Politics, Policy and Financial Market Volatility in Advanced Economies

Lauren M. Phillips*
Department of International Relations
London School of Economics

Abstract

This paper presents new empirical evidence that financial markets place a broad constraint on policy makers in developed countries, responding to news about fiscal policy making with increased sovereign debt premiums and volatility. This contradicts the expectations of the literature on the impact of financial globalization on national policy autonomy, which has asserted that financial markets place a narrow constraint on developed country policy makers. Utilizing insights from Alesina and Drazen's classic "war of attrition" model, I argue that disagreement over the size and shape of fiscal adjustment will generate news which provokes financial market volatility. When such contestation is high, volatility of sovereign bond prices will be strongly determined by news of this sort. Based on a new dataset of contestation over policy and econometric tests of recent bond performance in two Eurozone economies (Italy and Spain), this paper contends that contestation over policy has had a particularly strong impact on bond spreads, placing a constraint on developed country policy makers.

* Department of International Relations, London School of Economics, Houghton Street, London WC2A 2AE, United Kingdom. l.m.phillips@lse.ac.uk

Introduction

Financial globalization is one of the defining features of the global political economy, and examining the pressure that it exerts on national policy makers is a dominant theme in the contemporary study of international political economy. This literature has largely argued that policy makers in developed countries are insulated from market pressures, and that contrary to early expectations, there is significant "room to move" for politicians on both the left and right of the ideological spectrum (Garrett 1998; Garrett and Mitchell 2001; Mosley 2000, 2003; Oatley 1999; Rodrik 1998). New data and empirical results presented in this paper, which examines the interaction between financial markets and the state in two Eurozone countries (Italy and Spain) from 2009-2012, demonstrates that policy makers now face broad, rather than narrow, pressures, including pressures on the democratic process of policy making.

While traditional literature on the price of sovereign bonds has argued that the risk rate – or spread – of bonds is driven by a litany of debt related macroeconomic variables (Ades et al. 2000; Edwards 1984, 1986; Ferrucci 2003; Min 1998), political scientists have argued that the price of bonds and other sovereign assets like currencies are also determined by political events, such as elections, changes to partisanship and periods of government collapse / formation (Bernhard and Leblang 2000, 2002, 2006a, 2006b; Fowler 2006; Freeman, Hays, and Stix 2000; Leblang and Mukherjee 2004, 2005; Leblang and Satyanath 2006). This paper suggests that while macroeconomic variables and elections often do matter for determining the spread of sovereign bonds in developed economies, more nuanced political variables, such as the contestation over policy, can be critical determinants of bond market performance.

However, the findings also suggest that the influence of politics on financial market performance varies given the source and degree of political contestation in a polity. Contestation

amongst parliamentary actors over fiscal policy was a strong driver of Italian bond spreads and volatility between 2009 and 2012, though other political variables were not (e.g. scandals involving former Prime Minister Silvio Berlusconi). In contrast, in Spain, where the prime minister enjoyed more fiscal policy independence given the structure of his parliamentary support, news about fiscal policy making did not have a statistically significant impact on bond market volatility or spreads. Contestation between the Federal and regional governments had an impact, however, on the mean spread of Spanish sovereign bonds.

Understanding why and how financial markets exert pressures on democratic governments requires a theory of debt dynamics under democratic policy making. I utilize Alesina and Drazen's classic "war of attrition" model of economic reform (1991) to explain why contestation occurs over fiscal policy in periods of economic stress, and more importantly, how this contestation negatively impacts the financial market's perception of sovereign debt sustainability. The model suggests that delay over deciding which groups should bear the cost of economic adjustment increases the eventual cost of that adjustment, which helps to explain why financial markets would be particularly concerned about policy delays. Drawing on classic explanations of financial market performance, I hypothesize that markets use news about policy contestation, along with other salient news, to update their expectations about bond performance and default probabilities, generating financial market volatility and debt premiums.

There are two implications of these findings on the literature in international and comparative political economy. The narrower implication is for the growing body of work on the interaction between financial market performance and political variables. While previous studies have been exclusively focused on political events like elections, this study looked in a more nuanced way about the impact of policy contestation on market performance, marking

advancement in our understanding of how the daily process of democratic government affects financial market performance.

More broadly, the paper suggests that far from being insulated from market pressures, the actions of policy makers in financially constrained developed economies can be a major driver of financial market volatility. The contours of policy in this context matter a great deal, and perhaps even more than they do in developing countries given the centrality of these financial markets to the global economy. This implies that the developed country "exception" seems to have eroded, and may be difficult to recover.[1] Thus the findings in this paper suggest that there may be a new paradigm of financial market behavior in developed countries, one in which policy makers find their "room to move" is significantly constrained.

