# Sovereign Debt, Migration Pressure, and Government Survival*

**William Bernhard**
**University of Illinois**
**Bernhard@illinois.edu**

**David Leblang**
**University of Virginia**
**leblang@virginia.edu**

**March 2015**
**(work in progress; comments welcome)**

As soon as the sovereign debt crisis began, it was widely understood that Germany's response would dictate its ultimate resolution. If Germany chose to provide assistance to shore up other economies or to support bailouts, then it was possible that Portugal, Ireland, Italy, Greece and Spain (PIIGS) as well as the other debt-saddled countries would be able to survive within the Eurozone. If Germany chose not to support any sort of assistance or if it insisted on excessive conditionality, it would force the costs of adjustment on the PIIGS, create enormous hardships for those economies that would likely result in a larger wave of financial sector failures. Ultimately this may have led to countries defaulting and, possibly, to exit the Eurozone.

The German government weighed the costs and benefits of action carefully. A bailout would entail costs—both in terms of taxes and credibility. The German government would have to provide taxpayer money to cover the bad habits of governments that did not manage their economic policies with a Teutonic fastidiousness. Almost as importantly, bailouts would require the German government to go back on historic pledges to not bailout profligate Euro governments, reducing its credibility to prevent future abuses.

On the other hand, failure to support these economies might have catastrophic economic consequences, plunging the periphery economies into a severe depression that could spread to northern Europe. Government default would have also endangered the survival of German banks and bondholders with exposure to government debt from the PIIGS. Depression in southern Europe could also trigger massive immigration into Germany as people in these economies would move north looking for employment. These immigrants could provoke social unrest and conflict, adversely affect German labor markets, and place pressures on social insurance.

*We are grateful to Andy Baker, Sonal Pandya, Christina Schneider, Tom Pepinsky and to seminar participants at The University of Zurich, The University of Virginia, The College of William and Mary, and The London School of Economics as well as audience members at the International Political Economy Society for helpful comments. We are also grateful to Jennifer Fitzgerald and Frigyes Ferdinand Heinz and Yan Sun for sharing data and to Gabriel Noronha for excellent research assistance.

Failure to support a bailout might also endanger the broader European project, the cornerstone of Germany's foreign policy since the 1950s. Without a bailout some countries would leave the Euro, dealing a blow to the idea of European solidarity. This would not have been merely a symbolic cost since, for Germans, the EU is more than just an economic club. It represents an invaluable security commitment, the fundamental institutional mechanism to prevent the outbreak of war and hostility on the European continent.

These stark policy choices created tension within the governing parties as German policymakers grappled to find the best response to a rapidly-evolving situation. The prospect of a bailout aroused a passionate response from some German voters. Indeed, a new anti-government and anti-Euro party—the Alternative fur Deutschland (AfD) – quickly developed in response to these costs, calling for Germany to rid itself of the single currency. Other voters recognized the value of the European commitment and, though annoyed at the profligacy of southern governments, accepted the costs of a bailout as the price of solidarity.

During the early months of the crisis, Chancellor Merkel walked a fine line between support for Euro and demanding accountability from southern Europe countries. Ultimately Merkel worked with the European Central Bank and the International Monetary Fund to arrange bailouts for Greece, Ireland, and Portugal, thus ensuring the survival of the Euro. As part of the bailout, the ECB and other solvent governments assumed the debt held by private banks, transferring the associated risk from the private sphere to public institutions, better able to absorb the potential costs. Although the initial bailout of Greece did little to stabilize that market, by late 2011, bailouts of Ireland and Portugal lead calmer markets across the Eurozone.

At the same time, however, the domestic position of the Greek government weakened as the Greek populace rebelled against the need for budget cuts and higher taxes imposed by the international markets. This domestic political turmoil in Greece—which resulted in the resignation of Prime Minister Papandreau in November 2011--threatened the ability of the Greek government to maintain its fiscal promises even as markets appeared to become more confident in the Euro (see Figure 1)[1]. Greek bond spreads began to increase, even as the spreads of other government bonds were falling. And, as shown in Figure 2, the likelihood of a financial market volatility spilling over from Greece to other Southern European countries was negligible by the fourth quarter of 2012.[2]

[1] Figure one plots the conditional volatility of the euro-dollar exchange rate. The conditional volatility estimated using a ARCH (1,1).

[2] The bold line in Figure 2 plots the correlation in bond spreads on Greek government ten-year bonds against the average of bond spreads for Portugal, Ireland, Cyprus and Spain. Using weekly data we calculate a 52-week moving correlation of changes in these spreads.

Moreover, the fact that German banks had become less exposed to Greek debt meant that the financial and economic consequences of a potential Greek default were going to limited (see Figure 3)[3]. It seemed as if the markets had decided that the Euro would survive, even if Greece would have to default. A Eurozone without Greece might even be stronger and more viable

If the survival of the Euro was not in doubt by late 2011, why then did Germany's governing coalition decide to bailout Greece a second time? We argue that the decision to bailout Greece reflected domestic political calculations. While bailing out Greece would result in some short-term political costs—and perhaps some longer-term ones if Germany ended up on the hook for other bailouts—Merkel's government was more concerned about the social and economic consequences of potential default. These social and economic costs—measured in terms of the prospect of a massive inflow of migrants from Southern Europe and the fiscal consequences of serial default—would have longer-term political consequences; consequences that may have led to Merkel's coalition losing electoral support among the German public.

Our argument rests on counterfactual reasoning—that is, we must make assumptions about the response of the electorate in the event that Germany did not bailout the Greeks in March of 2012. In order to make the most plausible counterfactual argument, we draw on three literatures that heretofore have remained disconnected from one another: models of the determinants of credit default swap (CDS) spreads, studies of international migration, and work on government approval. CDS spreads provide a clear illustration of the fiscal costs associated with a potential default within the Eurozone. The German electorate, we argue, incorporates a probability-weighted cost of default within the Eurozone when evaluating the competency of the incumbent government. But CDS spreads are also a leading indicator of future economic prospects within member-states; a variable that can influence out-migration if they signal a dismal economic outlook. Immigration flows, in turn, can impact government approval directly as migrants cause competition within the labor market and contribute to social dislocation and conflict.

The crisis within the Eurozone intensified the shocks to the German economy associated with an increase in sovereign spreads and immigration. As an economic union with free movement of labor yet with no centralized fiscal authority, the Eurozone debt crisis created a perfect political storm for the Merkel government. Remaining in office required that the Merkel coalition prevent sovereign defaults within the Eurozone which, in turn, would reduce future fiscal costs and would help protect the German labor market.

The remainder of this paper proceeds as follows: Section one develops our argument about the determinants of government approval during the European debt crisis. Section two details the data, models and methods employed to test our argument. In section three we present the results of estimating separate models of spreads, migration and government approval while in section four we discusses the counterfactual and shows the

[3] The bank exposure data is from the Bank of International Settlements.

consequences for Germany's government had it failed to bailout Greece. Section five concludes and provides some directions for future research.

## 1. The Argument

Standard political science models of government approval emphasize the role of macroeconomic fundamentals in shaping the public's perception of the incumbent. Voters typically rely on domestic economic indicators, such as inflation, unemployment, and stock market performance, not only to assess the government's competence, but also to form expectations about the trajectory of the economy. These retrospective and prospective evaluations of the economy, in turn, shape voters' decisions about whether to support the government.[4]

We contend that the financial crisis reshaped this basic calculation of political support. First, the nature of the crisis broadened the electorate's focus to include economic and financial factors beyond the domestic context. Kayser and Peress (2002) and Hellwig (2014) show that the electorate "benchmarks" their elected officials against economic performance in neighboring countries. Given Germany's central role in Europe, voters understood that the crisis would likely affect their pocketbooks. As the crisis in the periphery worsened, German voters became acutely aware of the fiscal conditions in the other economies.[5] Since the fiscal condition of the PIIGS were likely to affect their own economy, debt conditions in other countries entered into electoral calculations of political support for the Merkel government.

Second, we argue that German voters understood that the debt crises of other EU countries would not just impact the German government's fiscal balances, but that the electorate was also aware that the collapse of the periphery economies could affect the German economy in other ways, particularly by unleashing waves of immigration into Germany. Germany has always been a key destination country for many migrants in search of better economic opportunity; in fact, given the strength of its labor market, Germany is the destination for the largest number of migrants in the EU. While the estimated impact on wages is small, prior work shows that migration into Germany decreases the wages of native workers (Steinhardt 2009). It is too early to see if the debt crisis strengthened this effect.

But a small effect on wages as a result of immigration can often be perceived as a significant problem by mass publics where it can influence how they assess the causes of unemployment and contribute to cross-cultural frictions (Facchini and Mayda 2010; Boeri 2009). This effect may be magnified in a country like Germany where

[4] Duch and Stevenson 2008; Lewis-Beck and Stegmaier 2000.

[5] http://www.theguardian.com/world/2011/sep/04/germany-euro-bailouts-angela-merkel-nicolas-sarkozy

immigration has always been an important, hot-button political issue (Joppke 1996).[6] Although polls show that voters continued to identify economic problems such as inflation and unemployment as more pressing topics, it is notable that concerns over immigration spiked—see Figure 4--in the early part of 2010 as both Greece and Ireland had their sovereign debt ratings downgraded and sought bailouts from the Troika.

Thus, the financial crisis broadened the concerns of the electorate, beyond domestic conditions and beyond the macro-economy. These concerns shaped their evaluations of the Merkel government and, in turn, shaped its policy choices. If voters placed more emphasis on the fiscal costs of the bailout, then Merkel's strategy should have been to let the PIIGS default. On the other hand, if the Merkel government inferred that the political costs of default through immigration were higher, then it would make sense to pursue a bailout.

