capital markets, and changes in expected inflation and economic growth. Since these changes in the macroeconomic environment will affect the cash flows of companies, the returns on their stocks may be affected by exit risk. In the following, we investigate the exposure to eurozone exit risk at the individual non-financial company level and study company-specific and sectoral characteristics that may determine this exposure.

Since we are not aware of existing studies investigating the impact of eurozone exit risk on the performance of single companies, we cannot lean on existing hypotheses on how different companies react to exit risk. Given that the domestic currency would depreciate sharply after exiting the eurozone, we lean on the literature investigating the impact of currency depreciations on stock performance of individual companies (e.g. Forbes (2002a); Glen (2002).[14]

We follow Forbes (2002a), who lists six dimensions of company-specific variables that determine the impact of a (large) devaluation of the domestic currency on company-specific stock performance: output characteristics, foreign exposure, production structure, debt ratios,

[14] However, it must be kept in mind that this literature focuses mostly on emerging market economies where the drivers of a company's response to a devaluation of the local currency might be significantly different from those in eurozone membership countries.

size and profitability. Depreciation of the local currency will give companies producing traded goods a relative cost advantage, while this is not the case for companies producing non-traded goods. Thus, the performance of companies producing traded goods should improve relative to that of companies producing non-traded goods. Second, companies with significant foreign sales would be expected to perform better following depreciations. Also, companies with a low intensity of capital relative to labor are expected to have better performance after a depreciation of the local currency. Forbes (2002a) further argues that devaluation particularly hurts companies with higher outstanding debt ratios since foreign debt would appreciate. While Forbes (2002a) focuses on emerging market companies with high foreign debt ratios, our eurozone sample is largely populated by companies whose funds are typically financed domestically. The redenomination of debt after euro exit would thus lead to a devaluation of outstanding debt. With regard to company size, Forbes (2002a) argues it is not a priori clear if larger companies are expected to be more or less affected by depreciations of the local currencies since multiple effects might counteract each other. For example, while larger companies are more likely to have access to better financing conditions (also during lending contractions) and hedge against currency risk, they are also more likely to borrow heavily in foreign currencies and are therefore more exposed to negative balance sheet effects following depreciations. Likewise for company profitability, Forbes (2002a) does not state a clear hypothesis regarding the sign of the impact of a local currency devaluation since various effects might work against each other.

4.2 Results

Our sample consists of 333 stocks from Greece, Ireland, Italy, Portugal and Spain. We include all stocks included in the DATASTREAM sector indices.[15] We begin our analysis by

[15] For the analysis in this section, we exclude Financials for several reasons. First, we already studied them in chapter 3. Second, the theoretical channels through which exit risk affects companies from the real sector might be quite different from those of the financial sector as we explained in the previous section. Third, financials might act as outliers with regard to certain company-specific factors such as the ratio of total debt to total assets and therefore might have a substantial impact on the results of this analysis.

looking at the whole sample of stocks from the five GIIPS countries, estimating the following panel regressions with company fixed effects and robust standard errors:

$$ret_{i,j,s,t} = \alpha_i + \beta_{exit\ risk}\,\Delta\ exit\ risk_{j,t} + \sum_{l=1}^{L}\beta_l\,X_{l,j,t} + \sum_{n=1}^{N}\beta_n\,Z_{n,t} + \varepsilon_{i,j,s,t} \quad (8)$$

We regress the stock return of company i from country j and industry s on the change in domestic eurozone exit risk, as well as on a set of country-specific control variables (return of the domestic stock market and the change in the domestic sovereign yield spread) and a set of control variables for the whole eurozone (return of the DATASTREAM EMU sector index of the respective industry, the change in VSTOXX and the return of the EUR/USD-exchange rate).

As can be seen in Table 14, we do not find a significant impact of domestic eurozone exit risk on an individual company's stock performance if we look at the whole sample of companies. This supports our notion stated above that it is not a priori clear whether companies will be positively or negatively affected by eurozone exit risk. While the effect might be significantly positive for some companies, it might be significantly negative for others, so that the aggregate effect becomes insignificant.

Exposure to eurozone exit risk may be heterogeneous across different industries. Therefore, we deepen our analysis in the next step by estimating the same equation as above for each panel of stocks within the same industry. We use the FTSE/DJ Industry Classification Benchmark (ICB) in order to assign each stock to one of the nine following industries: Basic Materials, Consumer Goods, Consumer Services, Health Care, Industrials, Oil and Gas, Technology, Telecommunications and Utilities.

The results are displayed in Table 15 to Table 23. While no exposure to eurozone exit risk is detected for six out of the nine industries, we find that Health Care and Telecommunications stocks are significantly negatively affected by eurozone exit risk, while Oil and Gas stocks are significantly positively affected by increases in eurozone exit risk. Companies from the Oil and Gas industry in our sample are quite different to those from the

Telecommunications industry with regards to the amount of foreign sales: On average, the Foreign Sales to Total Sales ratio equals 55.1% for Oil and Gas companies (the highest value across all industries), while it is only 26.93% for companies from the Telecommunications industry. Also, 75% of all Oil and Gas companies are classified as primarily producing tradable goods following the Forbes (2002b) classification (compared to 47.95% for companies across all industries), while this is not the case for a single company from the Telecommunications industry. This evidence seems to support our hypotheses stated above. In general, one might expect the Oil and Gas industry to be one of the major beneficiaries of a eurozone exit since it exports mostly commodities denominated in U.S. dollars, resulting in increased local currency revenues after the deprecation of the newly introduced currency following eurozone exit. On the other hand, the Telecommunications industry is a key example of an industry with low foreign exposure and thus limited potential for economic gains following eurozone exit. Given the limited upside of the domestic currency value of cash flows in the Telecommunication industry, devaluation of the new domestic currency would lead to a depression of the euro/dollar value of the cash flows, which would explain why rising exit risk significantly lowers the returns of these stocks. With regards to the Health Care industry, the fact that stocks respond significantly negatively to increases in exit risk cannot be explained by its foreign exposure, which is about the same magnitude as for all other companies. A potential explanation for the negative exposure to euro exit risk may be a disproportionately high reliance on public funding in the Health industry. As disruptions in sovereign solvency are likely after eurozone exit, companies in the Heath Care industry may also be hit by disruptions in revenues. Of course, it might be industry-specific factors other than those we can measure directly via the data at hand that explain why companies from the Health Care industry respond negatively to increases in eurozone exit risk.

In the next step, we aim to explain the individual exposures to eurozone exit risk through company-specific factors, even after controlling for industry membership. Therefore, we follow

a two-step estimation strategy similar to that used for the stocks of European banks in Section 3.2. In the first step, we regress the return of stock i from country j and sector s on the change in the home country's exit risk together with the same set of control variables stated above (return of the home stock market, change in the sovereign yield spread, return of the DATASTREAM EMU sector index of the respective industry, change in VSTOXX and the return of the EUR/USD-exchange rate).

$$ret_{i,j,s,t} = \alpha_{i,j,s} + \beta_{exit\ risk,i,j,s}\,\Delta exit\ risk_{j,t} + \sum_{l=1}^{L} \beta_{l,i,j,s}\,X_{l,j,t} + \sum_{n=1}^{N} \beta_{n,i,j,s}\,Z_{n,t} + \varepsilon_{i,j,s,t} \quad (9)$$

By running these time-series regressions for each of the 333 stocks in our sample, we obtain one estimate of $\beta_{exit\ risk,i,j,s}$ for each stock. In the next step, we explain the cross-section of estimated $\beta_{exit\ risk,i,j,s}$ through a set of company-specific variables using country and industry fixed effects:

$$\beta_{exit\ risk,i,j,s} = \mu_j + \gamma_s + \sum_{l=1}^{L} \beta_l\,X_{l,i} + \varepsilon_{i,j,s} \quad (10)$$

We check whether the six variables suggested by Forbes (2002a) have explanatory power for the impact of eurozone exit risk on an individual company's stock performance, even with respect to within-industry and within-country heterogeneity. The results are summarized in Table 24. Descriptive evidence and sources of the company-specific variables used are displayed in Table 25.

After controlling for country and industry fixed effects, we find that the ratio of total debt to total assets is the only variable that can explain why companies respond differently to eurozone exit risk. Companies that are more heavily indebted respond less negatively, to increased eurozone exit risk of their home country. As the majority of debt in eurozone countries is originated under national law, redenomination of the company debt into the new

national currency after eurozone exit and the subsequent inflationary environment would effectively reduce the debt burden of companies. Highly indebted companies may therefore benefit most from eurozone exit.

5. Conclusion

We exploit ADR investors' exposure to currency redenomination losses after eurozone exit to derive a novel measure of eurozone exit risk. As a proxy for investors' mistrust in eurozone membership, we look at the fraction of ADR returns that is explained by the variation in an indicator capturing the economic incentives to leave the eurozone.

Using 143 ADRs in the period January 2008 to June 2015, we find that our exit risk measure is significantly higher and more volatile for the GIIPS countries than for the non-GIIPS countries. Investigating the determinants of the exposure to euro exit risk, we find that banks with higher credit risk exposure to the respective country are more adversely affected by its exit risk. Next, we look at the impact of eurozone exit risk on the real sector in the GIIPS countries. We find that companies from the Health Care and Telecommunications industries respond significantly negatively to increases in exit risk, while companies from the Oil and Gas industry respond significantly positively. Also, more highly indebted companies tend to respond more positively.