Financial Markets and the State

The literature on financial globalization, initially divided between those who thought that globalization undermined the capacity of the state and those that were more sanguine, has over time coalesced towards support for the "compensation" hypothesis. Governments in developed countries, including left-wing governments, can use a variety of measures to continue pursuing the types of policies consistent with their ideological pre-disposition, despite the pressures of financial globalization (Garrett and Lange 1991; Oatley 1999). As a consequence of increasing pressure from constituents for compensation in the wake of competitive pressures introduced by global financial and trade integration, welfare spending remains robust (Garrett 1998; Garrett and Mitchell 2001; Hicks 1992; Hicks and Zorn 2005; Rodrik 1998). While this characterization of the literature overlooks both those that are skeptical about the robustness of the empirics that

underpin these claims (Kittel and Winner 2005; Busemeyer 2009) and the causal mechanism they propose (Kim 2007; Walter 2010), the dominant tone of the debate remains that the "exit" power of financial firms (Hirschman 1970) appears to be weak in the case of developed countries, where governments have been able to maintain choice over their policies.

In a similar vein, the literature on the impact of politics on financial market performance has argued that developed countries are insulated from market volatility driven by politics and micro-level policy decisions, and that the investors in sovereign debt are primarily concerned with indicators of macroeconomic performance. This claim is most notably made by Mosley, who argued that "the influence of financial markets on government policy choice [in developed countries] is 'strong but narrow.' Market participants can charge high prices for certain government policies, but the range of policies used to set these prices is limited" (Mosley 2000, 741). When default risk is absent, as she argues is the case in developed economies, investors focus exclusively on macroeconomic indicators such as deficit levels and inflation; gathering additional indicators is inefficient as they provide information of marginal importance. In contrast, when default risk is present, as in developing countries, investors focus on a much wider range of economic and political information that helps them assess both the government's ability and willingness to repay sovereign debt (see Mosley 2003, 135).

The ongoing global financial crisis, which started in the United States in 2007 and is now most acutely felt as a sovereign debt crisis in Eurozone economies, has challenged the core of these assumptions: that developed economies are exempt from financial market volatility and contagion caused by political and policy variables. In fact, the sovereign debt crisis in Europe has been driven strongly by fear over the incapacity of European institutions to manage the risks

posed by divergent fiscal performance and the market's lack of confidence in and uncertainty over domestic politics and policies in Eurozone economies.

As Figure 1 shows through the dramatic conversion and then rapid divergence of European sovereign interest rates, the introduction of the euro in 1999 brought about a ten-year period in which the markets inferred almost no risk of default among a wide range of Eurozone sovereigns. However, since approximately 2009, the risk of default has been present in the case of Greece, and non-negligible in other Eurozone economies such as Ireland, Portugal, Spain and Italy. Extending Mosley's logic, we should therefore expect that the information investors care about expands to include the distribution of government spending and the politics of policy making.

Insert Figure 1 about here

Mosley, however, presents less evidence about what drives market volatility in cases where default risk is present than in those cases where default risk is absent. Her chapter on emerging market countries in *Global Capital and National Governments* suggests, based on interviews with market participants, that the following political indicators may matter: independence of the central bank, political independence / insulation of fiscal policymaking authorities, willingness of government to repay sovereign debt, partisan orientation and expected changes in government (e.g. upcoming elections), in addition to more nuanced macroeconomic variables about the distribution of spending, tax and labor market policy (Mosley 2003, 102-156).

Of these variables, the one that requires the most serious consideration is "political independence / insulation of fiscal policymaking authorities," which suggests that the markets are concerned with the ability of policy makers to move forward with fiscal policy changes without intervention from other political actors. Two of the other variables in the list above appear to be more applicable to developing countries, namely the independence of the central bank and the willingness of governments to repay sovereign debt. Central bank independence is well established in developed countries including the US, Eurozone and the UK, and willingness to repay debt has not been a question for any developed countries in the modern period with the notable exception of Greece, which is now in default. While partisan orientation and upcoming elections are likely to matter, the causal mechanisms that explain the role of partisanship and elections in driving sovereign assets have been well explored in the previous literature (see especially Bernhard and Leblang 2002; Freeman, Hays and Stix 2000).

Focusing on policy making independence allows us to isolate how the process of policy making during times of financial stress creates uncertainty and negative expectations in the minds of financial market participants. I contextualize this variable using Alesina and Drazen's classic model of a "war of attrition" among social groups debating the scope and content of policy adjustment (1991), and argue that contestation over adjustment provides evidence that is highly relevant to financial market actors as they update their expectations about debt sustainability and applicable risk premiums.

The War of Attrition and Sovereign Debt Pricing

An extensive literature from comparative political economy on the political drivers of high levels of debts and deficits has focused on the role of electoral systems and other

representative institutions play in driving up spending (Alesina and Drazen 1991; Alesina and Peroti 1994; Grilli, Masciando, and Tabellini 1991; Poterba 1994; Roubini and Sachs 1989). A notable contribution to this debate is Alesina and Drazen's "war of attrition" model (1991), and papers which followed in this vein, in which the costs of fiscal adjustment are assumed to fall unevenly on socio-economic groups. This model assumes that it is the heterogeneity of interests which prevent countries from addressing what the authors call "unsustainable" policies leading to high levels of debt, and that the conflict of interest over the distribution of costs of adjustment are solved only when "a political consolidation leads to a resolution of the distributional conflict" (Alesina and Drazen 1991: 1171). This requires that one group concedes to their opponents the power to determine how adjustment burdens will be shared. The reform delay exacerbates the macroeconomic context, increasing the eventual adjustment costs faced by each group.