## 2. Models, Data and Methods.

Our argument, therefore, relies on counterfactual reasoning—on the "what if" scenario had Germany not bailed out Greece in March 2012. Economic turmoil within the Eurozone was sufficiently great that government bond spreads made it appear that Greece was on the precipice of default; a default that would have let loose falling dominoes across Southern Europe and would have forced significantly higher costs of adjustment in fiscal terms. It would have also resulted into massive migration into Germany which would have, all else equal, been catastrophic for approval of the governing coalition.

To evaluate these claims, we proceed as follows: we first model the evolution of credit default swap (CDS) spreads in the Eurozone. CDS spreads are often used as a real-time measure of the market's perception of a particular country's default risk.[7] Our model of CDS spreads allows us to evaluate the effect of bailouts on the market's perception of that default risk in that country. Because we model spreads as local CDS rates vis-à-vis comparable CDSs in Germany, this model also allows us to examine how changes in the German coalition's support affects those spreads. Second, we model immigration flows into Germany so we can estimate the impact of CDS spreads on immigration. Finally, we estimate a model of government vote intention that will then allow us to evaluate how different paths of immigration and bond spreads would affect the governing coalition's political standing.

Our sample is comprised of monthly observations from January 2007 – September 2013 for Austria, Belgium, Estonia, Finland, France, Greece, Ireland, Italy, the Netherlands,

[6] This effect may be especially pronounced during periods of economic crisis. Dancygier and Donnelly (2013) and Zamora-Kapoor and Verea (2014) find that anti-immigrant sentiment increases during times of economic stress.

[7] See Heinz and Sun (2014) for a discussion of CDS spreads and the modeling strategies utilized to explain them.

Portugal, Spain, Slovakia and Slovenia. In some of the models we omit Estonia due to lack of data availability.

*Modeling Sovereign Bond Spreads*

Building on the finance literature, we interpret the spread of a country's CDS spread vis-à-vis a risk-free asset as a measure of sovereign default risk. The risk-free asset in this case is a German CDS of similar yield. Monthly data for the countries[8] in our sample are from Bloomberg.[9] Because the CDS series are non-stationary for all markets we use the change in CDS spreads as the dependent variable. We also take the log of the CDS spread to decrease the influence of outlying observations—this, for the most part, prevents Greek CDS spreads from overly-determining the results in Table One.

Theoretical models of sovereign spreads focus on both economic fundamentals and on the global appetite for risk. Following Berine and Fratzscher (2013) and Heinz and Sun (2014), we proxy for a country's fundamentals using monthly changes in inflation and the level of the real effective exchange rate (which taps the potential for productivity).[10] To measure the global appetite for risk we use the change in the VIX index which is generally considered a useful proxy for the market's overall tolerance for risk.

We also include the lagged value of the level of the CDS spread to control for persistent changes (long swings) in country-specific spreads as well as potential ceiling or floor effects (when very high or very low values can influence the range of a dependent variable). Because we examine spreads across a panel of countries we also include a set of country specific dummy variables which capture unmeasured, but country-specific, influences on yield spreads.

To what extent do bailouts influence CDS spreads?[11] Our variable of interest in the spread model is the Troika's bailout of Greece, Portugal, Ireland and Spain. We code this

[8] Our sample includes all Eurozone countries with the exception of Cyprus for which comparable CDS data were not available. In some of the estimates we also had to drop Estonia due to lack of data for key covariates.

[9] These data were used in Heinz and Sun (2014) and were generously provided by the authors.

[10] These variables are from the OECD (http://www.oecd.org/statistics/) and are available on a monthly basis.

[11] Saying something causal about the effect of a bailout on spreads is challenging: the idea of bailing out a country does not come into play until and unless that country's financial markets are already signaling distress. In addition, there is little literature that directly addresses this point; the closest is the work on "catalytic finance" which finds that IMF bailouts and/or official assistance to recipient countries may spur other

variable in two different ways. In column one of Table one, we create "country-specific" bailouts and code these variables equal to "1" for the country-month when a bailout occurred. Thus, in column one, the first Greek bailout in May 2010 is coded "1" only for Greece in May of 2010. In column two of Table one, we examine whether bailouts had spillovers across countries; this means that Greek Bailout, May 2010 is coded 1 for all countries in May of 2010. A negative and statistically significant coefficient on these variables would indicate that the Troika's offer of financial assistance is associated with calmer markets either within the country (column one) or across the sample (column two).

We estimate the spread model using OLS and report robust standard errors clustered by country.

*Modeling Migration into Germany*

We obtained monthly data on flows of migrants into Germany from the German Federal Statistical Office. The data begin in January 2006 and count the number of permanent migrants entering Germany based on their country of origin (which does not always match their country of birth).

Our point of departure is the standard micro-economic model of immigration.[12] The basic intuition of these models is that migration occurs when the expected wage in the host country is exceeds the expected wage in the home country less the cost(s) of moving. Empirically these models have been implemented within the context of gravity models.[13] Gravity models of international migration control for the economic conditions that exist within a source and destination country and the distance between the two countries. To capture economic conditions, we include three variables: wage differential which is measured as the difference in per-capita GDP in country i and Germany at time t-1, the unemployment rate in country i at time t-1, and the unemployment rate in Germany at time t-1. Our inclusion of fixed effects for the migrant's countries of origin make it unnecessary to include standard controls such as the existence of a common border with Germany, whether the official language of the country of orgin is Germany, or the distance between Germany and the migrant's country of origin as these values do not vary over time.

The literature on diaspora networks and global migration (Beine, Docquier and Ozden 2011) argues that migrants will flow to countries where there are already a large number (stock) of co-ethnics from their homeland. Thus, we use a measure of the flow of

ec
interested parties to take action. This action may (or may not) prevent a currency crisis (Eichengreen and Mody, 2000; Morris and Shin 2006).

[12] Borjas 2014; Hatton and Williamson 2005.

[13] See Ortega and Peri (2012) and Fitzgerald, Leblang and Teets (2014) for a discussion of the literature and for additional references.

migrants from country i into Germany a year prior. We also include a lagged endogenous variable to account for persistence in migration flows—and as a proxy that could potentially capture changes in German migration policy. Finally, we include a set of monthly dummy variables to capture seasonal variation in migration flows from Eurozone countries into Germany

Our variable of interest in the migration model is the CDS spread in the migrant's country of origin vis-à-vis. While a CDS spread has been used as an indicator of the global market's assessment of default risk, we argue that it reasonably proxies for economic expectations within that country. Unlike contemporaneous measures of income differentials, the CDS spread is future looking and is correlated with national prospective economic assessments. In Figure 5 we plot the log of CDS spreads against national level assessments of the economy in the coming year using data from the Eurobarometer surveys.[14] There is a clear positive relationship between the CDS spread and the share of the public who expect that the economic situation in the coming year will get worse. This effect does not go away if we eliminate the high CDS countries—Greece and Portugal.[15]

One potential omitted variable in our migration model is the potential that austerity policies borne from conditions associated with the bailouts may increase the demand for outmigration. While we do include a measure of unemployment in the source country, optimally we would have an aggregate measure of austerity conditions in the bailout countries. Measures of government spending and/or government employment, however, are only available at an annual frequency. It is important to also recognize that the terms of each bailout differed so it is probable that an aggregate measure would be unable to capture the "true" extent of the conditions associated with the bailouts.

Our alternative is relatively simple: we construct a dummy variable coded "1" for the months following the bailout to signal that we anticipate a change in average number of migrants due to austerity measures associated with a bailout. As none of the bailout countries had met all terms of the bailout before the end of our sample (June, 2013), this dummy variable is coded "1" for the entire period after the bailout. The exception is Greece which received two bailouts during our sample period; consequently post-Greek Bailout 1 is coded "1" until Greek received its second bailout in March, 2012.

We estimate poisson and negative binomial models of migrant inflows into Germany. To deal with unequal error variance across observations we cluster standard errors by country.

---

[14] Specifically the question asks "What are you expectations for the year to come: will 200x be better, worse or the same, when it comes to the economic situation in (our country). Data accessed from http://ec.europa.eu/public_opinion/cf/index_en.cfm

[15] Bertoli et al. (2013) find similar results in correlating government bond spreads with a Eurobarometer question assessing "personal job market prospects and market conditions in general in the coming year."

*Modeling German Government Vote Intention*

To measure the government's popular standing we employ data on vote intention for the parties in government. Opinion polls ask the question: "If parliamentary elections were held tomorrow (or next Sunday), how would you vote?" Respondents then identify which party they would choose to support.

The frequency of these polls vary depending on the time of year and the length of time before an election is due, but there were at least two polls in every month during our sample period—and usually more. We created monthly averages of vote intention for the four major parties. Throughout the sample period, Germany had a coalition government although the identity of the governing parties changed. We added the vote intention for the parties in government to form one measure of vote intention on the assumption that those parties were most likely to be held accountable for the government's policy performance. [16]

Because approval may have floor and/or ceiling effects, we include the lagged level of approval. In addition we measure the performance of the German economy through the inclusion of measures of domestic unemployment and inflation. We also include dummy variables for periods of political campaigns, elections, coalition formations, and new government honeymoons as well as two variables that capture the length of time that a specific coalition has been in power (electoral clock and electoral clock$^2$).