Appendix:

Table 1: Resulting eigenvectors from the principal component analysis

Country	λ_{SMV_j}	$\lambda_{\Delta Bank_j}$	$\lambda_{\Delta Sov_j}$	Observations
France	0.43	-0.68	0.59	2,034
Germany[16]	0.38	-0.68	0.63	1,927
Greece	0.54	-0.67	0.52	1,945
Ireland	0.29	-0.69	0.67	1,942
Italy	0.31	-0.68	0.66	1,981
Netherlands	0.54	-0.68	0.50	2,023
Portugal	0.39	-0.69	0.61	2,032
Spain	0.31	-0.69	0.65	1,994

Table 2: Averages of resulting eigenvectors from the principal component analysis using a rolling window of 500 trading days

Country	$\emptyset\ \lambda_{SMV_{j,t}}$	$\emptyset\ \lambda_{\Delta Bank_{j,t}}$	$\emptyset\ \lambda_{\Delta Sov_{j,t}}$	ρ_j[17]
France	0.40	-0.68	0.59	0.94
Germany[11]	0.42	-0.68	0.56	0.82
Greece	0.40	-0.49	0.59	0.71
Ireland	0.21	-0.67	0.65	0.95
Italy	0.33	-0.67	0.65	0.93
Netherlands	0.44	-0.68	0.55	0.92
Portugal	0.41	-0.67	0.61	0.83
Spain	0.30	-0.68	0.64	0.92

Table 3: Variables used in the first-stage regressions and their sources

Variable	Description	Source
$ret_{i,j,t}^{ADR}$	Daily log return of American Depositary Receipt.	Thomson Reuters Tick History
$ret_{i,j,t}^{UND}$	Daily log return of the underlying stock.	Thomson Reuters Tick History
ret_t^S	Daily log return of the EUR/USD exchange rate.	Thomson Reuters Tick History
$EEI_{j,t}$	Country specific market-based measure of eurozone exit incentive. Calculated using PCA as described in 2.1.	Own calculation.
$ret_t^{S\&P\ 500}$	Daily log return of the S&P 500.	Thomson Reuters Tick History

[16] Since the sovereign yield spread is zero by definition for Germany, for use data from CDS with ten years maturity instead.

[17] Correlation between the principal components resulting from the time-invariant approach used for further analysis in the paper and the principal components resulting from a rolling window of 500 trading days.

Table 4: ADRs in our sample by country

Name_ADR	First day	Last day
France		
Air France-KLM SA 1:1	02/11/2008	06/30/2015
Air Liquide SA 5:1	10/28/2008	06/30/2015
Airbus Group SAS 4:1	01/03/2014	06/30/2015
Alcatel-Lucent SA 1:1	01/03/2009	06/30/2015
Alstom SA 10:1	01/06/2011	06/30/2015
Arkema SA 1:1	07/07/2010	06/30/2015
AXA SA 1:1	01/03/2008	06/30/2015
BNP Paribas SA 2:1	10/28/2008	06/30/2015
CAP Gemini SA 2:1	10/28/2008	06/30/2015
Carrefour SA 5:1	01/14/2009	27/05/2011
CGG SA 1:1	02/06/2013	06/30/2015
Compagnie de St. Gobain SA 5:1	10/03/2014	06/30/2015
Crédit Agricole SA 2:1	01/09/2009	06/30/2015
Danone SA 5:1	05/06/2009	06/30/2015
Dassault Systèmes SA 1:1	10/28/2008	06/30/2015
DBV Technologies SA 1:1	10/23/2014	06/30/2015
Électricité de France SA 5:1	07/01/2009	06/30/2015
Essilor International SA 2:1	10/28/2008	06/30/2015
Hermes International 10:1	01/04/2011	06/30/2015
Ingenico Group 5:1	04/04/2014	06/30/2015
Ipsen Group 4:1	04/24/2012	06/30/2015
Kering SA 10:1	04/23/2013	06/30/2015
L'Oreal SA 5:1	10/28/2008	06/30/2015
Lafarge SA 4:1	10/28/2008	06/30/2015
LVMH SE 5:1	10/28/2008	06/30/2015
Michelin SCA 5:1	01/08/2009	06/30/2015
Orange SA 1:1	07/02/2013	06/30/2015
Pernod-Ricard SA 5:1	04/11/2012	06/30/2015
Publicis Groupe SA 4:1	10/28/2008	06/30/2015
Renault SA 1:1	01/05/2015	06/30/2015
Safran SA 1:1	07/01/2011	06/30/2015
Sanofi SA 2:1	01/03/2008	06/30/2015
Schneider Electric SA 5:1	01/07/2009	06/30/2015
SCOR SE 10:1	01/05/2009	06/30/2015
Société Générale SA 5:1	10/28/2008	06/30/2015
Sodexo SA 5:1	01/07/2009	06/30/2015
STMicroelectronics N.V. 1:1	01/03/2008	06/30/2015
Suez Environnement SA 2:1	01/06/2009	06/30/2015
Technip SA 4:1	10/28/2008	06/30/2015
Total SA 1:1	01/03/2008	06/30/2015
Ubisoft Entertainment SA 5:1	10/01/2013	06/30/2015
Valeo SA 2:1	10/28/2008	06/30/2015
Vallourec SA 5:1	10/12/2011	06/30/2015
Veolia Environnement SA 1:1	01/03/2008	06/30/2015
Vinci SA 4:1	10/28/2008	06/30/2015
Vivendi SA 1:1	01/05/2009	06/30/2015
Germany		
Adidas AG 2:1	10/28/2008	06/30/2015
AIXTRON SE 1:1	01/03/2008	06/30/2015
Allianz SE 10:1	10/27/2009	06/30/2015
BASF SE 1:1	10/28/2008	06/30/2015
Bayer AG 1:1	10/28/2008	06/30/2015
BMW AG 3:1	01/05/2009	06/30/2015
Celesio AG 5:1	01/05/2009	06/26/2013
Commerzbank AG 1:1	10/28/2008	06/30/2015
Continental AG 5:1	01/07/2014	06/30/2015
Daimler AG 1:1	04/04/2011	06/30/2015
Deutsche Lufthansa AG 1:1	10/28/2008	06/30/2015

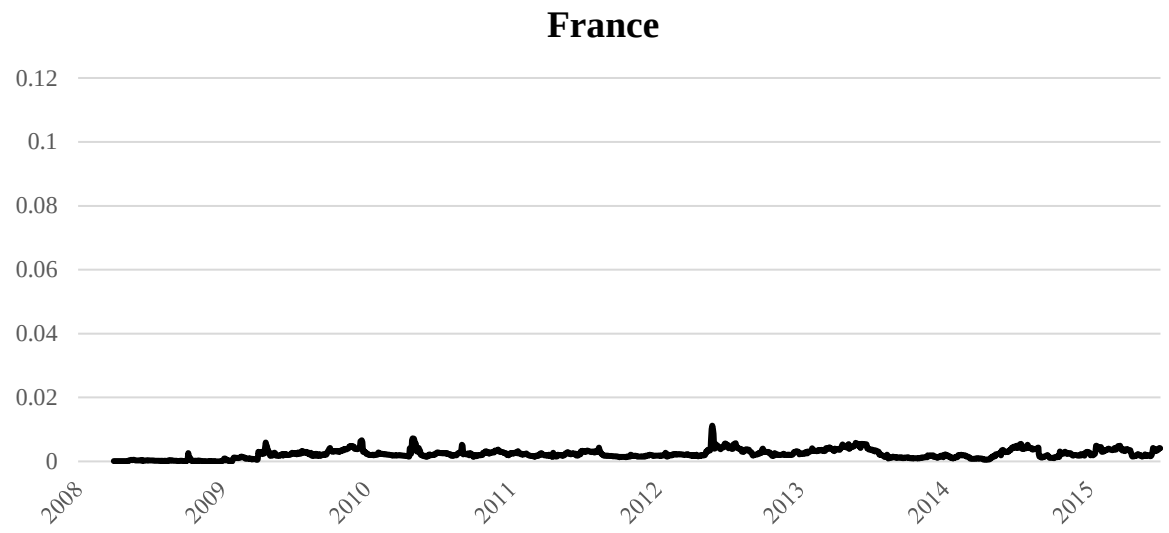
Table 4 (continued): ADRs in our sample by country