One of the most important implications of this model is that stabilizations are more likely to be delayed when a society experience a high degree of polarization. Later work utilizing a similar theoretical framework investigates whether adjustment is more likely to occur during periods of economic crisis, and under an array of other political institutions such as "strong" government (see Alesina, Ardagna and Trebbi 2006). The findings largely confirm the intuition of the original model: that when political power is divided among diverse groups empowered by existing institutions, the approval of adjustment (and more specifically, fiscal retrenchment and structural changes) is delayed.

While the war of attrition model is well established explanation of why lack of political cohesion can lead to the accumulation of sovereign debt in the medium to long term, the model can also be used to hypothesize about the behavior of financial markets in the short term, and what drives volatility in sovereign debt markets. In a context of social discord over how to rein in

public spending / borrowing and address existing macroeconomic imbalances, the contestation between political actors will generate a great deal of news about domestic politics. This news is relevant to market actors looking to update their expectations about debt sustainability, and the probability of a change in policy which would bring a more favorable fiscal situation. The uncertainty created by this contestation will be experienced as pricing volatility.[2] In other words, the debt spiral imagined in Alesina and Drazen's war of attrition is fought as a series of daily battles that generate persistently volatile debt pricing.

Case Studies, Empirical Tests and Results

Case Study Selection

The sovereign debt crisis in Western Europe can be characterized as a crisis of confidence in the sovereign debt of four Eurozone countries (Ireland, Portugal, Spain and Italy), with an actualized debt crisis, including a managed default, in a fifth (Greece). I have chosen to analyze the reaction of the bond markets to contestation in the two largest of these economies, Spain and Italy, because the contestation amongst them differed substantially while other relevant features are relatively similar. I elaborate on these selection criteria below.

First, Italy and Spain are the Eurozone's third and fourth largest economies, dwarfing in size (and therefore in potential risk for the market as a whole) the other countries who have faced financial market pressures during the ongoing debt crisis.[3] This should make the markets equally sensitive to the chance of them being pushed towards default. Additionally, and despite this importance for systemic risks in the Eurozone as a whole, neither country has to date accepted a bailout from the "troika" represented by the International Monetary Fund (IMF), European Union (EU) and European Central Bank (ECB).[4,5] Third, the formal institutional setting in Spain

and Italy is similar – both are parliamentary democracies with a nominally proportional electoral system[6] and a federal system in which tax and spend authority is devolved to regional governments. As such, the number of explicit veto players in both settings is relatively similar, as captured by metrics on the number of checks and balances and the degree of polarization in datasets such as the Database of Political Institutions (Beck et al 2001).[7]

While many of the above features make Spain and Italy similar, these two countries make an interesting comparison because the level of contestation over fiscal policy making varied in Spain and Italy during the period under consideration. I first consider this in a descriptive fashion, and then provide some metrics to directly compare the levels of contestation in the two. [8]

In the Spanish case, the government, despite being seven votes shy of a majority, was able to pass a series of austerity measures during 2009, 2010 and 2011, once market pressures combined with prolonged recession and rapidly rising unemployment caused the Socialist party and Prime Minister Luis Zapatero to abandon stimulus plans. While the political costs of passing these measures resulted in the resignation of Zapatero from the party leadership, the organization of early elections in November 2011 and a large electoral victory for Marian Rajoy's right of center Popular Party, the government was able to use its (dwindling) political capital to ensure passage of key measures, limiting market volatility around the process of fiscal policy retrenchment.[9] However, while the Spanish government was able, at a high political cost, to pass fiscal policies at the national level, there was greater contestation at the regional level. The international media seized upon several examples of leaders of the 17 Autonomous Regions disobeying national limits for fiscal discipline, and suggestions that bankruptcy was possible in Castilla-La Mancha and, more significantly, Catalonia.

In Italy, in contrast, the right of center coalition government led by Silvio Berlusconi faced political paralysis throughout most of the period under discussion. In 2010, the Italian economy continued its long trend of slow / zero growth, though market pressure on Italian sovereign borrowing remained low. Nonetheless, a series of scandals over Berlusconi's personal behavior and abuse of state power for personal enrichment eroded his parliamentary majority, forcing one important branch of his party to splinter. He survived several votes of confidence in the end of 2010, but economic policy making was largely frozen.

In 2011, as Italian debt came under more acute pressure, the government made efforts to propose and pass austerity and reform measures. Berlusconi was continually forced to seek confidence votes to pass watered down versions of these measures, and policy making was stalled, frustrating both markets and European partners. Members of the coalition (such as Umberto Bossi's Northern League) were able to extract highly costly policies in exchange for their (weak) support for austerity. New revelations of personal scandals involving Berlusconi complicated the political problem. The situation of political paralysis and increasing pressure from markets and funding partners culminated in the collapse of Berlusconi's government in early November, and the rushed swearing in of a technocratic government led by Mario Monti. Again in contrast to Spain, until the summer of 2012 (and thus after this dataset) fiscal laxity in the regional governments (and Sicily in particular) was not a concern to financial market actors. Thus, the core political contestation occurred in the parliament, amongst the government, its coalition partners and the opposition.