Including measures of Eurozone default risk and the potential inflow of migrants from other EU countries is complex because the weight of these variables depends on other country-specific factors. An increase in default risk in Denmark, for example, would not strike the German electorate as significant because the size of that country's budget deficit is small relative to that of one of the PIIGS. Likewise, an increase in Spanish spreads is a far more significant event in 2011, after government debt had exploded, than in 2005, when it was assumed that Spain's debt-to-gdp ratio was below 60%. To measure how spreads would potentially affect the German electorate, therefore, we use the average of spreads in the Eurozone for each month, weighted by the respective country's debt-to-gdp ratio.

As with spreads, the impact of migrants from different countries will likely have heterogeneous effects on the native population. Germans may be more sensitive to migrants from countries that are culturally distinct from themselves (e.g., Greece or Hungry) than they are to migrants from countries that are culturally and ethnically similar (e.g., Austria or the Netherlands). Bridges and Mateut (2014), indeed, find that opposition to immigration is a function of cultural dissimilarity between the native and

[16] In alternative specifications, we experimented with using the combined vote intention for the two largest parties (CDU/SPD) and the combined vote share for the four largest parties (CDU/SPD/FDP/Greens).

immigration populations even after controlling for socio-economic, political and fiscal variables. That said, an influx of migrants from all of these countries could have economic and social (and ultimately political) consequences for the governing coalition. To create a measure of the possibility of social dislocation due to an inflow of culturally dissimilar migrants, we construct two measures. First, we take the total number of migrants entering Germany each month and weight it by the migrant country's genetic distance from Germany. This measure, applied by Spolaore and Wacziarg (2013) within the context of economic development, identifies the ease with which ideas and traits are transferred across different populations.[17] The more distant two populations, the more likely that communication will be difficult and conflict more likely to ensue. Our second measure is similar but rather than weighting inflows by genetic distance, we weight inflows by cultural distance based on data from the World Values Surveys. Figure 6 contains descriptive information about the values of genetic distance and cultural distance.[18]

It may be that the German electorate is not concerned with cultural differences; rather they may be reacting to competition in the labor market. To assess this scenario, we also weight migrant inflows by the share of migrants from the origin country in Germany that are unskilled.[19] The unskilled/skilled ratio is displayed in Figure 7. Figures 6 and 7 make clear that it will be difficult to disentangle cultural from labor market concerns as the largest shares of unskilled migrants hale from the countries that are the most culturally different from Germany—those of Southern Europe.

## 3. Results

Table 1 contains the results for the CDS spreads equation. We find that lagged levels of spreads and the change in the VIX index are statistically significant predictors of current changes in CDS spreads. Even during the height of the financial crisis, a ceiling on

[17] Genetic Distance "measures of average differences between vectors of allele frequencies (different genes) across any two populations provide a measure of genetic distance....The goal of this approach is not to study any genetic characteristics that may confer any advantage in development....On the contrary, they are neutral: their spread results from random factors and not from natural selection. For instance, neutral genes include those coding for different blood types....Instead, genetic distance is like a molecular clock — it measures average separation times between populations. Therefore, genetic distance can be used as a summary statistic for divergence in all the traits that are transmitted with variation from one generation to the next over the long run, including divergence in cultural traits" (Spolaore and Wacziarg 2013)

[18] See Spolaore and Wacziarg (2009). The data was obtained from Spolaore's webpage: http://sites.tufts.edu/enricospolaore/

[19] Unskilled refers to migrants without a high school degree of the equivalent. This measure is based on the collection of migrant stock by country of origin data collected by Brucker, Capuano and Marfouk (2013).

spreads was present as the lagged level has a negative effect. Inflation also has a positive effect on CDS spreads as does increased productivity—as measured by the country's real effective exchange rate—though neither of these variables are statistically significant.

Interestingly, political conditions in Germany do not affect default risk throughout the Eurozone. This is surprising, as we would have envisioned bond traders inferring that a weak German government would be less able to come to the rescue.

Did the bailout influence perceptions of government default in the Eurozone? Recall that we code bailouts in two different ways. In column 1 of Table 1 we look at country-specific effects and find that rather than blunting CDS spreads, the 2010 bailout of Greece increased spreads in that country 45 percent while the 2011 bailout of Portugal was associated with a 10 percentage increase in spreads. The first bailout of Greece not only increased Greek spreads, but, as we observe in column 2, it is associated with an increase in spreads across Eurozone countries. It is difficult to make a causal claim here; we know that the early part of 2010 was a period of high uncertainly about the stability of the euro in general and there were significant fears of contagion from Greece to other PIIGS (see figures 1 and 2).

Given that the first attempt to stabilize markets in Greece failed, why did Germany push for a second bailout of that country? Our argument is that Germany pursued this strategy, not because of a fear of contagion, but to stabilize a country that was a source of migration pressure. And the second time was the charm as the 2012 Greek bailout was associated with a decrease in spreads of almost seventy percent.

While the second bailout of Greece significantly decreased spreads; does the reduction of spreads have an impact on flows of migrants into Germany? We examine that question in Table 2. In columns 1 and 2 of table 2 we use poisson regression to evaluate the effect of covariates on the number of migrants from Eurozone member countries into Germany. Results from the model indicate that migrant flows into Germany are persistent and seasonal—both the one-month and the twelve-month lag are statistically significant.

There is mixed support for the importance of lagged economic conditions: while lagged unemployment in Germany sends a negative and significant signal about employment prospects there and unemployment in the sending country is also statistically significant, there is no evidence that income differentials drive immigration into Germany. While this is at odds with the existing literature, this result is likely the consequence of a more homogeneous set of countries—in terms of per-capita GDP than typically found in models of bilateral migration.

We argued above that CDS spreads are a reasonable indicator of prospective economic evaluations within countries. Even after controlling for a multitude of factors—including monthly and country dummy variables—we find a statistically significant and positive effect of the log of CDS spreads on immigration into Germany. CDS spreads, therefore, provide an indicator of future economic conditions, giving people incentive to vote with their feet. To get a sense of the size of this effect in context, consider that prior to the first

Greek bailout the average CDS spread of Eurozone countries was around four percent; this is associated with an inflow of approximately 600 migrants *per sending country*. At the height of the crisis, when spreads were at their peak, migration into Germany is predicted to increase to almost 2000 migrants per sending country. Thus, worsening economic conditions and the prospect of default spurred more migration into Germany from the European periphery.

We find a similar result in column two where we add dummy variables to proxy for the potential impact of austerity conditions in the bailout countries. Conventional wisdom would suggest that the austerity conditions would drive migrants leave the bailout countries in droves in hopes of finding work elsewhere. While we cannot measure whether austerity increase aggregate emigration, we can identify its effect on migration into Germany. Consistent with the results of the CDS spread model, the first bailout of Greece in 2010 actually increased economic uncertainty and resulted in increased migration from Greece to Germany. What is interesting—and this result in confirmed in the negative binomial regressions in column three—is that the subsequent bailouts in Ireland, Greece and Spain actually decreased migration into Germany.

This result may be at odds with conventional wisdom which argues that a decrease in government spending—a defining feature of austerity programs associated with bailouts—would lead to a large increase in immigration. And in some of the Eurozone the bailout did increase outmigration, just not to Germany. Irish emigrants, for example, went to Britain and Australia[20] while migrants leaving Portugal headed primarily to Mozambique.[21] For Greeks and Spaniards, the primary destination were within the EU, with Germany topping the list. Austerity programs, however, did not result in the type of mass outmigration expected because most of the policies imposed by the Troika hit those least likely to leave: government employees and older workers who were tied to what remained in their government pensions or who, all else equal, were unlikely to move due to the transactions costs associated with leaving one's home.

So far, we have shown that the initial Greek bailout reduced bond spreads and, in turn, that bond spreads influenced migration into Germany. We next turn to the model of vote intention for Germany's governing coalition during the sample period. We find, in Table 3, that approval for the incumbent government is persistent though, from a statistical point of view, it is not a non-stationary series. The "electoral clock" variables—which measure time in power--are statistically significant and suggest that popular support for a coalition levels off the longer it is in power.

Somewhat oddly we obtain a positive coefficient on the unemployment rate suggesting that the German public does not punish the coalition during bad labor markets as the

[20] http://www.economist.com/news/europe/21569437-ireland-model-adjustment-through-austerity-celtic-metamorphosis

[21] http://www.bbc.com/news/world-21206165

traditional literature would suggest. Inflation, on the other hand, is not statistically significant nor is the dummy variable for Merkel's U-turn on the nuclear issue.

The bailouts of the PIIGS—as measured in terms of a single dummy variable that clubs together all the bailout in columns 1-3-- did not have a statistically significant effect on government approval.

We do find, consistent with our expectation, that the German electorate punishes the incumbent government when there is an increase in the probability of default within the Eurozone. An increase in the probability of default by one percent decreases government approval by approximately 4.5 percentage points.

The results in Table 3 also show that the German electorate holds the government responsible for an increase in migrant inflows. Regardless of how we weigh these inflows—using genetic distance, cultural distance, or the share of unskilled workers—increasing migration from Eurozone countries into Germany by one standard deviation results in a drop in government approval of almost four percentage points.

The last model in Table 3 includes a set of individual dummy variables corresponding to the individual dates of bailouts. The initial bailout of Greece was quite unpopular with the German electorate, costing the incumbent coalition more than two points in approval. None of the other bailouts had a statistically significant effect on government popularity with the exception of the second Greek bailout which increase German approval. This effect is consistent with our argument that the second bailout was viewed as a move by the Merkel to protect German labor markets.

Taken together these results tell a compelling story: while bailouts may have had short-term negative consequences for approval of the Merkel government, the bailouts did reduce spreads which, in turn, decreased immigration into Germany. An increase in spreads combined with an increase in immigration would have, all else equal, been far more costly over the long-term for the Merkel government than loss of one percent in approval experienced in the initial month of the bailout. The magnitude of that long-term loss is explored in the next section.