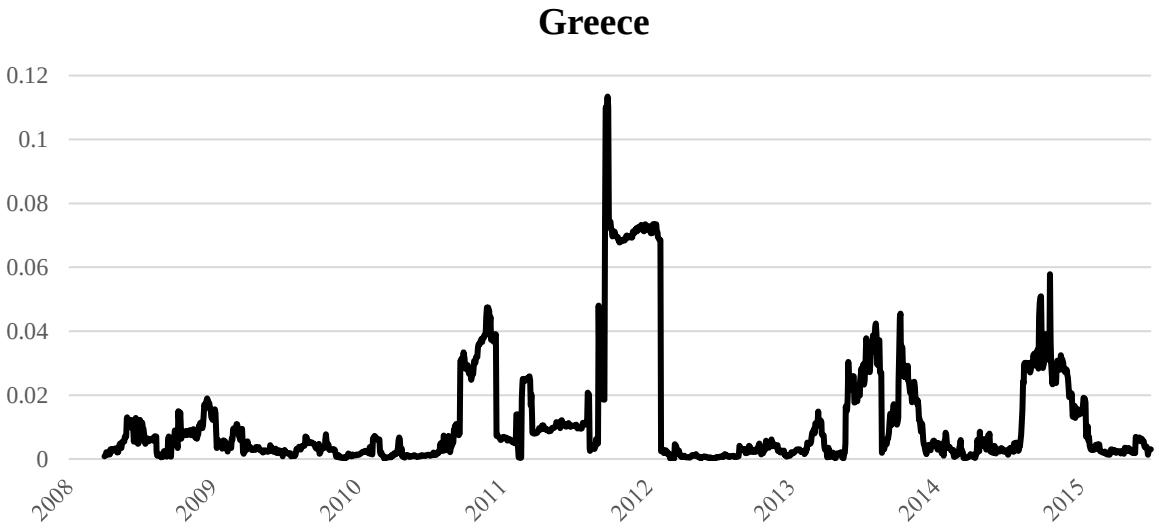
Deutsche Post AG 1:1	01/05/2010	06/30/2015
Deutsche Telekom AG 1:1	07/01/2010	06/30/2015
Deutsche Börse AG 10:1	01/07/2009	06/30/2015
E.ON SE 1:1	10/28/2008	06/30/2015
Fresenius Medical Care AG & Co. KGaA 2:1	01/03/2009	06/30/2015
Fuchs Petrolub SE 4:1	04/01/2014	06/30/2015
GEA Group AG 1:1	04/04/2012	06/30/2015
Hannover Rück SE 2:1	10/28/2008	06/30/2015
HeidelbergCement AG 5:1	01/10/2012	06/30/2015
Henkel AG & Co. KGaA 1:1	10/28/2008	06/30/2015
Infineon Technologies AG 1:1	04/27/2009	06/30/2015
K + S AG 2:1	10/01/2010	06/30/2015
Linde AG 10:1	04/01/2010	06/30/2015
MAN SE 10:1	10/08/2009	09/29/2011
Merck KGaA 3:1	10/29/2008	06/30/2015
Metro Group 5:1	10/01/2013	06/30/2015
Munich Re AG 10:1	10/29/2008	06/30/2015
Porsche AG 10:1	10/07/2009	06/30/2015
ProSiebenSat.1 Media SE 4:1	07/22/2014	06/30/2015
Rheinmetall AG 5:1	04/02/2014	06/26/2015
RWE AG 1:1	10/28/2008	06/30/2015
Salzgitter AG 10:1	04/07/2010	06/14/2013
SAP SE 1:1	01/03/2008	06/30/2015
Siemens AG 1:1	01/03/2008	06/30/2015
Symrise AG 4:1	01/16/2009	06/30/2015
Greece		
Alpha Bank AE 4:1	10/30/2008	06/30/2015
Coca-Cola Hellenic 1:1	01/03/2008	03/28/2013
Eurobank Ergasias SA 2:1	04/14/2014	06/30/2015
Hellenic Telecommunications Organization SA 2:1	01/03/2008	06/30/2015
National Bank of Greece 1:1	01/03/2008	06/30/2015
Piraeus Bank SA 1:2	01/17/2014	06/30/2015
Ireland		
Allied Irish Banks plc 1:10	08/29/2011	08/14/2014
Bank of Ireland plc 1:40	01/03/2008	02/13/2015
C&C Group plc 1:3	07/02/2012	06/30/2015
CRH plc 1:1	01/03/2008	06/30/2015
Ryanair plc 1:5	01/03/2008	06/30/2015
Smurfit Kappa Group plc 1:2	07/03/2014	06/30/2015
Italy		
Atlantia S.p.A. 2:1	01/25/2011	06/30/2015
Danieli S.p.A. 1:1	04/08/2013	06/19/2015
Enel S.p.A. 1:1	10/28/2008	06/30/2015
Eni S.p.A. 1:2	01/03/2008	06/30/2015
Finmeccanica S.p.A. 2:1	04/16/2010	06/30/2015
GTECH S.p.A. 1:1	10/22/2013	09/18/2014
Intesa Sanpaola S.p.A. 1:6	10/28/2008	06/30/2015
Italcementi S.p.A. 1:1	10/28/2008	06/30/2015
Luxottica S.p.A. 1:1	01/03/2008	06/30/2015
Mediaset S.p.A. 1:3	10/28/2008	12/30/2010
Mediolanum S.p.A. 2:1	10/11/2013	06/30/2015
Saipem S.p.A. 2:1	04/01/2010	12/22/2014
Telecom Italia S.p.A. 1:10	01/03/2008	06/30/2015
Terna S.p.A. 1:3	04/08/2013	06/30/2015
Netherlands		
AEGON NV 1:1	01/03/2008	06/30/2015
Koninklijke Ahold NV 1:1	10/28/2008	06/30/2015
Akzo Nobel NV 3:1	10/28/2008	06/30/2015
Aperam SA 1:1	01/31/2011	06/30/2015
ArcelorMittal SA 1:1	01/03/2008	06/30/2015

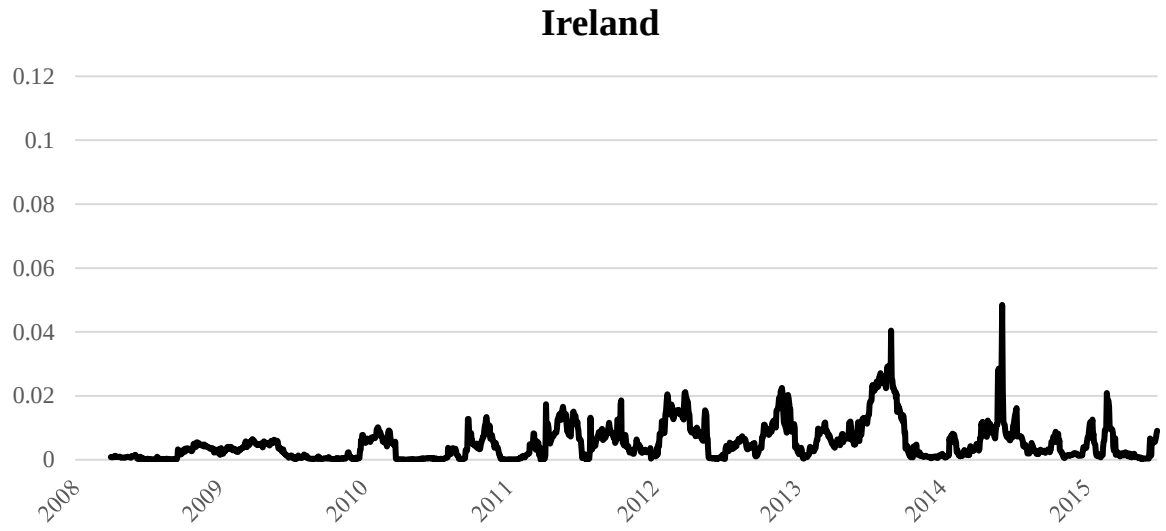
Table 4 (continued): ADRs in our sample by country

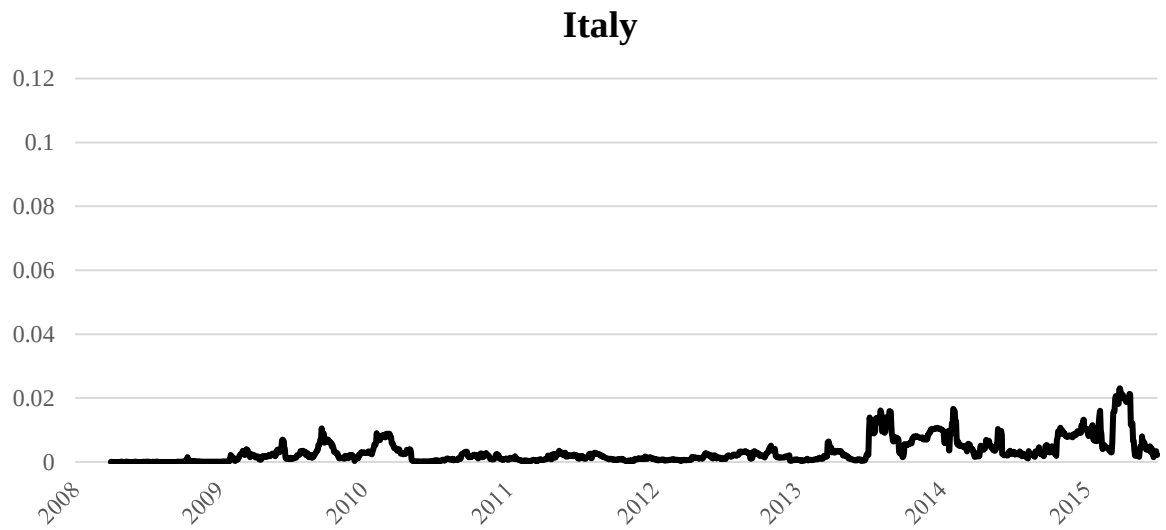
ASML Holding NV 1:1	01/03/2008	06/30/2015
Gemalto NV 2:1	05/06/2013	06/30/2015
Heineken NV 2:1	01/03/2013	06/30/2015
ING Groep NV 1:1	01/03/2008	06/30/2015
Koninklijke Philips NV 1:1	01/03/2008	06/30/2015
PostNL NV 1:1	01/04/2012	06/30/2015
Koninklijke DSM NV 4:1	10/28/2008	06/30/2015
Royal Dutch Shell plc 1:2	01/03/2008	06/30/2015
Royal KPN NV 1:1	10/28/2008	06/30/2015
TNT Express NV 1:1	07/07/2011	06/30/2015
Unilever NV 1:1	01/03/2008	06/30/2015
Wolters Kluwer NV 1:1	10/28/2008	06/30/2015
Portugal		
Energias de Portugal SGPS SA 10:1	10/28/2008	06/30/2015
Galp Energie SGPS SA 2:1	01/05/2015	06/30/2015
Jerónimo Martins SGPS SA 1:2	07/03/2013	12/19/2014
Pharol SGPS SA 1:1	01/03/2008	06/30/2015
Spain		
Abengoa SA 2:1	10/21/2013	06/30/2015
Amadeus IT Group SA 1:1	04/02/2012	06/30/2015
Banco Santander SA 1:1	01/03/2008	06/30/2015
BBVA SA 1:1	01/05/2010	06/30/2015
Enagás SA 2:1	04/02/2012	06/30/2015
Gas Natural SDG SA 5:1	01/05/2015	06/30/2015
Grifols SA 1:1	06/03/2011	06/30/2015
Iberdrola SA 1:4	10/28/2008	06/30/2015
Indra Sistemas SA 2:1	04/11/2011	06/30/2015
Inditex SA 2:1	07/01/2010	06/30/2015
PRISA SA 1:1	01/04/2011	09/22/2014
Red Eléctrica de España SA 5:1	10/01/2012	06/30/2015
Repsol SA 1:1	04/01/2011	06/30/2015
Telefónica SA 1:1	01/03/2008	06/30/2015