It is possible to get a more precise sense of how contestation varied in these two polities by looking at a) the amount of news about contestation among government officials during the recent crisis and b) the distribution of positive / negative news about the passage of reform bills.

As described in greater depth in the next section, I coded news from the international financial oriented newspaper, the *Financial Times* about Spain and Italy from January 2009 to January 2012. During that time, there were 115 stories about political contestation over fiscal policy reform amongst parliamentary actors in Italy, and 81 about Spain contestation in the parliament (with a further 15 stories about contestation at the sub-national level). The imbalance in reporting about contestation over reform can be even more clearly seen if one looks at the distribution of "positive" vs. "negative" news in these two settings.[10] In Italy, of the 115 pieces of news, 80 are negative, and only 34 are positive. In Spain, by contrast, the majority of news is positive: 47 pieces of positive news to 33 pieces of negative news. This positive / negative distribution gives a sense of how Spanish reforms, despite some popular protests and backsliding, were passed, while Italian reforms made slower and much more halting progress as they worked their way through the domestic political system.

These two countries therefore allow me to compare the effects of differing levels of contestation on sovereign bond spread volatility during the period. While contestation amongst political groups was high in Italy during this period, presenting the government a very constrained fiscal policy making setting, the Spanish government faced less contestation and was able to internalize debate about fiscal policy and generate a series of reform bills. There, debate was found between the Madrid based government and regional governments.

List of Variables

I use the spread of the 10 year bench mark Italian and Spanish bonds over a comparable German Bund (denominated in basis points, or hundreds of a percent) as my two dependent

variables in order to measure the variation in market perception of risk and response to changing economic and political conditions.[11] As tests on both dependent variables demonstrate that the series lack stationarity, I transform the dependent variables to the daily change in pricing.[12] The dataset runs from 1 January 2009 until 18 January 2012.

The independent variables are of two types. Financial market controls are time series of daily data, while the remaining independent variables are dummy variables (0,1) which provide information about changing economic and political conditions at both the domestic and supranational (European / Eurozone) level, consistent with the EMH which looks for news which would alter perceptions of debt value.

Two financial market control variables are included: the daily change in the Euro / US Dollar exchange rate and the daily change of the spread of Greek sovereign bonds over German Bunds. These are designed to capture the impact that contagion from the European sovereign debt crisis has on the price and volatility of Spanish and Italian debt. I also test the US Federal Funds rate to determine whether US market conditions have a direct impact on the spread of European sovereign debt; as this variable is not significant in any specification of the model, results are not presented.

The political and economic control variables are of several types, and are assembled from a number of sources. All of them are news variables, in keeping with the assumption that characterizes much of the literature on financial market, which assumes that actors will seek to update pricing on the basis of unexpected, relevant news of a political or macroeconomic nature (Fama 1970,1991). In order to capture the impact of news about macroeconomic performance on the spreads of Spanish and Italian debt, I consulted two sources. In the first instance, I used online archives of news releases from the Italian statistical agency (*L'Istituto nazionale di*

statistica or ISTAT) and the Spanish statistical agency (*Instituto Nacional de Estadística* or INE) to code news about domestic macroeconomic conditions as released by these two agencies. All major macroeconomic outcome announcements were coded 1; all remaining days were coded 0. 175 pieces of news are coded as relevant from ISTAT; 431 pieces of news are coded from INE.

As the INE variable, even coded in this restricted fashion, appears to contain a significant amount of noise which may have resulted in a lack of significance in the models, I also coded news about macroeconomic outcomes for Spain and Italy using the international financial newspaper, the *Financial Times* (FT), a primary source of news for international bond managers. I used this variable as an alternative to the ISTAT and INE news. There were 144 observations of news about macroeconomic outcomes for Spain from the FT and 92 for Italy.

As the previous sections make clear, the primary political variable of interest is the impact of contestation over fiscal policy, which I assume is translated to the financial markets through the production of political news. I thus operationalized this by looking at news about the politics of fiscal policy making. This includes articles about the proposal, debate, approval or rejection of fiscal policy. The variable therefore captures both progress on making fiscal policy, and politically induced delays or rejections. For Spain, I coded separately news about the process of fiscal policy making (proposal, debate, approval or rejection) by the Prime Minister / government from news about the same variable at the regional level. For Italy, I coded news about the proposal, debate, approval or rejection of fiscal policy in a single variable as there was no news about regional contestation.