**4. What if there had been no bailout?**

We place immigration at the center of our analysis, arguing that the potential political consequences of immigration provided a strong incentive for the Merkel government to support a bailout of governments in the periphery. And yet, immigration was not a major issue in Germany's 2013 election. Although there was discussion of the bailouts in the campaign—while Merkel dismissed the possibility of future bailout, her Finance Minister Wolfgang Schauble suggested that Greece would need a third bailout—the other main parties did not press concerns about the bailout actions, other than to note that they perhaps cost too much. Only the upstart Alternative for Germany party (AfD) dared to suggest that Germany would be better off outside of the Eurozone.

We argue that immigration and bailouts did not play a larger role in the election because the bailouts worked: they had the desired effect of preventing a flood of immigrants into Germany. Thus, none of the parties could raise that as a compelling issue against the Merkel-led government. It is straightforward to imagine that it would have been a hot button issue if the bailouts had not worked to relieve pressure on the periphery economies.

This conjecture can be subjected to a more rigorous analysis using the models developed thus far. Our counterfactual asks: what would have happened to vote intention had the Merkel government *not* bailed out Greece in March of 2012?[22] To implement this counterfactual we focus on CDS spreads in Greece and immigration from Greece to Germany because, as noted above, by this point in time the European economy had stabilized significantly.

Given that we are focusing only on Greece, we can use three-stage least squares to estimate this as a simultaneous equation model. These results are contained in Table 4. Note that results of this model are consistent with the findings reported earlier: in the first equation spreads decrease CDS spreads while in the second equation higher CDS spreads are associated with a larger flow of migrants from Greece to Germany. Finally, in the approval model we find a statistically significant negative effect of both CDS spreads and migration on German government approval.

We use this model to engage in dynamic forecasting. In order to do dynamic forecasting we have to make the bailout endogenous or, as at a minimum, specify that it is determined by values of variables outside of the model. We argue that the timing of the Greek bailout is a function of the direct cost to German bondholders who are exposed to a Greek default along with the potential threat to the German labor market.[23]

Figure 8 plots the counterfactual by assuming that in March 2012 the bailout of Greece did not occur. For purposes of comparison we plot the observed approval series along with dynamic in-sample forecasts assuming that all variables take their observed values. Note that the dynamic in-sample forecast and the observed approval forecast series match closely; this gives us confidence that our approval model is well specified.

The counterfactual—if spreads had increased absent a bailout of Greece—is telling. We construct 95% confidence intervals for this dynamic counterfactual forecast using

[22] It is important to acknowledge that our models are far from completely specified—we know of no existing work that does a thorough counterfactual analysis of the consequences for spreads had a bailout not occurred.

[23] In another model we measured the exposure of German bondholders to Greek markets by calculating the share of total German bonds held by Greek financial institutions using data from EPFR Global (http://www.epfr.com/). EPFR provides fund flows and asset allocation data covering over 90% of global bond holdings. That data, however, runs out in December of 2012 so we opted for the use of bank holdings data.

bootstrap resampling. The immediate effect of this spread shock is a large and sustained decrease in approval for the governing coalition: there is an immediate decrease in support of over ten points. When approval begins to stabilize in early 2013, approval for the coalition reaches only 35 percent. This decrease, we argue, would have been sufficient for Merkel's coalition to lose the subsequent election.

As a robustness check we estimate three stage least squares model separately for each Eurozone country. The results for the effect of spreads and immigration in the approval model are summarized in Figure 9. These results square with our expectations: in almost all cases, an increase in CDS spreads—our proxy for the likelihood of Eurozone default—decrease support for the German incumbent and that effect becomes larger as the size of the banking sector in the country in question increases. Likewise, immigration from countries that are cultural different from Germany and/or which send a large share of unskilled labor to Germany also decreases support for the incumbent government.

The results in figure 8 and 9 are compelling: absent a bailout, spreads and migration would have increased dramatically, causing an enormous long-term loss for the Merkel government. The 95% confidence intervals associated with the counter-factual forecasts are well below both the observed approval series and the in-sample prediction. While migration did not receive any attention in the run-up to the 2013 election, it is highly likely that this would have been a huge campaign issue had the bailout not occurred.

## 5. Implications and Conclusions

We argue that the German government weighed social, political and economic factors when deciding whether to bailout Greece. While a bailout created large short term fiscal costs and problems associated with moral hazard, failing to bailout Greece would have generated far greater social and political fallout due to the possibility of migration from Southern Europe into Germany. Our counterfactual analyses demonstrate the enormous public approval cost that the Merkel government would have confronted had it not bailed out Greece.

What does the mean for the future of German politics? The main parties—the Christian Democrats and the Social Democrats share a commitment to Europe and to the Euro. Thus, it was often difficult to see significant differences between them on the bailout. An SDP-led government likely would have acted in a similar manner, perhaps being even more aggressive in bailing out the peripheral economies to prevent immigrant inflows that would hurt their working-class constituents. And yet there are costs to this consensus on the Euro and Europe. Germans must pay for bailouts and structural funds or accept that migrants will come to Germany to work and live.

Given the centrist consensus around Europe, political outlets for voters opposed to the consensus will have to be found outside of the main parties. The AfD, composed largely of defectors from the CDU, offers an alternative on the right. The AfD takes a populist

stance that rejects the Euro and wants to place limits on immigration. The AfD did not fare well in the 2013 federal elections, failing to meet the 5 per cent electoral threshold. Yet since then, the party has gained in popularity, winning seats in the European elections and in recent state level elections. Given the relative consensus between the CDU and SDP, it is unsurprising that there is room in the political space for the development of this type of party.

More generally, our findings have a number of implications for understanding the relationship between global financial markets, cross-border migration and domestic politics.

*The Euro and the Free Movement of People*

Neofunctionalists argued that a rationale for the adoption of the Euro was to guarantee the gains from trade brought about the removal of trade barriers. By removing exchange rate risk within the E.U., countries could trade without the potential distortions of a competitive devaluation. In a similar fashion, our argument suggests that the credibility of the Euro relied on the existence of free movement of people in the Eurozone.

As the Euro was being negotiated, member state governments had wildly different fiscal positions: Italy and Belgium, in particular, had debt to gdp ratios in excess of 100. Reflecting these fiscal differences, bond spreads throughout the late 1980s and 1990s were relatively large. European policy makers recognized that these differing positions created the potential for problems under a single currency: There was the potential for a profligate government to enter into a vulnerable financial position and require a bailout. To deter this possibility, a no-bailout clause was explicitly negotiated.

Despite these very different fiscal positions, once the Euro was adopted, bond spreads quickly converged, suggesting that market actors believed that the Euro reduced the risk of a government default, even though government debt still varied widely. What made it credible that governments would not default or that someone would come to the rescue to save a defaulting government? Our analysis suggests the threat of internal migration from the periphery made any sort of promise not to bailout incredible.[24] Market actors understood that northern European countries would not want to deal with the flood of immigrants that would happen if a government defaulted. They calculated that the northern European countries would rather pay than accept a flood of immigrants. Thus, the free movement of people within the EU helped guarantee the credibility of the Euro and reduced bond rates for debt-ridden EU countries.

Without the free movement of people, northern European countries would not have had the same incentives to bailout the periphery countries. And if the EU had not sequenced the institutional reforms in this manner, the bond spreads would not have fallen as quickly or as far as they did. The free movement of people, therefore, provided some

[24] This is consistent with Beramendi (2012) who makes the argument for centralized fiscal institutions in situations when labor mobility results in large externalities.

debtor governments with increased fiscal flexibility as the bond rates were lower than anticipated.

*Argentina and Mexico*

Our argument has implications that extend beyond the sovereign debt crisis and Germany. The threat of immigration into a creditor country may prompt that government to respond more aggressively to credit crunches in other countries. Consider the cases of Mexico and Argentina. Both are middle-income countries with important trade linkages with the United States. Both countries experienced debt crises in the 1980s. Yet the U.S. hurried to Mexico's aid, providing a generous bailout package while it stood on the sidelines and allowed the IMF to negotiate with Argentina over the terms of its rescue package.

Our argument suggests that the key difference between the two cases is the threat of immigration in the event of an economic meltdown. Mexico's proximity to the U.S. meant that the possibility of a flood of immigrants was quite possible--immigration that would have been politically unpopular for the Clinton administration.[25] Although Argentina has a sizable ex-pat community, its emigrants are spread around the world. And given its remote proximity to the U.S. and other creditor countries, the U.S. was not faced with the imminent threat of increased immigration from Argentina. Hence, there was much less urgency to the Argentine bailout from the US perspective.

Our counterfactual argument shows that we cannot examine the implications of capital mobility and labor mobility in isolation. Potential migration pressure is an important factor in how governments in creditor countries respond to financial crises. Just as importantly, the potential for migration shapes how creditor countries offer assistance to deter that possibility.[26]

[25] This was certainly part of the Clinton administration's calculus in moving forward with Mexico's bailout. "The president argued that the bailout was critical for U.S. interests. He said it would protect American corporations already in Mexico as well as those seeking to export south of the border. He also warned that the world economy was at risk, that other emerging markets in Latin America and Asia might suffer similar fates if investors began pulling out en masse. Finally, the White House asserted, the Mexico bailout would help prevent a flood of illegal immigrants from rushing toward the U.S. border." http://articles.chicagotribune.com/1996-02-28/news/9602280230_1_mexico-bailout-zedillo-administration-billion-international-rescue

[26] Bermeo and Leblang (forthcoming) argue that the allocation of overseas development assistance can be understood as a part of a donor country's broader immigration policy.