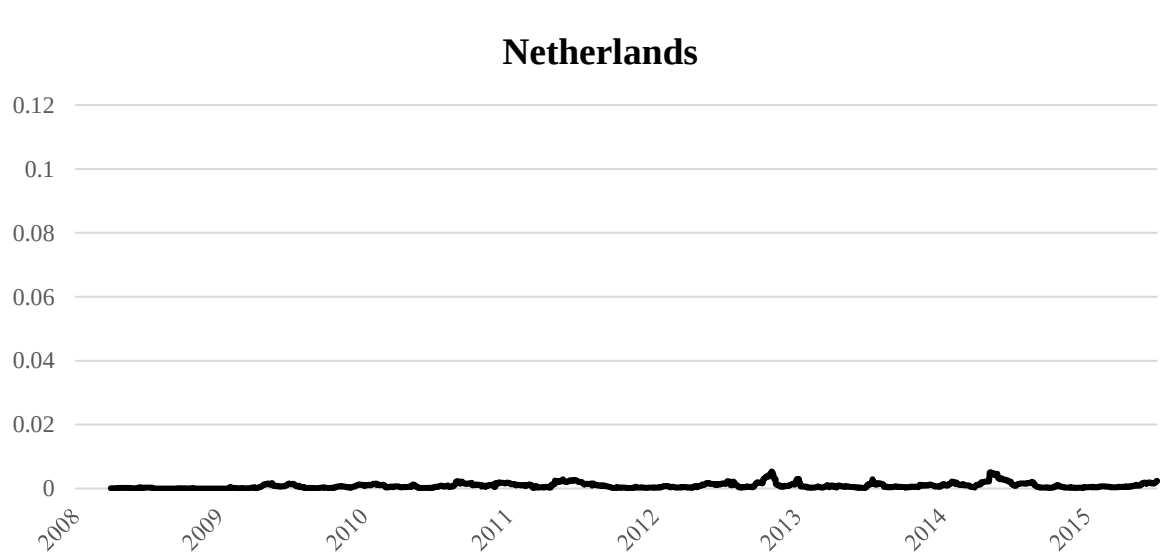
Figure 1 - 8: Eurozone exit risk by country






Ireland
0.12
0.1
0.08
0.06
0.04
0.02
0
2008
2009
2010
2011
2012
2013
2014
2015


Italy
0.12
0.1
0.08
0.06
0.04
0.02
0
2008
2009
2010
2011
2012
2013
2014
2015


Netherlands
0.12
0.1
0.08
0.06
0.04
0.02
0
2008
2009
2010
2011
2012
2013
2014
2015

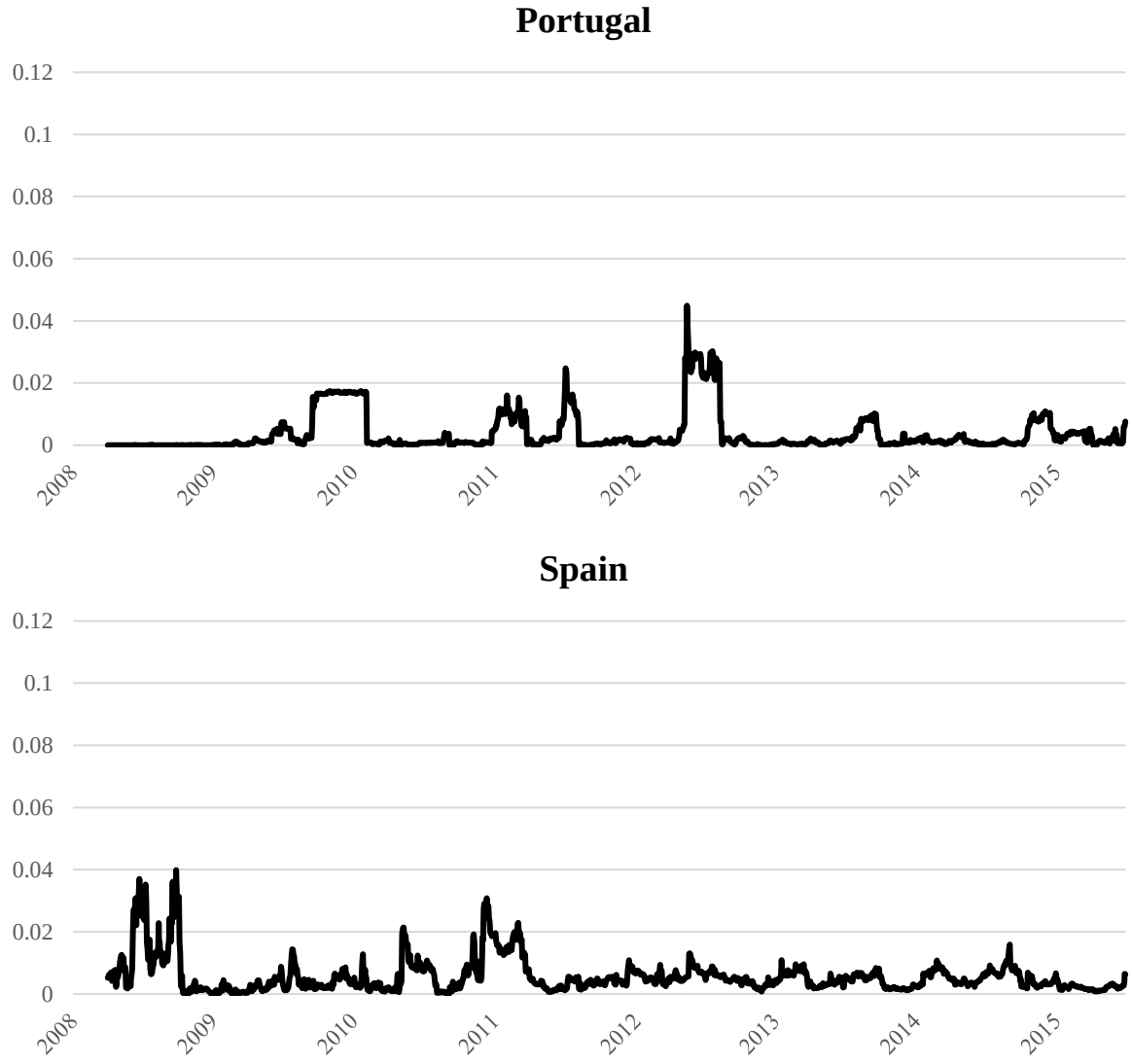

Portugal
0.12
0.1
0.08
0.06
0.04
0.02
0
2008
2009
2010
2011
2012
2013
2014
2015
Spain
0.12
0.1
0.08
0.06
0.04
0.02
0
2008
2009
2010
2011
2012
2013
2014
2015

Table 5: Results from pooled OLS with country dummies using robust standard errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Greece	0.00951***					0.01010***				
	(0.000452)					(0.000452)				
Ireland		0.00270***				0.00357***				
		(0.000184)				(0.000183)				
Italy			0.00078***			0.00168***				
			(0.000108)			(0.000105)				
Portugal				0.00064***		0.00160***				
				(0.000154)		(0.000153)				
Spain					0.00215***	0.00295***				
					(8.66e-05)	(8.37e-05)				
GIIPS							0.00354***			
							(0.000117)			
France								-0.00080***		
								(4.62e-05)		
Germany									-0.00121***	
									(4.56e-05)	
Netherlands										-0.00249***
										(3.61e-05)
Constant	0.00267***	0.00294***	0.00298***	0.00304***	0.00288***	0.00208***	0.00237***	0.00332***	0.00336***	0.00340***
	(1.96e-05)	(2.66e-05)	(2.73e-05)	(2.69e-05)	(2.79e-05)	(1.69e-05)	(1.74e-05)	(3.72e-05)	(3.42e-05)	(3.07e-05)
Observations	167,469	167,469	167,469	167,469	167,469	167,469	167,469	167,469	167,469	167,469
R^2	0.030	0.002	0.000	0.000	0.003	0.040	0.016	0.001	0.002	0.006
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Results are obtained by regressing the eurozone exit risk measures by ADR on country dummies using robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Regressions of the return of selected bank indices. Full sample: 01/01/2008 – 06/30/2015

	Greece	**Ireland**	**Italy**	**Portugal**	**Spain**	**EUROSTOXX Banks**
Δ Exit risk Greece	-0.1072	-0.1888	-0.0503	-0.1858*	-0.0237	0.1162
	(0.2333)	(0.2265)	(0.0646)	(0.1030)	(0.0703)	(0.0926)
Δ Exit risk Ireland	0.6041	-0.1055	0.0255	0.0427	0.0333	-0.1771
	(0.5629)	(0.3413)	(0.0950)	(0.3218)	(0.0797)	(0.1221)
Δ Exit risk Italy	4.4455	0.0639	0.0503	-0.7358	0.2850	-0.0430
	(5.3941)	(0.5551)	(0.1759)	(0.5121)	(0.1787)	(0.3115)
Δ Exit risk Portugal	0.2672	-0.4120	-0.0594	-0.4177	-0.3724**	-0.1022
	(0.8875)	(0.4450)	(0.1533)	(0.3450)	(0.1759)	(0.2371)
Δ Exit risk Spain	-0.4990	0.8677	0.0408	-0.1270	0.0380	-0.5404**
	(0.4775)	(0.5801)	(0.1211)	(0.3622)	(0.1638)	(0.2350)
Return stock market	1.7089***	1.7702***	1.0752***	1.4313***	1.0129***	0.4284***
	(0.0557)	(0.0886)	(0.0310)	(0.0883)	(0.0310)	(0.0699)
Δ Sovereign spread	0.0014	-0.0195	-0.0161***	-0.0054	-0.0040	
	(0.0013)	(0.0128)	(0.0040)	(0.0058)	(0.0031)	
Return exchange rate	-0.0147	0.3269**	-0.0008	-0.0295	0.0260	0.0144
	(0.1098)	(0.1645)	(0.0354)	(0.0799)	(0.0331)	(0.0491)
Δ VSTOXX	0.0025***	0.0039***	0.0010***	0.0028***	0.0004**	0.0001
	(0.0007)	(0.0006)	(0.0002)	(0.0004)	(0.0002)	(0.0003)
Return EUROSTOXX Banks	0.2473*	0.3679***	0.1892***	0.1515***	0.2223***	
	(0.1497)	(0.0829)	(0.0230)	(0.0487)	(0.0224)	
Return bank GIIPS	-0.0022	-0.0000	0.0008**	0.0018**	0.0008***	0.0087***
	(0.0016)	(0.0010)	(0.0003)	(0.0008)	(0.0003)	(0.0006)
Δ Sovereign spread GIIPS	-0.0001	0.0003	0.0004*	-0.0019***	0.0006***	-0.0015***
	(0.0007)	(0.0007)	(0.0002)	(0.0006)	(0.0002)	0.0087***
Constant	0.0012	-0.0007	0.0001	-0.0015***	0.0001	-0.0004
	(0.0018)	(0.0008)	(0.0002)	(0.0005)	(0.0002)	(0.0003)
Observations	1,404	1,407	1,408	1,404	1,408	1,413
R^2	0.25	0.56	0.90	0.57	0.92	0.80
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00