For both Spain and Italy, news was accumulated using the *Financial Times*, a source used extensively in the literature on the impact of news on bond market performance (Baker, Nofsinger, and Weaver 2002; Mauro, Sussman, and Yafeh 2006; Veldkamp 2006; Author).[13]

When the FT reported about contestation over fiscal policy, the previous trading day was marked with a 1.[14] All other days received a 0. This yielded 81 pieces of news on Spanish parliamentary contestation over fiscal policy and 13 pieces of news on regional contestation (94 pieces in all). There are 115 pieces of news on Italian parliamentary contestation over fiscal policy.[15]

Several additional political news variables were also created. The actions of European actors and institutions likely had a strong an impact on the mean spread and volatility of Eurozone sovereign bonds during the period under discussion. Thus consistent with the assumption that markets utilize all relevant, unexpected news, I attempt to code news about the support Eurozone members were receiving from the European Council (via the summitry process) and the European Central Bank.[16] I searched the news archives of the European Central Bank and the European Council and coded days on which these institutions made announcements about policy relevant to the ongoing financial / debt crisis into two separate variables. For example, when the ECB made monetary policy decisions, or announced an increase / continuation of its bond purchasing program, a 1 was recorded. All other days in the series receive a 0. This yielded 99 pieces of news for the ECB and 50 pieces for the Council. I also checked online archives of news releases for the International Monetary Fund (IMF), but there were no relevant official announcements about Spain and Italy during the time period in question.[17]

Given the emphasis in the existing literature on the impact of elections and government collapse on financial market performance, I also controlled for the presence of elections in Spain and the collapse of the Berlusconi government in Italy. Following several previous studies (Bernhard and Leblang 2006b; Block and Vaaler 2004; Leblang 2004), I have coded the election / government change as a window: a 1 is recorded for the 30 trading days preceding the electoral

event, and 10 trading days following the electoral event.[18] Results are consistent if these time periods are lengthened or abbreviated.

Finally, I separated out news about Silvio Berlusconi's ongoing court cases for corruption and other alleged scandals, which dominated the international press about Italy during the this time, to determine whether the former Prime Minister's personal issues had an independent impact on the price or volatility of Italian sovereign debt. As these scandals seem to have reduced the support for / credibility of Berlusconi, or at least making the longevity of his government more questionable, I thought it was important to control for their independent impact on sovereign bond spreads despite the fact that this news is quite far removed from the politics of fiscal policy making. News is again gathered from the FT; there are 54 pieces of news of this type.

Table 1 provides a summary of the number of news items for both economic and political variables.

Insert table 1 about here

Regression Analysis

Tables 4, 5, 6 and 7 present results from my econometric analysis of the drivers of bond spreads and volatility in Spain and Italy from 2009 to early 2012. I use the Generalized Auto-Regressive Conditional Heteroskedactiy (GARCH) Model with robust standard errors. GARCH models have been shown to be useful for modeling time series data, like financial market data, where the volatility of the series may vary over time. In particular, financial data tends to exhibit "heavy tails" (kurtosis) - variance which is caused by large but infrequent deviations from the

mean. The GARCH model allows for predictions about the variance of the error term, which provides insight into the behavior of financial markets (Engle 2001).

Table 2 presents summary statistics of the dependent variables,[19,20] which display autocorrelation,[21] skewness and kurtosis.

Insert Table 2 about here

A series of studies which have sought to determine the impact of political variables on the mean and volatility of currencies, stock markets and sovereign bonds have therefore used the GARCH model to understand how these variables drive the volatility, and mean, of asset prices (Bernhard and Leblang 2006a, 2006b; Leblang and Mukherjee 2004; Author). In the context of the current study, the GARCH model allows me to see whether policy contestation matters for spread widening and spread volatility.

The GARCH model is comprised of a series of nested equations which estimate the mean behavior of a time series separately from the volatility. While the mean is estimated with a constant, exogenous control variables and a normally distributed error term, the variance equation incorporates an ARCH term (ε^2_{t-1}), which helps capture the impact of volatility shocks from the previous period and a GARCH term (σ^2_{t-1}), which represents the variance from the previous period. The two equations are as follows:

$$S_t = \eta + X_t \beta + \varepsilon_t$$

$$\varepsilon_t \sim N(0, \sigma_t^2)$$

where S_t is the daily percent change in the spread of the bond, η is constant, X_t is a vector of exogenous control variables expected to have an impact on the performance of the bond and ε_t is a normally distributed error term. And, the variance equation:

$$\sigma_t^2 = \omega + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1}^2 + \pi x_t$$

where πx_t represents the exogenous control variables and one ARCH term and one GARCH term are necessary to accurately represent the conditional variance: i.e. a GARCH (1,1) model.

Several additional modeling considerations are necessary. First, the question arises of whether independent variables are expected to affect the mean trend of spreads, the variance of spreads, or both. The existing studies in political economy here provide some guidance: independent political variables have most frequently been included in the variance equation because political events, like elections, are thought to have passing impact on the performance of financial markets (not least because most of these studies have sought to model the behavior of assets in the developed world, where the assumption that there is significant "room to move" has remained untested). [22] In the cases I am modeling, this assumption is less sound for two reasons. First, I am interested in seeing whether there has been a paradigmatic shift in the treatment of developed country bond markets, and therefore have no prior expectation that the effect of these variables is transitory. Second, I am interested not only in the impact of events, like elections, on bond spreads but also the longer and more ongoing impact of political contestation. I therefore test the impact of my exogenous variables in both the mean and variance equations.