## References


Beine, M., F. Docquier, and C. Ozden. 2011. "Dissecting Network Externalities in International Migration," CESinfo Working Paper #3333.

Beirne, John and Marcel Fratzscher. 2013. "The Pricing of Sovereign Risk and Contagion During the European Sovereign Debt Crisis," European Central Bank, Working Paper #1625 https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1625.pdf

Beramendi, Pablo. 2012. *The Political Geography of Inequality: Regions and Redistribution*, New York, Cambridge University Press

Bermeo, Sarah and David Leblang. Forthcoming. "Foreign Interests: Immigration Policy and the Allocation of Foreign Aid," *International Organization*.

Bertoli, Simone, Herbert Brucker, and Jesus Fernandez-Huertas Moraga. 2013. "The European Crisis and Migration to Germany: Expectations and the Diversion of Migration Flows," IZA Discussion Paper #7170

Boeri, Tito. 2009. "It is Migration, Stupid." http://www.voxeu.org/article/european-public-opinion-migration-and-welfare-benefits

Borjas, George. 2014. *Immigration Economics*. Cambridge, MA: Harvard University Press.

Bridges, S.; Mateut, S.(2013)., "Should they stay or should they go? Attitudes towards immigration in Europe",*Scottish Journal of Political Economy*, Vol.61 (4), pp. 397-429.

Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: insights from a panel-dataset 1980-2010,
mimeo. http://www.iab.de/en/daten/iab-brain-drain-data.aspx

Clark, Ximena & Timothy J. Hatton & Jeffery G. Williamson, 2002. "Explaining US Immigration 1971-1998," CEPR Discussion Papers453, Centre for Economic Policy Research, Research School of Economics, Australian National University.

Dancygier, Rafaela and Michael Donnelly. 2013. "Sectoral Economies, Economic Contexts, and Attitudes toward Immigration," *Journal of Politics* 75(1): 17-35.

Duch, Raymond M., and Randy Stevenson. 2008. *Voting in Context: How Political and Economic Institutions Condition Election Results*. Cambridge: Cambridge University Press

Eichengreen, Barry and Ashoka Mody, 2000. "What Explains Changing Spreads on Emerging Market Debt?," NBER Chapters, in: *Capital Flows and the Emerging*

*Economies: Theory, Evidence, and Controversies*, pages 107-136 National Bureau of Economic Research, Inc.

Facchini, Giovanni & Mayda, Anna Maria, 2009. "**Individual attitudes towards skilled migration: an empirical analysis across countries**,"CEPR Discussion Papers 7592, C.E.P.R. Discussion Papers.

Fitzgerald, Jennifer, David Leblang and Jessica Teets. 2014. "Defying the Law of Gravity: The Political Economy of International Labor Migration," *World Politics* 66:406-445.

Hatton, Timothy and Jeffery Williamson. 2005. *Global Migration and the World Economy*. Cambridge: Cambridge University Press.

Heinz, Frigyes Ferdinand and Yan Sun. 2014. "Sovereign CDS Spreads in Europe—The Role of Global Risk Aversion, Economic Fundamentals, Liquidity and Spillovers." IMF Working Paper WP/14/17 (https://www.imf.org/external/pubs/ft/wp/2014/wp1417.pdf)

Hellwig, Timothy. 2014. "Balancing Demands: The World Economy and the Composition of Policy Preferences." *The Journal of Politics* 76(1): 1-14.

Joppke, Christain. 1996. "Multiculturalism and Immigration: A Comparison of the United States, Germany, and Great Britain," *Theory and Society* 25: 449-500.

Kayser, Mark A. and Michael Peress. 2012. "Benchmarking across Borders: Electoral Accountability and the Necessity of Comparison." *American Political Science Review* 106(3):661–684.

Lewis-Beck, Michael S., and Mary Stegmaier. 2000. ''Economic Determinants of Electoral Outcomes.'' *Annual Review of Political Science* 3: 183–219.

Morris, Stephen and Hyun Song Shin. 2006. "Catalytic Finance: When Does it Work?" *Journal of International Economics* 70:161-177.

Ortega, Francesc and Giovanni Peri. 2013. "The Effect of Income and Immigration Policies on International Migration," *Migration Studies* 1:1-28.

Spolaore, Enrico, and Romain Wacziarg. 2009. "The Diffusion of Development." *Quarterly Journal of Economics* 124 (2): 469–529.

Zamora-Kapoor, Anna and Monica Verea. 2014. "Public Attitudes Towards Immigration in Turbulent Times," *Migration Studies*.