Results are obtained by regressing the return of the respective bank indices on the change in eurozone exit risk by country and a set of control variables using robust standard errors (as described in eq. (5)). *** p<0.01, ** p<0.05, * p<0.1

Table 7: Regressions of the return of selected bank indices. Subsample: 01/01/2008 – 07/26/2012

	Greece	**Ireland**	**Italy**	**Portugal**	**Spain**	**EUROSTOXX Banks**
Δ Exit risk Greece	-0.0414	-0.2064	-0.0544	-0.1975***	-0.0007	0.1673
	(0.2524)	(0.3088)	(0.0812)	(0.0724)	(0.0908)	(0.1231)
Δ Exit risk Ireland	1.5265	-0.0247	0.0201	-0.0622	-0.0095	-0.4691
	(0.9996)	(1.0397)	(0.3114)	(0.6150)	(0.2335)	(0.4174)
Δ Exit risk Italy	-0.5909	-2.3202	0.6005	1.0241	0.1662	-0.6619
	(1.1714)	(2.8218)	(0.6600)	(1.1621)	(0.6678)	(1.3363)
Δ Exit risk Portugal	1.1179	-0.6772	-0.0239	-0.5320	-0.5018***	-0.2195
	(0.8145)	(0.5757)	(0.2077)	(0.4528)	(0.1852)	(0.3118)
Δ Exit risk Spain	-0.1953	1.0050	0.0989	-0.0915	-0.0131	-0.6792***
	(0.2611)	(0.6428)	(0.1287)	(0.3017)	(0.1781)	(0.2598)
Return stock market	1.6236***	1.8564***	1.0379***	1.0879***	1.0055***	0.3096***
	(0.0534)	(0.1030)	(0.0395)	(0.0919)	(0.0380)	(0.0765)
Δ Sovereign spread	0.0021*	-0.0242	-0.0157***	-0.0009	-0.0044	
	(0.0011)	(0.0148)	(0.0045)	(0.0074)	(0.0038)	
Return exchange rate	0.0767	0.2903	-0.0357	0.0101	-0.0005	-0.0293
	(0.0871)	(0.2363)	(0.0478)	(0.0870)	(0.0457)	(0.0674)
Δ VSTOXX	0.0014***	0.0042***	0.0009***	0.0020***	0.0004*	-0.0000
	(0.0004)	(0.0007)	(0.0002)	(0.0005)	(0.0002)	(0.0004)
Return EUROSTOXX Banks	0.0663	0.3791***	0.1818***	0.1155**	0.2075***	0.0103***
	(0.0607)	(0.1089)	(0.0274)	(0.0526)	(0.0276)	(0.0006)
Return bank GIIPS	-0.0006	-0.0006	0.0013***	0.0024***	0.0013***	-0.0015***
	(0.0008)	(0.0018)	(0.0005)	(0.0009)	(0.0004)	(0.0003)
Δ Sovereign spread GIIPS	-0.0007	0.0003	0.0003	-0.0021***	0.0005**	-0.0293
	(0.0006)	(0.0010)	(0.0003)	(0.0007)	(0.0002)	(0.0674)
Constant	0.0002	-0.0012	-0.0001	-0.0012*	0.0003	-0.0002
	(0.0007)	(0.0012)	(0.0003)	(0.0007)	(0.0003)	(0.0004)
Observations	798	799	800	796	800	801
R^2	0.80	0.58	0.90	0.57	0.92	0.81
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00

Results are obtained by regressing the return of the respective bank indices on the change in eurozone exit risk by country and a set of control variables using robust standard errors (as described in eq. (5)).. *** p<0.01, ** p<0.05, * p<0.1

Table 8: List of banks in our sample

Bank	EBA Code	Total assets	RWA (%)	Tier 1 (%)	EAD (%)				
					GR	IE	IT	PT	ES
GIIPS									
Eurobank Ergasias SA	gr030	85,885	55.85	8.96	61.72	0.14	0.30	0.08	0.22
National Bank of Greece SA	gr031	118,832	57.48	11.94	58.05	0.03	0.04	0.02	0.00
Alpha Bank AE	gr032	66,798	73.30	10.77	69.12	0.04	0.03	0.02	0.02
Piraeus Bank SA	gr033	57,680	65.86	8.00	59.61	0.01	0.03	0.00	0.00
Agricultural Bank of Greece SA	gr034	31,221	40.47	6.27	80.82	0.01	0.03	0.00	0.00
TT Hellenic Postbank SA	gr035	16,783	39.40	18.50	86.42	0.00	0.00	0.00	0.00
Allied Irish Banks, plc	ie037	131,311	75.22	3.71	0.04	65.43	1.14	0.42	2.31
Bank of Ireland Group	ie038	156,712	53.52	8.39	0.12	43.96	0.57	0.24	1.25
Intesa Sanpaolo SpA	it040	576,962	57.57	7.88	0.16	0.21	72.47	0.27	1.14
UniCredit SpA	it041	929,488	48.94	7.85	0.00	0.00	41.12	0.00	0.00
Banca Monte dei Paschi de Siena SpA	it042	244,279	44.72	5.77	0.00	0.00	84.06	0.00	0.00
Banco Popolare Sc	it043	140,043	67.75	5.77	0.00	0.00	87.53	0.00	0.00
Unione de Banche Italiane SpA	it044	130,559	72.27	6.95	0.00	0.00	102.08	0.00	0.00
Banco Comercial Portugues SA	pt054	100,010	59.56	5.91	6.33	1.45	0.08	67.96	0.94
Banco Espirito Santo SA	pt055	85,644	83.04	6.35	0.00	0.00	0.00	65.22	8.00
Banco BPI SA	pt056	43,826	59.41	8.19	1.38	0.87	2.73	75.88	8.27
Banco Santander SA	es059	1,223,267	48.58	7.07	0.00	0.00	0.00	3.66	29.06
Banco Bilbao Vizcaya Argentaria SA	es060	540,936	57.92	7.96	0.00	0.32	0.11	1.69	70.01
Bankia SA	es061	327,930	61.14	6.91	0.00	0.00	0.00	0.00	84.93
Banco Popular Español SA	es064	129,183	73.17	7.09	0.00	0.00	0.00	6.29	93.65
Banco de Sabadell SA	es065	96,703	58.41	6.21	0.00	0.00	0.00	0.00	90.84
Bankinter SA	es069	53,476	57.90	6.20	0.00	0.00	0.00	0.00	93.95
Banca Civica SA	es071	71,055	64.87	8.00	0.00	0.00	0.00	0.00	93.65
Caja de Ahorros de Mediterraneo	es083	72,034	66.98	3.82	0.00	0.00	0.00	0.00	92.11
Averages GIIPS		226,276	60.14	7.69	17.66	4.69	16.35	9.24	27.93
Non GIIPS Eurozone									
Erste Group Bank AG	at001	205,938	58.53	8.72	0.46	0.15	1.01	0.12	0.44
Dexia SA	be004	548,135	25.69	12.07	0.91	0.00	9.11	1.03	6.07
KBC Groep NV	be005	276,723	40.45	10.46	0.20	6.59	2.20	0.08	1.05
Cyprus Popular Bank Public Co. Ltd.	cy006	42,580	64.88	7.29	43.88	0.23	1.12	0.51	0.64
Bank of Cyprus PCL	cy007	41,996	62.57	8.12	26.77	0.12	0.64	0.00	0.21
BNP Paribas SA	fr013	1,998,157	30.09	9.21	0.43	0.39	6.98	0.41	1.72
Crédit Agricole SA	fr014	1,503,621	37.35	8.24	1.80	0.45	5.56	0.21	0.99
Société Générale SA	fr016	1,051,323	32.71	8.09	0.63	0.44	1.99	0.12	1.29
Deutsche Bank AG	de017	1,905,630	18.19	8.76	0.19	0.96	2.14	0.22	1.69
Commerzbank AG	de018	771,201	34.69	9.99	0.59	0.01	2.49	0.56	2.52
Landesbank Berlin Holding AG	de027	133,861	26.34	14.64	0.37	0.91	2.58	0.21	2.85
Bank of Valetta plc	mt046	6,382	52.75	10.53	0.00	0.00	0.00	0.00	0.00
ING Groep NV	nl047	933,073	34.41	9.62	0.00	0.00	0.00	0.00	0.00
SNS Reaal Groep NV	nl050	78,918	26.99	8.36	0.00	0.00	0.19	0.00	0.67
Averages Non GIIPS Eurozone		730,089	37.92	9.51	5.86	0.79	2.77	0.27	1.55
Non Eurozone									
Danske Bank A/S	dk008	402,555	36.25	9.99	0.00	3.31	0.00	0.00	0.00
Jyske Bank A/S	dk009	32,752	43.02	12.06	0.19	0.00	0.00	0.00	0.00
Sydbank A/S	dk010	20,238	48.87	12.45	0.00	0.00	0.00	0.00	0.00
OTP Bank Nyrt	hu036	35,190	76.27	12.33	0.00	0.00	0.00	0.00	0.00
DNB ASA	no051	209,954	56.10	8.27	0.00	0.00	0.00	0.00	0.00
PKO Bank Polski SA	pl052	35,540	100.0	11.82	0.00	0.1	0.24	0.00	0.00
Nova Kreditna Banka Maribor dd	si058	0	-	7.40	-	-	-	-	-
Nordea Bank AB	se084	542,853	39.56	8.90	0.04	0.17	0.05	0.01	0.09
Skandinaviska Enskilda Banken AB	se085	212,240	40.82	11.09	0.03	0.20	0.08	0.03	0.38
Svenska Handelsbanken AB	se086	240,202	44.28	7.72	0.00	0.00	0.00	0.00	0.00
Swedbank AB	se087	191,365	44.08	8.72	0.00	0.01	0.00	0.00	0.00
Royal Bank of Scotland Group plc	gb088	607,351	100.0	9.71	0.58	10.58	1.74	0.28	3.84
HSBC Holdings plc	gb089	1,783,199	46.30	10.53	0.24	0.00	0.00	0.00	0.54
Barclays plc	gb090	1,725,709	26.72	10.03	0.01	0.24	1.52	0.73	2.55
Lloyds Banking Group plc	gb091	1,006,082	46.93	10.16	0.00	0.00	0.00	0.00	0.00
Averages Non Eurozone		432,793	53.55	10.13	0.07	0.94	0.33	0.07	0.52