The second set of decisions revolves around whether adaptations of the GARCH model are better suited to the data that I am examining. There are numerous adaptations to the GARCH model – some of the most widely used of which include the exponential GARCH (EGARCH, see Nelson 1991) model and the fractionally integrated GARCH model (or FIGARCH, see Baillie, Bollerslev, and Mikkelsen 1996). Additionally, the FIGARCH model can also be combined with the exponential model to form a FIEGARCH model (Bollerslev and Mikkelsen 1996). While the EGARCH attempts to correct for the fact that volatility may be more pronounced when volatility shocks are negative, the FIGARCH / FIEGARCH model tests whether volatility shocks exhibit long-memory (i.e. whether the time series is fractionally integrated).

Because there is a theoretical reason to believe that negative news about fiscal policy reform would have a stronger impact on sovereign bond market performance than positive news, particularly given the distribution of positive and negative news across the two datasets described earlier in the paper, I was interested in testing the EGARCH models for both Spain and Italy. EGARCH estimates for Spain lack robustness, and present few insights as variables of significance are the same as in the more robust GARCH estimate.[23] I have therefore, for reasons of space, not presented this analysis. For Italy, in contrast, the EGARCH estimate is robust and yields at last one additional variable of significance in the mean equation. Thus results are reported in the following section; model specification is below.

$$\ln(\sigma_t^2) = \omega + \alpha(\frac{\varepsilon_{t-1}}{\sigma_{t-1}}) + \gamma\left[\left|\frac{\varepsilon_{t-1}}{\sigma_{t-1}}\right| - E\left|\frac{\varepsilon_{t-1}}{\sigma_{t-1}}\right|\right] + \beta\ln(\sigma_{t-1}^2) + \pi x_t$$

I also tested to see whether the dependent variables were fractionally integrated. Two of the three frequently used estimators (the Phillips modified GPH and the Robinson estimator) that seek to determine whether a time series is stationary or represent a unit root suggest that my dependent variables are not fractionally integrated. The Geweke/Porter-Hudak estimator instead suggests that there may be fractional integration (see Table 3). Given the inconclusive evidence from these tests, I do not test the FIGARCH / FIEGARCH models, despite the fact that it has been used in previous literature (Bernhard and Leblang 2006a).

Insert table 3 about here

Results

My modeling strategy was designed to first test a core macroeconomic model for both Spain and Italy before introducing domestic and external political variables. I do this in order to approximate the way that scholars on globalization and the state have assumed that financial markets work: financial actors pay attention exclusively to broad macroeconomic indicators and ignore policy and political variables.

The core macroeconomic models are presented in table 4. Estimates are GARCH (1,1) models with semi-robust standard errors, and residual tests are presented below. I test separately the effects of macroeconomic news gathered from national statistical agencies and the *Financial Times*, and include macroeconomic control variables (the daily change to the US dollar / Euro exchange rate and the change to the spread of the benchmark Greek sovereign bond) in all equations. Macroeconomic variables are tested in both the mean and variance equations. In Spain, macroeconomic news reported in the *Financial Times* has a significant impact on both the

mean and variance (with a larger coefficient in the variance equation); in Italy, the macroeconomic news variables are not significant in this specification. This may reflect the different natures of the two countries economic crises: acute in the case of Spain, and persist ant in the case of Italy, and therefore how "unexpected" macroeconomic news was. Control variables are significant in all four models.

Insert Table 4 about here

Given the weak explanatory power of macroeconomic news in both mean and volatility equations, particularly for Italy, I proceeded to introduce news about political contestation and international actors in the equations. Table 5 presents results for Spain.[24] The models are again GARCH (1,1) specifications with semi-robust standard errors. Results as presented in Model V suggest that domestic contestation over fiscal policy in the Spanish parliament has not been a significant determinant of either mean bond spreads or their variance. News about contestation amongst federal actors, in contrast, is a significant predictor of mean spread behavior. This is consistent with my expectations that the relatively limited and majority positive news about fiscal policy contestation in Spain would have a limited impact on financial market behavior, and with my expectation that federal level contestation may have a stronger effect.

The models suggest that in addition to financial market control variables and macroeconomic news as reported in the *Financial Times,* announcements from European actors such as the European Central Bank and the European Council are strong drivers of financial market volatility. This is unsurprising given the key role that both institutions have played in providing support for the Spanish economy and bond markets more specifically.

On first glance, the lack of significance of the "election" variable may be surprising, given how much emphasis has been placed in the literature on elections.[25] However Rajoy's Popular Party was widely expected to win, and thus the potential impact of the election may have already been priced in. Secondly, because of this lead, there was less uncertainty about the shape of the post-election government, which would have decreased the volatility impact of the election.

Insert Table 5 about here

The Italian GARCH (1,1) estimations which include political variables are presented in Table 6. The mean equation is being driven solely by the two financial market controls, which help us to understand the impact of European contagion on the Italian market. Political variables have no independent effect on the mean equation.