**Figure 1: Euro/Dollar Volatility**

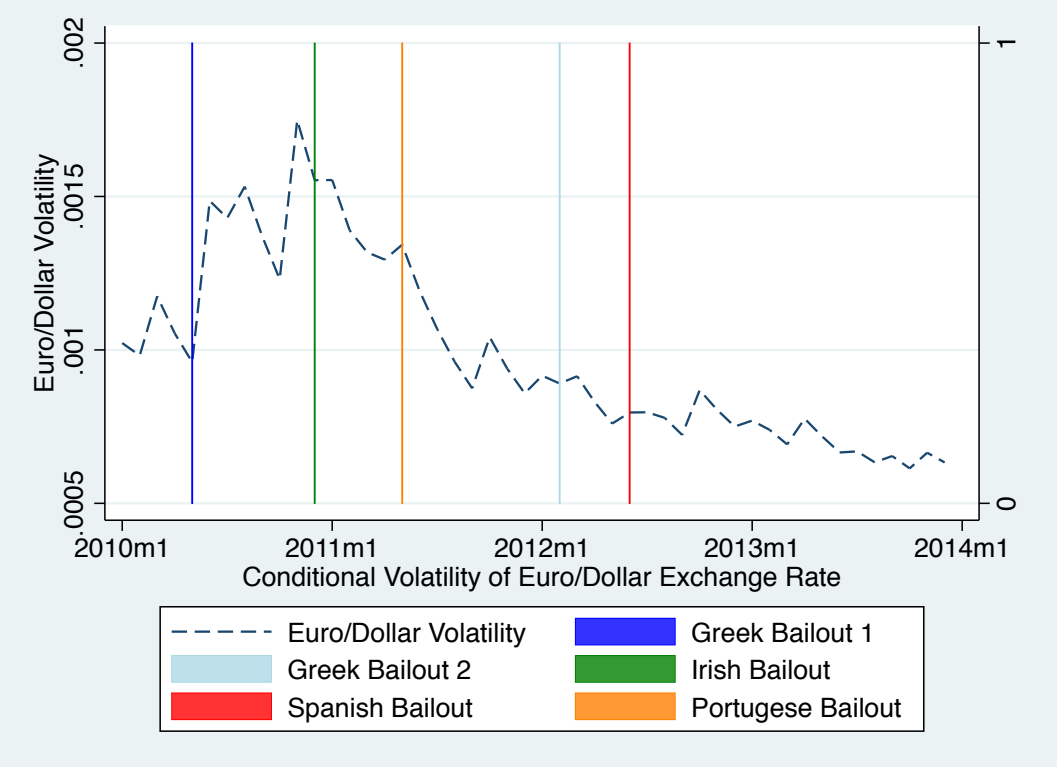


**Figure 2: Likelihood of Spillover from Greece to Portugal, Ireland, Cyprus, & Spain**

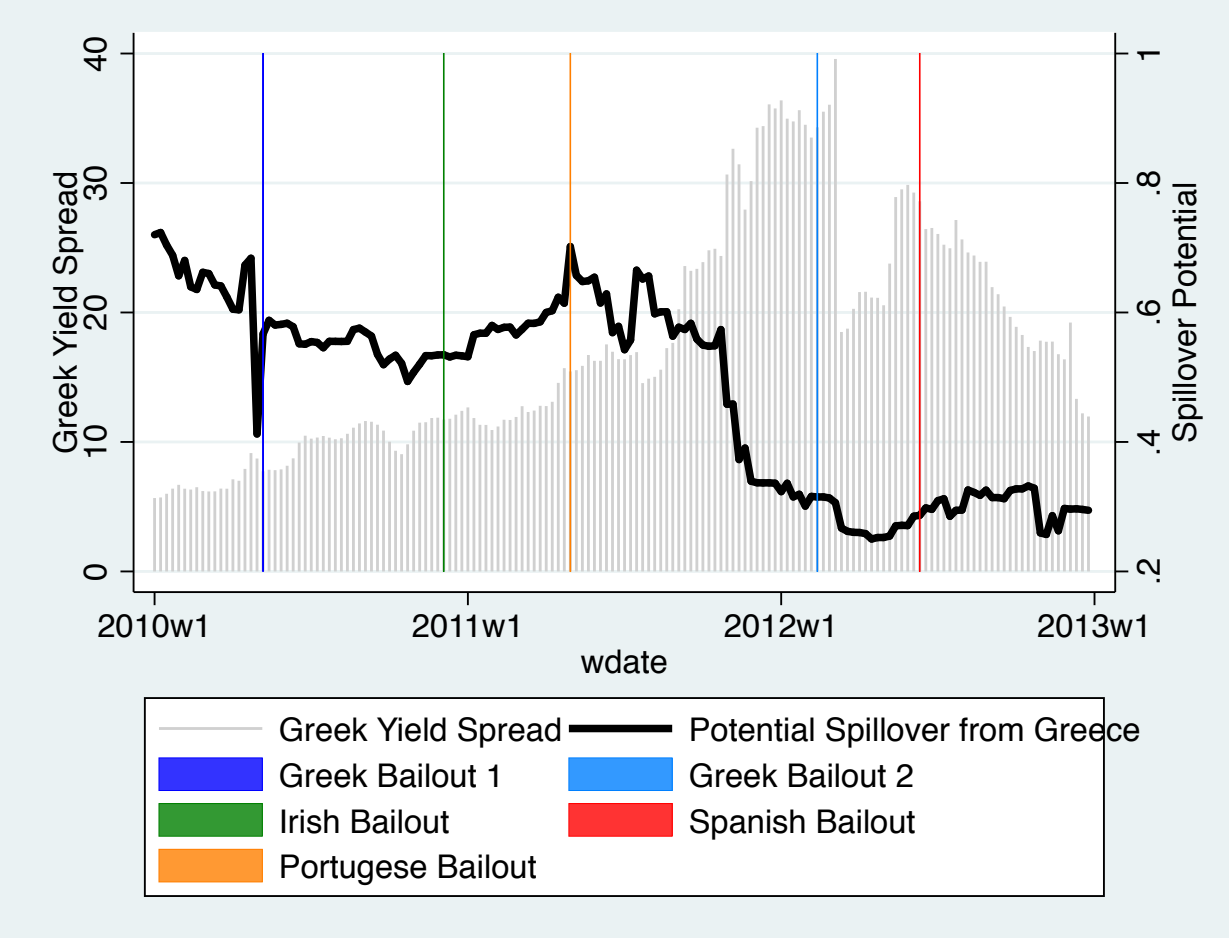


**Figure 3: German Bank Exposure**

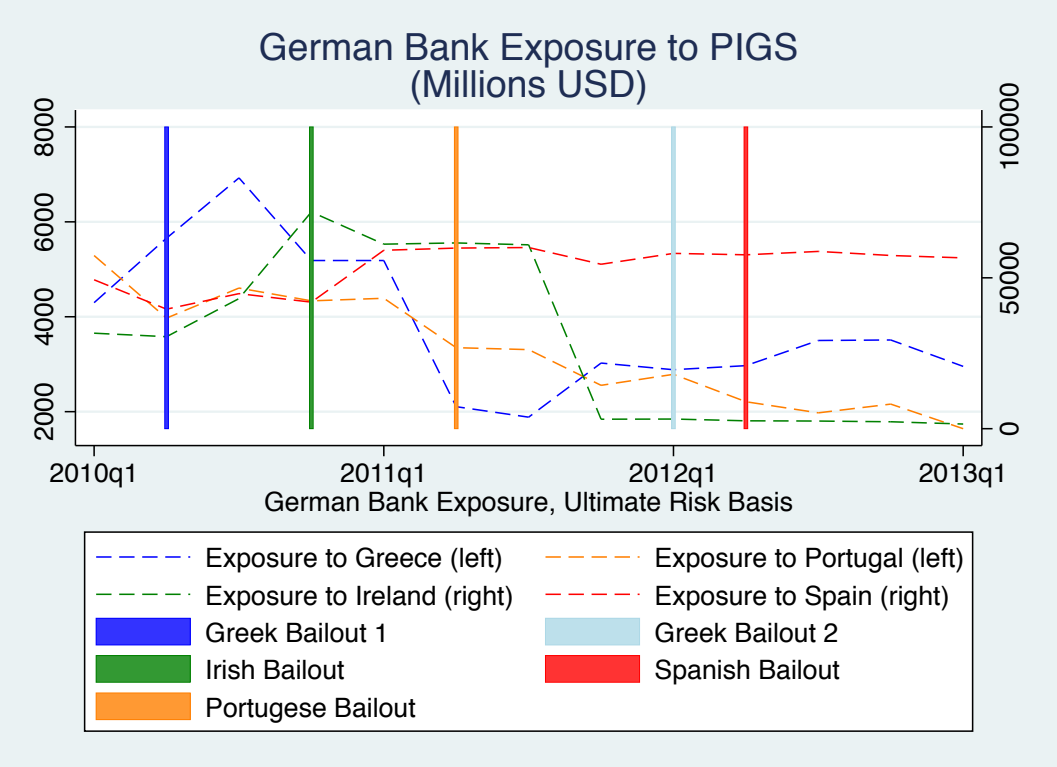
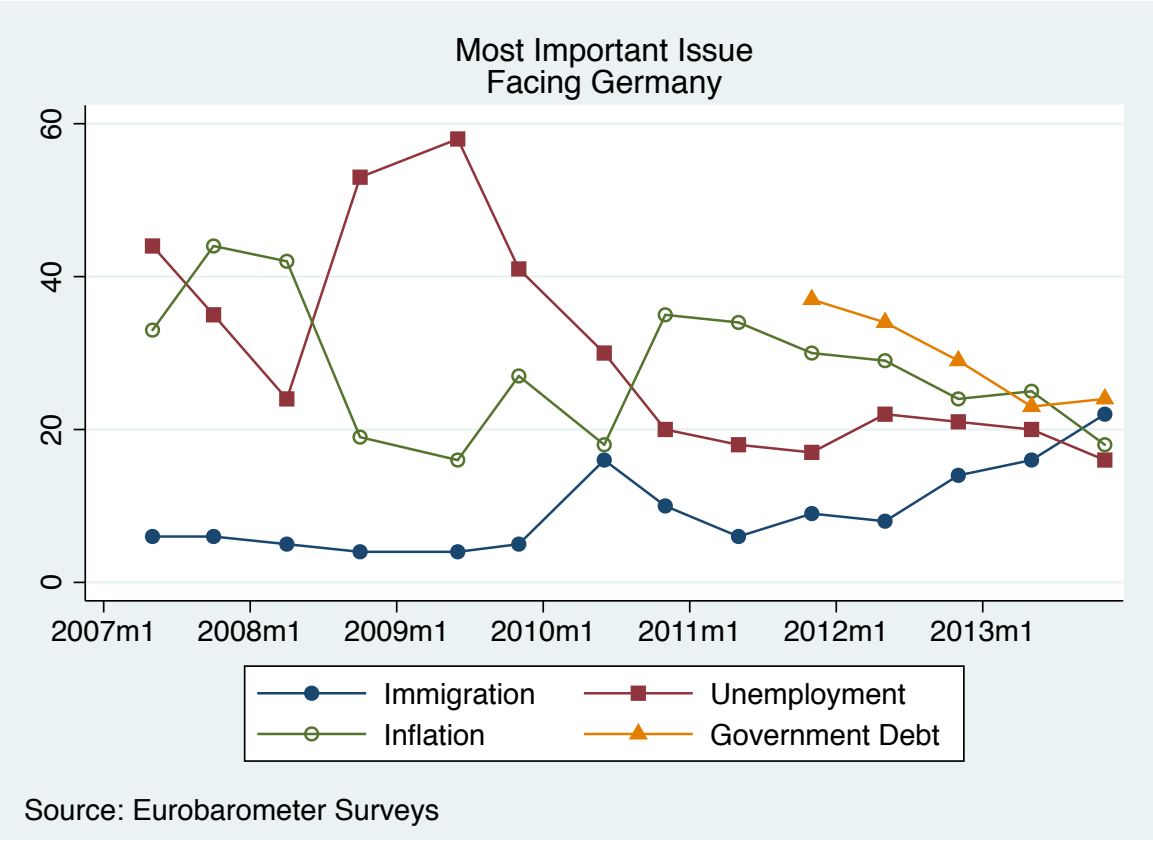