Table 9: Determinants of banks' exposure to Greece exit risk

Exit Risk$_{Greece}$	**Full Sample**				**Subsample**			
	(1)	**(2)**	**(3)**	**(4)**	**(1)**	**(2)**	**(3)**	**(4)**
Credit Exposure/Assets	-4.317***	-3.916**	-3.441***	-3.219**	-4.646***	-4.187**	-5.120***	-4.542***
	(1.213)	(1.783)	(0.936)	(1.467)	(1.389)	(1.706)	(0.983)	(1.383)
Log(Total Assets)		-0.0552*		-0.0238		-0.0490		-0.0203
		(0.0276)		(0.0262)		(0.0311)		(0.0312)
RWA/Total Assets		-0.204		-0.214		0.00700		0.0270
		(0.223)		(0.200)		(0.225)		(0.146)
Tier 1/RWA		1.591		0.983		2.108		2.488
		(3.713)		(3.075)		(3.821)		(2.921)
Constant	-0.118***	0.530	0.0236	0.342	-0.101**	0.319	0.0559	0.0774
	(0.0432)	(0.406)	(0.0354)	(0.379)	(0.0434)	(0.428)	(0.0354)	(0.403)
Observations	44	44	44	44	43	43	43	43
R^2	0.024	0.112	0.023	0.072	0.028	0.113	0.050	0.121
Prob > F	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00

Table 10: Determinants of banks' exposure to Irish exit risk

Exit Risk$_{Ireland}$	**Full Sample**				**Subsample**			
	(1)	**(2)**	**(3)**	**(4)**	**(1)**	**(2)**	**(3)**	**(4)**
Credit Exposure/Assets	-3.435***	-2.234*	-0.935	-0.232	-5.030***	-3.679	-5.567**	-5.975
	(1.026)	(1.282)	(1.202)	(1.915)	(1.637)	(2.848)	(2.465)	(4.151)
Log(Total Assets)		-0.0671**		-0.0109		-0.116**		-0.0237
		(0.0321)		(0.0619)		(0.0524)		(0.0812)
RWA/Total Assets		0.121		-0.267		0.302		0.161
		(0.239)		(0.517)		(0.421)		(0.710)
Tier 1/RWA		-4.401		-0.192		-4.023		2.722
		(3.145)		(4.504)		(3.788)		(4.722)
Constant	-0.162***	0.979**	0.0143	0.299	-0.422***	1.188	-0.0647	-0.0992
	(0.0603)	(0.454)	(0.0706)	(1.137)	(0.0793)	(0.864)	(0.0943)	(1.476)
Observations	50	50	50	50	48	48	48	48
R^2	0.023	0.155	0.001	0.009	0.031	0.203	0.028	0.046
Prob > F	0.00	0.00	0.44	0.76	0.00	0.01	0.03	0.31

Results are obtained by regressing the bank-specific estimates of $\beta_{exit\ risk,i,j}$ (as obtained from eq. (6)) on credit exposure of the respective bank to the respective country and a set of control variables using robust standard errors (as described in eq. (7)). Banks from country j are excluded for this analysis. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Determinants of banks' exposure to Italian exit risk

Exit Risk$_{Italy}$	**Full Sample**				**Subsample**			
	(1)	**(2)**	**(3)**	**(4)**	**(1)**	**(2)**	**(3)**	**(4)**
Credit Exposure/Assets	8.848	-3.746	8.819	-1.440	15.79	-3.980	17.51	1.024
	(13.15)	(10.96)	(13.04)	(10.92)	(18.95)	(17.99)	(17.58)	(15.77)
Log(Total Assets)		0.120		0.0711		0.313		0.449*
		(0.160)		(0.151)		(0.254)		(0.236)
RWA/Total Assets		-1.878		-1.317		-2.641		-0.0231
		(1.270)		(1.110)		(2.291)		(1.993)
Tier 1/RWA		11.13		17.79*		6.368		14.00
		(9.593)		(9.207)		(13.74)		(12.79)
Constant	-0.763*	-2.124	-0.299	-1.993	-0.650	-3.476	0.397	-6.139*
	(0.393)	(2.657)	(0.413)	(2.426)	(0.558)	(3.999)	(0.593)	(3.218)
Observations	47	47	47	47	45	45	45	45
R^2	0.006	0.060	0.005	0.063	0.010	0.062	0.011	0.051
Prob > F	0.51	0.47	0.50	0.39	0.41	0.49	0.33	0.22

Table 12: Determinants of banks' exposure to Portuguese exit risk

Exit Risk$_{Portugal}$	**Full Sample**				**Subsample**			
	(1)	**(2)**	**(3)**	**(4)**	**(1)**	**(2)**	**(3)**	**(4)**
Credit Exposure/Assets	-7.347*	-2.304	-3.684	0.125	-12.20***	-5.841	-9.923***	-4.481
	(3.674)	(3.469)	(3.597)	(3.812)	(3.825)	(4.212)	(3.675)	(4.264)
Log(Total Assets)		-0.104**		-0.0513		-0.128**		-0.0782
		(0.0485)		(0.0611)		(0.0597)		(0.0687)
RWA/Total Assets		-0.574		-0.315		-0.824		-0.810
		(0.372)		(0.501)		(0.612)		(0.665)
Tier 1/RWA		5.384**		6.207**		6.601**		6.825*
		(2.309)		(2.748)		(3.155)		(3.589)
Constant	-0.369***	0.693	0.0601	0.274	-0.337***	1.027	0.105	0.840
	(0.0841)	(0.777)	(0.0904)	(1.045)	(0.110)	(1.001)	(0.109)	(1.173)
Observations	49	49	49	49	47	47	47	47
R^2	0.020	0.190	0.004	0.118	0.035	0.208	0.024	0.175
Prob > F	0.05	0.00	0.31	0.01	0.00	0.00	0.01	0.00

Results are obtained by regressing the bank-specific estimates of $\beta_{exit\ risk,i,j}$ (as obtained from eq. (6)) on credit exposure of the respective bank to the respective country and a set of control variables using robust standard errors (as described in eq. (7)). Banks from country j are excluded for this analysis.*** p<0.01, ** p<0.05, * p<0.1

Table 13: Determinants of banks' exposure to Spanish exit risk

Exit Risk$_{Spain}$	**Full Sample**				**Subsample**			
	(1)	**(2)**	**(3)**	**(4)**	**(1)**	**(2)**	**(3)**	**(4)**
Credit Exposure/Assets	-5.459*	-4.584	-5.102**	-4.731*	-3.968	-2.371	-3.709	-2.863
	(2.803)	(3.474)	(2.269)	(2.429)	(3.466)	(3.960)	(3.104)	(2.980)
Log(Total Assets)		-0.00377		0.00983		-0.00444		-2.59e-05
		(0.0427)		(0.0359)		(0.0423)		(0.0359)
RWA/Total Assets		-0.708*		-0.436		-1.249***		-0.759*
		(0.361)		(0.336)		(0.410)		(0.415)
Tier 1/RWA		3.695		1.621		3.186		0.757
		(2.320)		(2.480)		(2.310)		(2.531)
Constant	0.0479	0.102	0.00360	-0.0475	0.0131	0.376	-0.0401	0.258
	(0.0612)	(0.711)	(0.0700)	(0.615)	(0.120)	(0.639)	(0.0693)	(0.605)
Observations	44	44	44	44	42	42	42	42
R^2	0.078	0.288	0.060	0.125	0.016	0.182	0.033	0.150
Prob > F	0.06	0.11	0.03	0.01	0.26	0.01	0.24	0.03

Results are obtained by regressing the bank-specific estimates of $\beta_{exit\ risk,i,j}$ (as obtained from eq. (6)) on credit exposure of the respective bank to the respective country and a set of control variables using robust standard errors (as described in eq. (7)). Banks from country j are excluded for this analysis.*** p<0.01, ** p<0.05, * p<0.1

Table 14: Results for the panel of individual stock returns:

	Full sample			Subsample		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	-0.029	0.017	0.015	-0.011	0.012	0.010
	(0.024)	(0.025)	(0.025)	(0.033)	(0.034)	(0.034)
Return stock market		0.347***	0.282***		0.323***	0.262***
		(0.011)	(0.011)		(0.011)	(0.011)
Δ Sovereign spread		-0.009***	-0.010***		-0.009***	-0.011***
		(0.001)	(0.001)		(0.001)	(0.001)
Return industry index		0.197***	0.242***		0.207***	0.2343***
		(0.008)	(0.011)		(0.008)	(0.011)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.220***			-0.173***
			(0.013)			(0.014)
Constant	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	351,451	334,915	334,433	203,831	188,173	188,874
Number of stocks	333	333	333	312	312	312
R^2	0.000	0.136	0.140	0.000	0.160	0.164
Prob > F	0.24	0.00	0.00	0.73	0.00	0.00

Results are obtained by regressing the return of the respective stock on the change in domestic eurozone exit risk and a set of control variables using stock fixed effects and robust standard errors (as described in eq. (8)).
*** p<0.01, ** p<0.05, * p<0.1