There is, however, a clear impact of Italian parliamentary contestation over fiscal policy on the volatility of Italian sovereign bonds: the variable is strongly significant across all specifications. This, combined with the lack of significance in the Spanish model presented above, provides strong support for the hypothesis that financial market view developed countries with compromised fiscal policy making independence as risky, and that the news produced by this disagreement about the size and shape of adjustment (the war of attrition) generate financial market volatility.

Insert Table 6 about here

The variance equation also suggests that the change of government which took place in November 2011 was a significant driver of volatility, while reporting about domestic political scandals involving Prime Minister Silvio Berlusconi were not. Announcements from the European Council had a strong impact on volatility, while the ECB's announcements did not.

Finally, news from the Italian statistical agency is significant at the 10% level in this regression. The EGARCH (1,1) model confirms these insights, as shown in table 7 below, while showing slightly more importance for the macroeconomic news in the variance equation than in the non-linear model.

Insert Table 7 about here

Conclusions

This paper has explored one of the most contested themes in international political economy: the constraints placed on the nation state by financial globalization. It has reached two primary conclusions. First, in contrast to the broad agreement in the literature that developed country policy makers are insulated from financial market pressures, the new dataset on political contestation in Italy and Spain and the subsequent econometric results suggest that since the onset of the financial crisis, sovereign bond market performance has been strongly driven by political and policy variables, and particularly about the contestation between political actors over the implementation of fiscal reform. Second, the impact of these political variables is not even across countries: while countries whose political structures leave them with low levels of fiscal policy making independence experience market volatility around contestation over policies, countries with higher degrees of independence do not. There the drivers of volatility are macroeconomic, or in the particular case of the Eurozone, European politics.

This findings are consistent with the "war of attrition" model, which suggests that heterogeneous groups will fight to determine how the costs and benefits of adjustment are distributed, and its combination with theories of financial market behavior that suggest news produced by this process will generate changes to price. The core importance of these findings

are that policy makers in Italy, where domestic political contestation was high, were making policy under conditions of market duress. In Spain, the government's relatively stronger position at the national level meant that they could pursue reform more easily, but that the markets potential reaction to delays forms an implicit threat. Additionally, the contestation between the regional governments and Madrid was an explicit source of uncertainty, generating a strong constraint on negotiations at that level of government.

These conclusions demonstrate that in order to understand the evolving relationship between financial markets and policy makers, we require a new paradigm which questions whether developed countries continue to enjoy room to move when making policy. As the process to re-establish creditworthiness after the current crisis may be a long and complex one, we should not assume that the results in this paper represent a passing phenomenon. The paper also demonstrates that existing models of the political drivers of financial market behavior, which tend to focus exclusively on elections, are insufficient to understand the real drivers of market performance.

Moving forward, it would be important to test whether the markets have had similar reactions to the contestation over policy in countries that have faced less severe market constraints during the current crisis (e.g. France, Germany, and the United States). Evidence of this type would suggest that a fundamental re-evaluation of existing theory about the constraints of globalization is required.

Figure 1: Convergence and divergence of Eurozone sovereign borrowing rates on benchmark bonds, 1995 - 2012

Source: Bloomberg
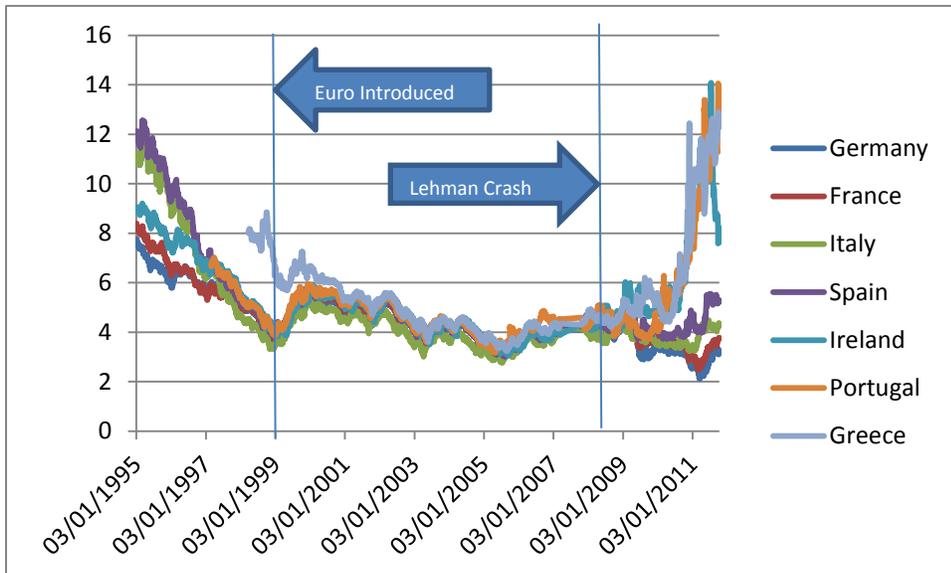
Table 1: News Results
1 January 2009 – 18 January 2012