**Figure 4: German Attitudes Toward Immigration**




Source: Eurobarometer Surveys

## Figure 5: CDS Spreads as an Indicator of Economic Insecurity

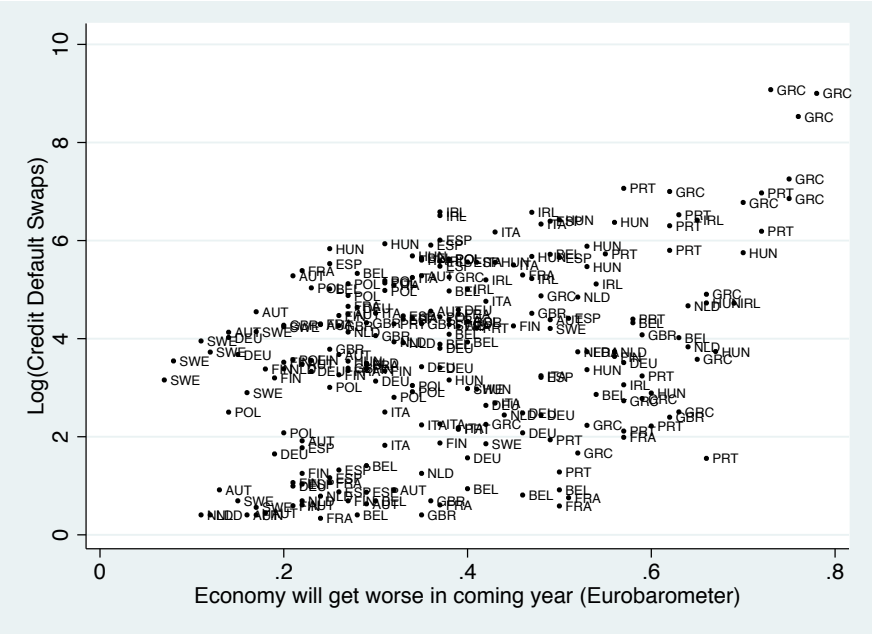


**Figure 6: Genetic and Cultural Distance from Germany**

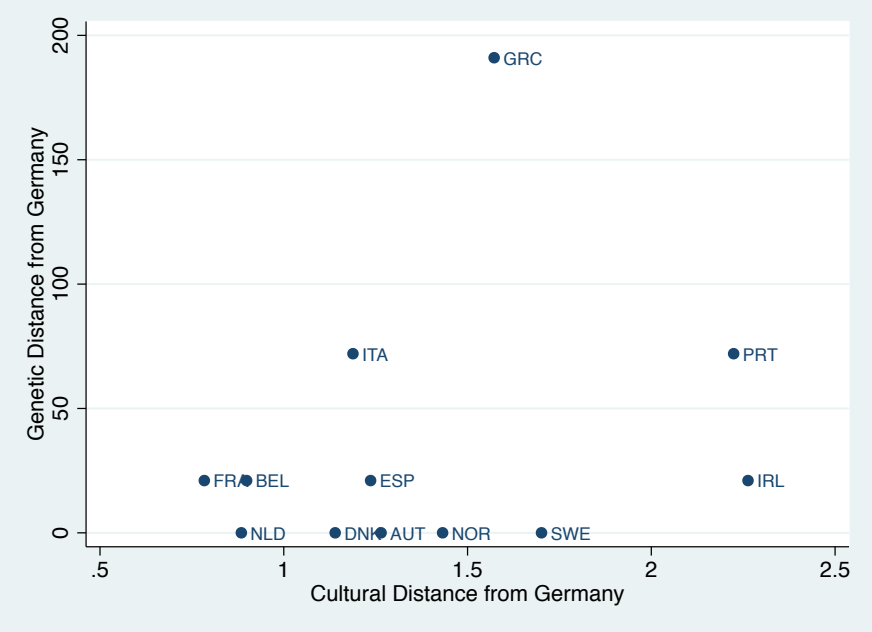


**Figure 7: Skilled and Unskilled Labor Flows into Germany (2010)**

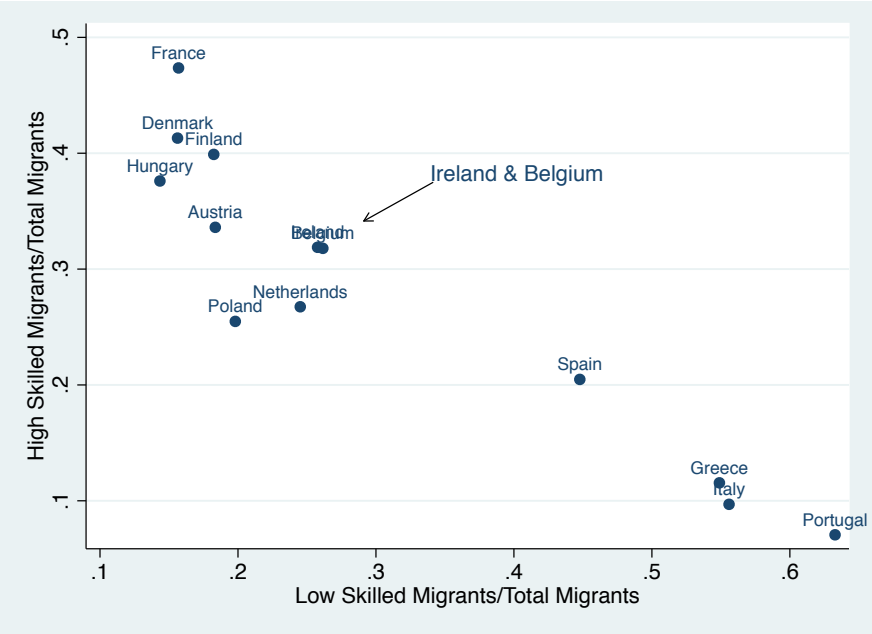


**Figure 8: Counterfactual Forecast: No Greek Bailout in March, 2012**

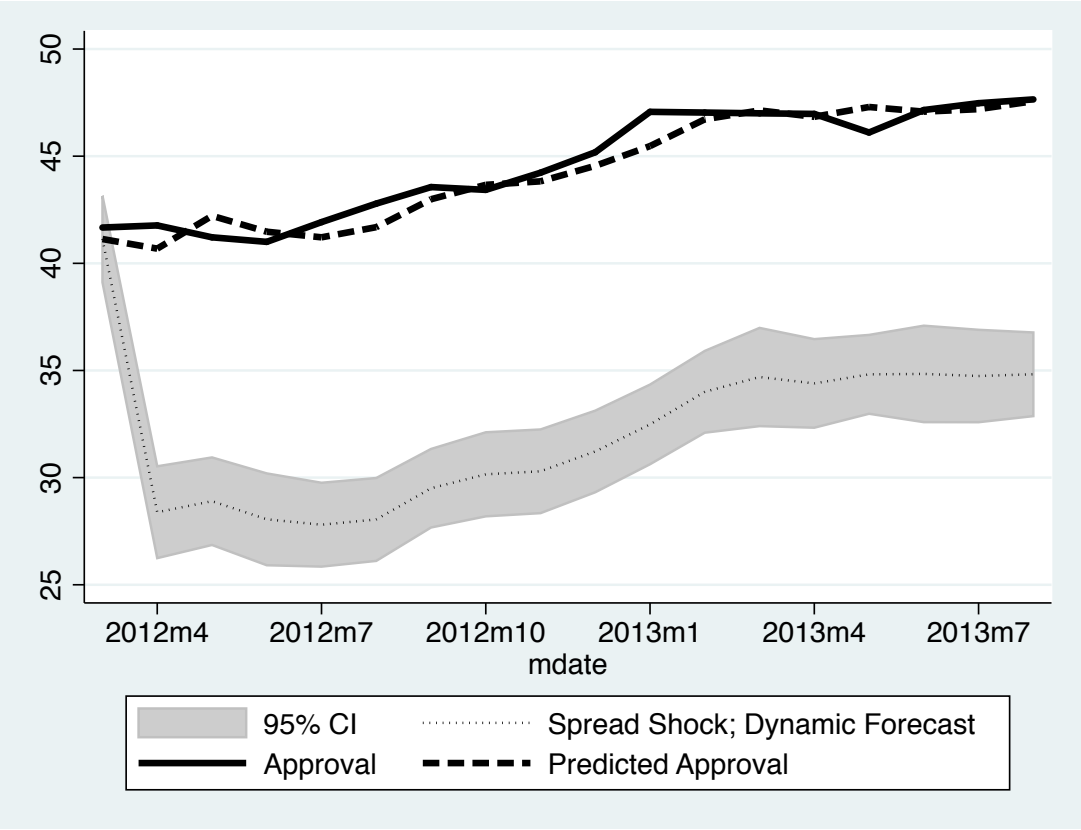
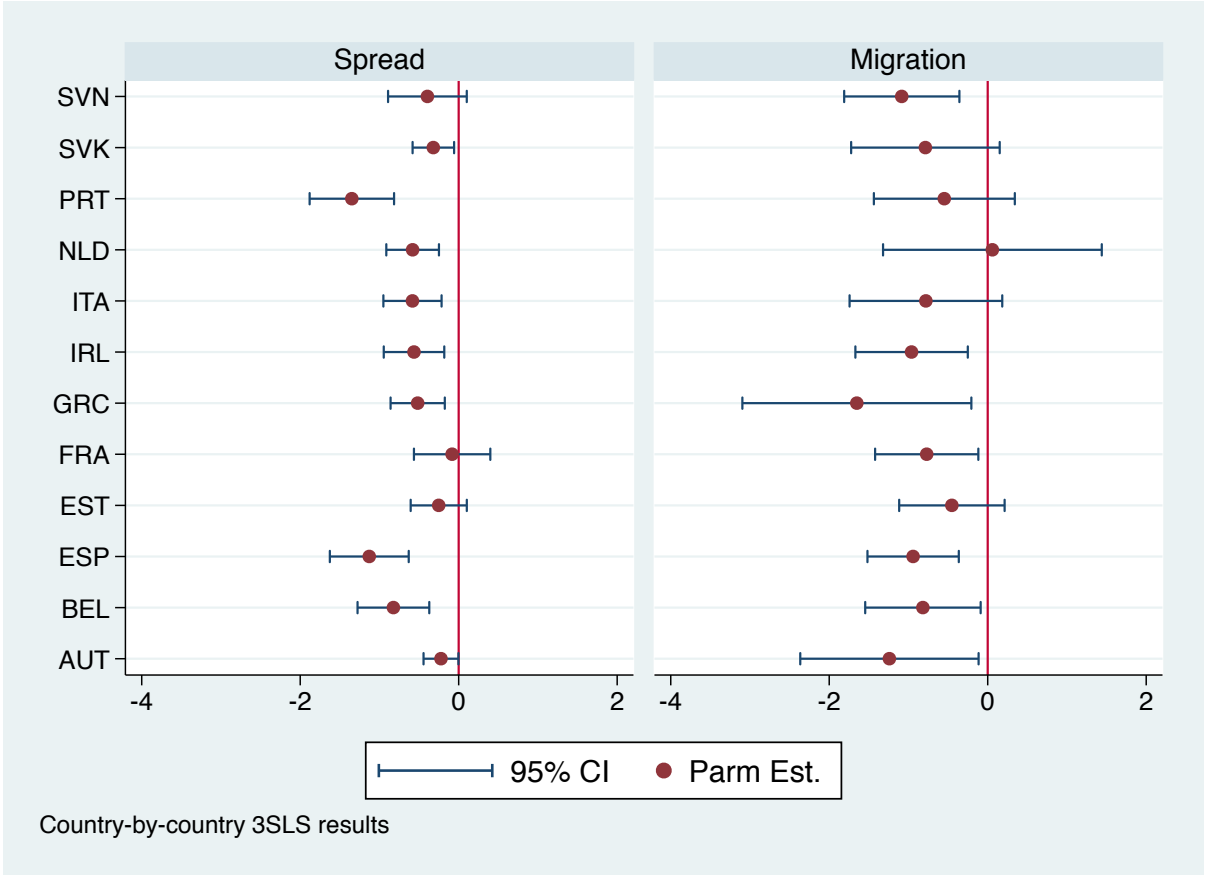