Table 15: Results for the panel of individual stock' returns: Basic Materials

Basic Materials	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	0.011	0.026	0.031	0.054	0.053	0.047
	(0.059)	(0.059)	(0.059)	(0.076)	(0.078)	(0.077)
Return stock market		0.370***	0.301***		0.350***	0.275***
		(0.032)	(0.032)		(0.034)	(0.035)
Δ Sovereign spread		-0.009***	-0.011***		-0.010***	-0.012***
		(0.002)	(0.002)		(0.002)	(0.002)
Return industry index		0.137***	0.158***		0.147***	0.158***
		(0.020)	(0.025)		(0.021)	(0.027)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.166***			-0.127***
			(0.036)			(0.038)
Constant	-0.001***	-0.000***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	27,754	26,373	26,338	16,882	15,562	15,562
Number of stocks	28	28	28	28	28	28
R^2	0.000	0.113	0.117	0.000	0.137	0.141
Prob > F	0.85	0.00	0.00	0.48	0.00	0.00

Table 16: Results for the panel of individual stock returns: Consumer Goods

Consumer Goods	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	0.012	0.066	0.063	0.065	0.111	0.105
	(0.052)	(0.055)	(0.056)	(0.075)	(0.080)	(0.081)
Return stock market		0.314***	0.240***		0.319***	0.241***
		(0.019)	(0.019)		(0.021)	(0.021)
Δ Sovereign spread		-0.006***	-0.007***		-0.006***	-0.007***
		(0.001)	(0.001)		(0.002)	(0.002)
Return industry index		0.153***	0.160***		0.150***	0.146***
		(0.014)	(0.016)		(0.015)	(0.017)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.127***			-0.067**
			(0.025)			(0.031)
Constant	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	57,453	54,809	54,731	32,513	30,035	30,035
Number of stocks	63	63	63	59	59	59
R^2	0.000	0.087	0.091	0.000	0.104	0.107
Prob > F	0.82	0.00	0.00	0.39	0.00	0.00

Results are obtained by regressing the return of the respective stock on the change in domestic eurozone exit risk and a set of control variables using stock fixed effects and robust standard errors (as described in eq. (8)).
*** p<0.01, ** p<0.05, * p<0.1

Table 17: Results for the panel of individual stock returns: Consumer Services

Consumer Services	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	0.003	0.047	0.049	-0.002	0.021	0.027
	(0.061)	(0.062)	(0.063)	(0.103)	(0.107)	(0.108)
Return stock market		0.339***	0.253***		0.300***	0.237***
		(0.030)	(0.030)		(0.031)	(0.031)
Δ Sovereign spread		-0.007***	-0.008***		-0.006**	-0.008***
		(0.002)	(0.002)		(0.002)	(0.002)
Return industry index		0.230***	0.356***		0.254***	0.345***
		(0.016)	(0.026)		(0.017)	(0.029)
Δ VSTOXX			-0.001***			-0.000***
			(0.000)			(0.000)
Return exchange rate			-0.349***			-0.284***
			(0.038)			(0.043)
Constant	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	55,379	52,880	52,794	31,402	29,056	29,056
Number of stocks	57	57	57	51	51	51
R^2	0.000	0.119	0.125	0.000	0.143	0.148
Prob > F	0.96	0.00	0.00	0.99	0.00	0.00

Table 18: Results for the panel of individual stock returns: Health Care

Health Care	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	-0.331**	-0.353**	-0.351***	-0.316**	-0.381***	-0.388***
	(0.118)	(0.117)	(0.114)	(0.129)	(0.125)	(0.123)
Return stock market		0.343***	0.285***		0.330***	0.261***
		(0.029)	(0.028)		(0.033)	(0.031)
Δ Sovereign spread		-0.008**	-0.009**		-0.010**	-0.011***
		(0.004)	(0.003)		(0.004)	(0.003)
Return industry index		0.147***	0.172***		0.158***	0.157***
		(0.018)	(0.036)		(0.019)	(0.033)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.164**			-0.098
			(0.062)			(0.061)
Constant	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	18,175	17,307	17,281	10,654	9,827	9,827
Number of stocks	14	14	14	14	14	14
R^2	0.001	0.114	0.118	0.001	0.134	0.138
Prob > F	0.01	0.00	0.00	0.03	0.00	0.00

Results are obtained by regressing the return of the respective stock on the change in domestic eurozone exit risk and a set of control variables using stock fixed effects and robust standard errors (as described in eq. (8)).
*** p<0.01, ** p<0.05, * p<0.1

Table 19: Results for the panel of individual stock returns: Industrials

Industrials	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	-0.027	0.023	0.019	-0.011	0.015	0.017
	(0.045)	(0.044)	(0.044)	(0.055)	(0.053)	(0.053)
Return stock market		0.315***	0.249***		0.271***	0.215***
		(0.021)	(0.022)		(0.022)	(0.022)
Δ Sovereign spread		-0.012***	-0.013***		-0.012***	-0.015***
		(0.001)	(0.001)		(0.002)	(0.002)
Return industry index		0.234***	0.317***		0.258***	0.325***
		(0.014)	(0.017)		(0.014)	(0.017)
Δ VSTOXX			-0.000***			-0.000***
			(0.000)			(0.000)
Return exchange rate			-0.297***			-0.276***
			(0.021)			(0.022)
Constant	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	105,369	100,326	100,182	61,441	56,644	56,644
Number of stocks	99	99	99	91	91	91
R^2	0.000	0.152	0.157	0.000	0.181	0.186
Prob > F	0.55	0.00	0.00	0.84	0.00	0.00

Table 20: Results for the panel of individual stock returns: Oil and Gas

Oil and Gas	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	0.117	0.200*	0.197*	0.215***	0.276***	0.271***
	(0.103)	(0.106)	(0.109)	(0.068)	(0.081)	(0.082)
Return stock market		0.461***	0.361***		0.403***	0.305***
		(0.068)	(0.076)		(0.062)	(0.069)
Δ Sovereign spread		-0.004	-0.006*		-0.005	-0.007*
		(0.003)	(0.003)		(0.004)	(0.003)
Return industry index		0.249***	0.284***		0.284***	0.297***
		(0.047)	(0.050)		(0.045)	(0.050)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.223***			-0.156***
			(0.035)			(0.042)
Constant	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	21,395	20,382	20,355	12,547	11,586	11,586
Number of stocks	16	16	16	15	15	15
R^2	0.000	0.238	0.245	0.000	0.288	0.295
Prob > F	0.24	0.00	0.00	0.01	0.00	0.00

Results are obtained by regressing the return of the respective stock on the change in domestic eurozone exit risk and a set of control variables using stock fixed effects and robust standard errors (as described in eq. (8)).
*** p<0.01, ** p<0.05, * p<0.1

Table 21: Results for the panel of individual stock returns: Technology

Technology	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	-0.055	0.005	0.003	-0.049	-0.015	-0.023
	(0.047)	(0.049)	(0.049)	(0.104)	(0.109)	(0.110)
Return stock market		0.340***	0.284***		0.318***	0.265***
		(0.039)	(0.043)		(0.039)	(0.040)
Δ Sovereign spread		-0.015***	-0.016***		-0.013***	-0.015***
		(0.003)	(0.003)		(0.003)	(0.003)
Return industry index		0.127***	0.133***		0.142***	0.145***
		(0.013)	(0.017)		(0.013)	(0.018)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.101***			-0.084*
			(0.033)			(0.044)
Constant	-0.001***	-0.001***	-0.001***	-0.002***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	20,912	19,956	19,927	11,839	10,928	10,928
Number of stocks	26	26	26	25	25	25
R^2	0.000	0.092	0.094	0.000	0.111	0.113
Prob > F	0.26	0.00	0.00	0.65	0.00	0.00

Table 22: Results for the panel of individual Stock returns: Telecommunications

Telecommunications	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	-0.240**	-0.188*	-0.201**	-0.311*	-0.278	-0.288*
	(0.066)	(0.086)	(0.076)	(0.137)	(0.144)	(0.132)
Return stock market		0.433***	0.331***		0.433***	0.326***
		(0.048)	(0.063)		(0.047)	(0.062)
Δ Sovereign spread		-0.009**	-0.010**		-0.007*	-0.009**
		(0.003)	(0.003)		(0.003)	(0.003)
Return industry index		0.263**	0.355**		0.244**	0.309**
		(0.073)	(0.109)		(0.065)	(0.100)
Δ VSTOXX			-0.001**			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.307**			-0.230
			(0.113)			(0.114)
Constant	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	9,653	9,189	9,179	5,785	5,345	5,351
Number of stocks	6	6	6	6	6	6
R^2	0.000	0.243	0.251	0.001	0.280	0.288
Prob > F	0.02	0.00	0.00	0.06	0.00	0.00

Results are obtained by regressing the return of the respective stock on the change in domestic eurozone exit risk and a set of control variables using stock fixed effects and robust standard errors (as described in eq. (8)).
*** p<0.01, ** p<0.05, * p<0.1

Table 23: Results for the panel of individual stock returns: Utilities

Utilities	**Full sample**			**Subsample**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Δ Exit Risk	-0.043	-0.007	-0.013	-0.098	-0.085	-0.087
	(0.075)	(0.079)	(0.080)	(0.104)	(0.108)	(0.109)
Return stock market		0.382***	0.305***		0.352***	0.271***
		(0.036)	(0.039)		(0.040)	(0.041)
Δ Sovereign spread		-0.008***	-0.009***		-0.006***	-0.008***
		(0.002)	(0.002)		(0.002)	(0.002)
Return industry index		0.188***	0.262***		0.191***	0.245***
		(0.018)	(0.028)		(0.019)	(0.029)
Δ VSTOXX			-0.001***			-0.001***
			(0.000)			(0.000)
Return exchange rate			-0.267***			-0.236***
			(0.034)			(0.038)
Constant	-0.000***	0.000***	0.000***	-0.001***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	35,361	33,693	33,646	20,768	19,190	19,190
Number of stocks	24	24	24	23	23	23
R^2	0.000	0.222	0.229	0.000	0.244	0.253
Prob > F	0.57	0.00	0.00	0.36	0.00	0.00

Results are obtained by regressing the return of the respective stock on the change in domestic eurozone exit risk and a set of control variables using stock fixed effects and robust standard errors (as described in eq. (8)).
*** p<0.01, ** p<0.05, * p<0.1

Table 24: Results for the cross section of estimated betas of individual stocks: Full sample

	Full sample						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Tradables	0.081						0.076
	(0.099)						(0.109)
Foreign sales/Total sales		0.001					0.001
		(0.001)					(0.001)
Total assets/Employees			0.000				0.000
			(0.000)				(0.000)
Total debt/Total assets				0.006**			0.005*
				(0.003)			(0.003)
Log(total assets)					0.027		0.003
					(0.021)		(0.024)
Return on assets						0.002	0.002
						(0.005)	(0.005)
Constant	0.194	0.239	0.268*	0.056	-0.044	0.270*	-0.050
	(0.152)	(0.154)	(0.141)	(0.143)	(0.303)	(0.142)	(0.309)
Country FE	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES
Observations	333	326	331	332	332	332	326
R^2	0.046	0.059	0.044	0.066	0.047	0.044	0.077
Prob > F	0.06	0.01	0.07	0.03	0.05	0.05	0.05

Results are obtained by regressing the stock-specific estimated $\beta_{exit\ risk,i,j,s}$ (as obtained from eq. (9)) on company-specific variables using country and industry fixed effects and robust standard errors (as described in eq. (10)). *** p<0.01, ** p<0.05, * p<0.1

Table 25: Sources and descriptive statistics of company-specific variables

Variable	**Worldscope Code**	**Mean**	**Std. Dev.**	**Min**	**Max**
Tradables (Dummy)[18]	WC07021 (SIC-code)	0.49	0.50	0	1
Foreign sales/Total sales (%)	WC08731	38.63	32.30	0	105.56
Total assets/Employees	WC08406	890.11	2,727.60	15.25	44,634.63
Total debt/Total assets (%)	WC03255/ WC02999	31.19	16.85	0	76.14
Log(total assets)	WC02999	13.41	2.00	9.28	18.86
Return on assets (%)	WC08326	3.21	6.02	-44.15	33.49

[18] Dummy variable classifying a company as producing either tradable goods (=1) or nontradable goods (=0). Classified according to their two-digit SIC code following Forbes 2002b.

Literature

Acharya, Viral V.; Drechsler, Itamar; Schnabl, Philipp (2014): A Pyrrhic Victory? Bank Bailouts and Sovereign Credit Risk. In: *The Journal of Finance* 69 (6), p. 2689–2739.

Acharya, Viral V.; Eisert, Tim; Eufinger, Christian; Hirsch, Christian W. (2016): *Whatever It Takes: The Real Effects of Unconventional Monetary Policy*, SAFE Working Paper No. 152.

Acharya, Viral V.; Steffen, Sascha (2015): The "greatest" carry trade ever? Understanding eurozone bank risks. In: *Journal of Financial Economics* 115 (2), p. 215–236.

Aizenman, Joshua; Hutchison, Michael; Jinjarak, Yothin (2013): What is the risk of European sovereign debt defaults? Fiscal space, CDS spreads and market pricing of risk. In: *Journal of International Money and Finance* 34 (C), p. 37–59.

Ang, Andrew; Longstaff, Francis A. (2013): Systemic sovereign credit risk: Lessons from the U.S. and Europe. In: *Aggregate Implications of Local Public Finance* 60 (5), p. 493–510.

Arquette, Gregory C.; Brown Jr., William O.; Burdekin, Richard C.K. (2008): US ADR and Hong Kong H-share discounts of Shanghai-listed firms. In: *Journal of Banking & Finance* 32 (9), p. 1916–1927.

Auguste, Sebastian; Dominguez, Kathryn M.E.; Kamil, Herman; Tesar, Linda L. (2006): Cross-border trading as a mechanism for implicit capital flight: ADRs and the Argentine crisis. In: *Journal of Monetary Economics* 53 (7), p. 1259–1295.

Baba, Kunihiro; Shibata, Ritei; Sibuya, Masaaki (2004): Partial correlation and conditional correlation as measure of conditional independence. In: *Australian & New Zealand Journal of Statistics 46 (4)*, p. 657–664.

Bailey, Warren; Chan, Kalok; Chung, Y. Peter (2000): Depositary Receipts, Country Funds, and the Peso Crash: The Intraday Evidence. In: *The Journal of Finance* 55 (6), p. 2693–2717.

Benzoni, Luca; Collin-Dufresne, Pierre; Goldstein, Robert S.; Helwege, Jean (2015): Modeling Credit Contagion via the Updating of Fragile Beliefs. In: *Review of Financial Studies* 28 (7), p. 1960–2008.

Bin, Feng-Shun; Blenman, Lloyd P.; Chen, Dar-Hsin (2004): Valuation impact of currency crises: Evidence from the ADR market. In: *International Financial Crisis: Contagion, Risk Premia and Equity Market Impact* 13 (4), p. 411–432.

Bocola, Luigi (2016): The Pass-Through of Sovereign Risk. In: *Journal of Political Economy* 124 (4), p. 879–926.

Corsetti, Giancarlo; Kuester, Keith; Meier, André; Müller, Gernot J. (2013): *Sovereign risk and belief-driven fluctuations in the euro area*, IMF Working Paper Series No. 13/227.

Costantini, Mauro; Fragetta, Matteo; Melina, Giovanni (2014): Determinants of sovereign bond yield spreads in the EMU: An optimal currency area perspective. In: *European Economic Review* 70, p. 337–349.

De Santis, Roberto A. (2015): *A Measure of Redenomination Risk*, ECB Working Paper No. 1785.

Drechsler, Itamar; Drechsel, Thomas; Marques-Ibanez, David; Schnabl, Philipp (2016): Who Borrows from the Lender of Last Resort? In: *The Journal of Finance* 71 (5), p. 1933–1974.

Eichler, Stefan (2011): What Can Currency Crisis Models Tell Us about the Risk of Withdrawal from the EMU? Evidence from ADR Data. In: *Journal of Common Market Studies* 49 (4), p. 719–739.

Eichler, Stefan; Karmann, Alexander; Maltritz, Dominik (2009): The ADR shadow exchange rate as an early warning indicator for currency crises. In: *Journal of Banking & Finance* 33 (11), p. 1983–1995.

Engle, Robert; Ghysels, Eric; Sohn, Bumjean (2013): Stock Market Volatility and Macroeconomic Fundamentals. In: *The Review of Economics and Statistics* 95 (3), p. 776–797.

Engler, Philipp; Große Steffen, Christoph (2016): Sovereign risk, interbank freezes, and aggregate fluctuations. In: *European Economic Review* 87, p. 34–61.

Errunza, Vihang; Hogan, Ked (1998): Macroeconomic Determinants of European Stock Market Volatility. In: *European Financial Management* 4 (3), p. 361–377.

Eser, Fabian; Schwaab, Bernd (2016): Evaluating the impact of unconventional monetary policy measures: Empirical evidence from the ECB′s Securities Markets Programme. In: *Journal of Financial Economics* 119 (1), p. 147–167.

Fisher, Ronald Aylmer (1924): The Distribution of the Partial Correlation Coefficient. In: *Metron* 3 (3-4), p.329–332.

Forbes, Kristin J. (2002a): How Do Large Depreciations Affect Firm Performance? In: *IMF Staff Papers* 49 (1), p. 214–238.

Forbes, Kristin J. (2002b): *How Do Large Depreciations Affect Firm Performance?*, National Bureau of Economic Research Working Paper No. 9095.

Gaballo, Gaetano; Zetlin-Jones, Ariel (2016): Bailouts, moral hazard and banks′ home bias for Sovereign debt. In: *Journal of Monetary Economics* 81, p. 70 -85.

Gagnon, Louis; Andrew Karolyi, G. (2010): Multi-market trading and arbitrage. In: *Journal of Financial Economics* 97 (1), p. 53–80.

Glen, Jack (2002): Devaluations and emerging stock market returns. In: *Emerging Markets Review* 3 (4), p. 409–428.

Kim, Minho; Szakmary, Andrew C.; Mathur, Ike (2000): Price transmission dynamics between ADRs and their underlying foreign securities. In: *Journal of Banking & Finance* 24 (8), p. 1359–1382.

Klose, Jens; Weigert, Benjamin (2014): Sovereign Yield Spreads During the Euro Crisis: Fundamental Factors Versus Redenomination Risk. In: *International Finance* 17 (1), p. 25–50.

Krishnamurthy, Arvind; Nagel, Stefan; Vissing-Jorgensen, Annette (2014): *ECB Policies involving Government Bond Purchases: Impact and Channels*, Unpublished Working Paper.

Kriwoluzky, Alexander; Müller, Gernot; Wolf, Martin (2015): *Exit Expectations and Debt Crises in Currency Unions*, CEPR Discussion Paper No. DP10817.

Levy Yeyati, Eduardo; Schmukler, Sergio L.; van Horen, Neeltje (2004): The price of inconvertible deposits: the stock market boom during the Argentine crisis. In: *Economics Letters* 83 (1), p. 7–13.

Levy Yeyati, Eduardo; Schmukler, Sergio L.; van Horen, Neeltje (2009): International financial integration through the law of one price: The role of liquidity and capital controls. In: *Journal of Financial Intermediation* 18 (3), p. 432–463.

Meinen, Philipp; Roehe, Oke (2017): On measuring uncertainty and its impact on investment: Cross-country evidence from the euro area. In: *European Economic Review* 92, p. 161–179.

Melvin, Michael (2003): A stock market boom during a financial crisis?: ADRs and capital outflows in Argentina. In: *Economics Letters* 81 (1), p. 129–136.

Pasquariello, Paolo (2008): The anatomy of financial crises: Evidence from the emerging ADR market. In: *Journal of International Economics* 76 (2), p. 193–207.

Popov, Alexander; van Horen, Neeltje (2015): Exporting Sovereign Stress: Evidence from Syndicated Bank Lending during the Euro Area Sovereign Debt Crisis. In: *Review of Finance* 19 (5), p. 1825–1866.