**Figure 9: Country-Specific 3SLS Results for Approval Equation**




Country-by-country 3SLS results

**Table One: Determinants of CDS Spreads**

| | $Bailout_{it}$ | $Bailout_{t}$ |
|---|---|---|
| $\log(\text{CDS Spread})_{t-1}$ | -0.0476** | -0.0472** |
| | (0.0170) | (0.0162) |
| $\Delta\text{Approval}_{t-1}$ | 0.0121 | 0.0164 |
| | (0.0172) | (0.0160) |
| ΔVix Index | 0.0215** | 0.0216** |
| | (0.00266) | (0.00266) |
| ΔDomestic Inflation | 0.0370 | 0.0407 |
| | (0.0447) | (0.0444) |
| Real Effective Ex $\text{Rate}_{t-1}$ | 0.00662 | 0.00577 |
| | (0.00426) | (0.00402) |
| Greek Bailout, $5/2010_{t-1}$ | 0.374** | 0.239** |
| | (0.0284) | (0.0753) |
| Irish Bailout, $12/2010_{t-1}$ | -0.0240 | -0.161 |
| | (0.0469) | (0.104) |
| Portuguese Bailout, $5/2011_{t-1}$ | 0.0915** | -0.269** |
| | (0.0310) | (0.0453) |
| Greek Bailout, $3/2012_{t-1}$ | -1.203** | -0.129 |
| | (0.0953) | (0.132) |
| Spanish Bailout, $8/2012_{t-1}$ | 0.0404 | 0.0716 |
| | (0.0509) | (0.0575) |
| Constant | -0.713 | -0.622 |
| | (0.406) | (0.385) |
| Observations | 913 | 913 |

Dependent Variable is the Change in log(CDS Spreads vis-a-vis Germany).
In column 1 bailouts are country and month specific; in column 2 the bailouts are coded "1" for all countries during the bailout month.
Robust standard errors clustered by country
Both columns include a set of 12 country dummy variables.
* $p < 0.10$, ** $p < 0.05$

**Table Two: Determinants of Migration into Germany**

| | Poisson | Poisson | Negative Binomial |
|---|---|---|---|
| Log(Inflows into Germany)$_{t-1}$ | 0.488** | 0.417** | 0.392** |
| | (0.0664) | (0.0349) | (0.0513) |
| Log(Inflows into Germany) $_{t-12}$ | 0.420** | 0.503** | 0.484** |
| | (0.0610) | (0.0333) | (0.0436) |
| German Unemployment $_{t-1}$ | -0.0334** | -0.0232** | -0.0252** |
| | (0.0140) | (0.0113) | (0.0108) |
| Domestic Unemployment Rate $_{t-1}$ | 0.00553 | 0.0152** | 0.0161** |
| | (0.00512) | (0.00385) | (0.00388) |
| Wage Differential $_{t-1}$ | -0.0654 | -0.105 | 0.0510 |
| | (0.120) | (0.0938) | (0.120) |
| CDS Spread $_{t-1}$ | 0.000207** | 0.000307** | 0.000544** |
| | (0.0000996) | (0.0000733) | (0.000145) |
| Post Greek Bailout 1 | | 0.218** | 0.214** |
| | | (0.0501) | (0.0421) |
| Post Irish Bailout | | -0.0644** | -0.0472** |
| | | (0.0215) | (0.0192) |
| Post Portuguese Bailout | | 0.00454 | 0.0123 |
| | | (0.0315) | (0.0286) |
| Post Greek Bailout 2 | | -0.137* | -0.147** |
| | | (0.0815) | (0.0530) |
| Post Spanish Bailout | | -0.109** | -0.0625** |
| | | (0.0371) | (0.0297) |
| Constant | 1.046** | 0.870** | 1.058** |
| | (0.169) | (0.186) | (0.250) |
| Log(Alpha) | | | |
| Constant | | | -3.771** |
| | | | (0.195) |
| Observations | 1030 | 1030 | 1030 |

Robust standard errors clustered by country of origin in parentheses
Dependent Variable in Column 1 is the Level of Migration into Germany.
Columns 1&2 estimated via Poisson; column 3 is a negative binomial model
The model includes a set of 12 origin country dummy variables and 12 monthly dummy variables. * $p < 0.10$, ** $p < 0.05$

**Table Three: German Coalition Approval**

| | Eurozone Migrant Inflows Weighted by: | | | |
|---|---|---|---|---|
| | Genetic Distance | Cultural Distance | % Unskilled | Genetic Distance |
| Approval $_{t-1}$ | 0.806** | 0.807** | 0.806** | 0.801** |
| | (0.0496) | (0.0494) | (0.0487) | (0.0549) |
| German Unemployment | 0.584* | 0.580* | 0.576* | 0.595 |
| | (0.342) | (0.341) | (0.340) | (0.369) |
| German Inflation | 0.190 | 0.192 | 0.184 | 0.280 |
| | (0.314) | (0.313) | (0.313) | (0.368) |
| Nuclear U-Turn | -0.291 | -0.219 | -0.276 | -0.264 |
| | (0.360) | (0.345) | (0.357) | (0.356) |
| Weighted Migrant Inflows$_{t-1}$ | -1.007** | -1.083** | -3.682** | -1.122** |
| | (0.481) | (0.436) | (1.559) | (0.452) |
| P[Eurozone Default] $_{t-1}$ | -0.459** | -0.461** | -0.462** | -0.501** |
| | (0.182) | (0.183) | (0.183) | (0.214) |
| Bailouts $_{t-1}$ | -0.351 | -0.357 | -0.393 | |
| | (0.570) | (0.560) | (0.555) | |
| Electoral Clock | 0.272** | 0.270** | 0.271** | 0.255** |
| | (0.0832) | (0.0828) | (0.0818) | (0.0869) |
| Electoral Clock^2 | -0.00304** | -0.00301** | -0.00304** | -0.00274** |
| | (0.00125) | (0.00125) | (0.00124) | (0.00132) |
| Greek Bailout, 5/2010 $_{t-1}$ | | | | -2.216** |
| | | | | (0.400) |
| Irish Bailout, 12/2010 $_{t-1}$ | | | | 0.584 |
| | | | | (0.361) |
| Portuguese Bailout, 5/2011 $_{t-1}$ | | | | -0.169 |
| | | | | (0.333) |
| Greek Bailout, 3/2012 $_{t-1}$ | | | | 0.934* |
| | | | | (0.495) |
| Spanish Bailout, 8/2012 $_{t-1}$ | | | | 0.755** |
| | | | | (0.263) |
| Constant | 2.842 | 2.877 | 2.928 | 3.403 |
| | (2.591) | (2.616) | (2.655) | (2.995) |
| Observations | 77 | 77 | 77 | 77 |

Newey West Standard Errors in Parentheses
Dependent Variable is the Level of Coalition Approval
Model also included dummy variables for the 2009 and 2013 campaign, the 2009 and 2013 election and the 2009 honeymoon periods.
* $p < 0.10$, ** $p < 0.05$

**Table Four: Simultaneous Equation Model: Greece**

| | | |
|---|---|---|
| SPREADS | | |
| log(cds_spread) $_{t-1}$ | 1.008** | (0.0220) |
| Change in Approval $_{t-1}$ | -0.0521 | (0.0318) |
| ΔVix Index $_{t-1}$ | 0.00682** | (0.00256) |
| Domestic Inflation $_{t-1}$ | 0.0511* | (0.0267) |
| ΔReal Exchange Rate | -0.0279 | (0.0328) |
| Greek Bailouts $_{t-1}$ | -0.728** | (0.290) |
| Constant | -0.290 | (0.217) |
| MIGRATION | | |
| Log(Inflows into Germany) $_{t-1}$ | 0.528** | (0.0810) |
| Log(Inflows into Germany) $_{t-12}$ | 0.402** | (0.0912) |
| German Unemployment $_{t-1}$ | -0.0141 | (0.0538) |
| Domestic Unemployment Rate $_{t-1}$ | -0.0638** | (0.0188) |
| Wage Differential $_{t-1}$ | 3.131** | (0.801) |
| log(CDS Spreads) $_{t-1}$ | 0.0473** | (0.0215) |
| Constant | -3.593** | (1.576) |
| GERMAN APPROVAL | | |
| Approval $_{t-1}$ | 0.770** | (0.0382) |
| German Unemployment | 0.736* | (0.414) |
| German Inflation | -0.0896 | (0.366) |
| Nuclear U-Turn | -0.476 | (1.043) |
| log(cds_spread) | -0.528** | (0.194) |
| ΔLog(Inflows into Germany) $_{t-1}$ | -1.587** | (0.752) |
| Greek Bailouts $_{t-1}$ | -1.220 | (0.751) |
| Electoral Clock | 0.290** | (0.0485) |
| Electoral Clock^2 | -0.00327** | (0.000840) |
| Constant | 4.628 | (4.051) |
| Observations | 75 | |

Model estimated via three stage least squares using Greek spreads and (unweighted) migration into Germany. Approval model includes dummy variables for the 2009 Campaign, Election and Honeymoon and the 2013 Campaign and Election periods.

* $p < 0.10$, ** $p < 0.05$