	News Hits
ECB News	99
EU Council News	50
Italian News	
FiscPol Contestation	115
Berlusconi Scandal	54
ISTAT News	175
FT Econ News	92
Spanish News	
FiscPol Contestation	81
Regional FiscPol Cont	13
INE News	431
FT Econ News	144

Table 2: Summary Statistics of Dependent Variables

	Daily Change Spanish Spread	*Daily Change Italian Spread*
N	795	795
Mean	.002901	.0025584
Stand Dev	.0486153	.0465758
Skewness	-.5265311	.0305412
Kurtosis	10.7089	7.841633

Table 3: Fractional Integration Tests

	Italy Spread Change	Spain Spread Change
Geweke/Porter-Hudak (GPH) estimator		
t-test (H0: d = 0)	-0.5215	-0.1057
z-test (H0: d = 0)	0.630	-0.1170
Phillips modified GPH estimator		
t-test(H0: d = 0)	1.2808	1.6928
z-test(H0: d = 1)	-6.9117**	-6.0145**
Robinson estimator		
t-test(H0: d = 0)	2.3382*	2.6455**

Fail to reject the null hypothesis of no unit root (d=1) or stationarity (d=o) with 99% confidence**; 95% confidence.*

Table 4: Spain and Italy, Sovereign Bond Performance Model with Core Macroeconomic and Contagion Variables
GARCH (1,1)
Gaussian Distribution, Semi-Robust Standard Errors
1 Jan 2009 – 18 Jan 2012

	Spain I		Spain II		Italy I		Italy II	
	Coeff	**Stand Err**	**Coeff**	**Stan Err**	**Coeff**	**Stand Err**	**Coeff**	**Stand Err**
Mean								
ΔEuroFXrate	-1.1418***	.2521	-1.0617***	.2576	-1.930***	.3167	-1.1357***	.2123
ΔGreekSpread	.6613***	.0448	.6530***	.0469	.4491***	.0705	.6117***	.0422
Econ News (INE / ISTAT)	-.00186	.0025	--	--	-.0017	.0036	--	--
Econ News (FT)	--	--	.0090**	.0036	--	--	.0024	.0046
Constant	.0008	.0020	-.0018	.0014	.0014	.0025	-.0009	.0013
Volatility								
Econ News (INE / ISTAT)	-.8568	1.5308	--	--	-.7335	.6320		
Econ News (FT)	--	--	1.2444*	.7600	--	--	.6866	.5105
Constant	-8.8355***	.6052	-9.0360***	1.3170	-7.9076***	.8059	-8.1024***	.8522
ARCH / GARCH								
ARCH	.1085**	.0561	.1113	.0844	.2710*	.1578	.1967*	.1213
GARCH	.8233***	.1082	.7659***	.2053	.5696**	.2758	.5615*	.2904
Residual Tests	**Test Statistic**	**p-value**	**Test Statistic**	**p-value**	**Test Statistic**	**p-value**	**Test Statistic**	**p-value**
Q (12)	57.6557	0.0349	56.4430	0.0440	55.0710	0.0567	48.4081	0.1699
Q^2(12)	34.9953	0.6947	31.2788	0.8366	31.4698	0.8303	23.2196	0.9843

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

Table 5: Spain, Sovereign Bond Performance Model with Political Variables
GARCH (1,1)
Gaussian Distribution, Semi-Robust Standard Errors, 1 Jan 2009 – 18 Jan 2012

	Spain III		Spain IV		Spain V	
	Coefficient	**Stand Err**	**Coefficient**	**Stan Err**	**Coefficient**	**Stand Err**
Mean						
ΔEuroFXrate	-1.1480***	.2120	-1.0847***	.2102	-1.0735***	.2086
ΔGreekSpread	.6424***	0.423	.6347***	.0413	.6380***	.0425
ECB News	--	--	--	--	.0044	.0046
Council News	--	--	--	--	-.0011	.0077
Election	--	--	--	--	-.0024	.0087
Fis Pol Contestation Fed	--	--	--	--	.0042	.0041
Fis Pol Contestation Reg	--	--	--	--	-.0171*	.0100
Economic News (INE)	-.0019	.0023	--	--	--	--
Economic News (FT)	--	--	.0082**	.0036	.0083**	.0036
Constant	.0019	.0018	-.0006	.0014	-.0009	.0015
Volatility						
ECB News	.8630**	.3518	.7301**	.3283	.6992*	.3941
Council News	1.0011***	.3481	1.003***	.3141	1.012***	.3941
Election	.5903*	.3578	.5143	.3228	.4500	.3371
Fis Pol Contestation Fed	.2586	.4751	.0835	.4597	.0340	.4708
Fis Pol Contestation Reg	.1877	.5388	.2401	.5108	.1305	.5432
Economic News (INE)	.0430	.2793	--	--	--	--
Economic News (FT)	--	--	.4558**	.1940	.4766**	.1994
Constant	-7.6860***	.1960	-7.5014***	.2226	-7.4948***	.2654
ARCH / GARCH						
ARCH	.1398**	.0561	.1467***	.0562	.1638**	.0700
GARCH	.3843***	.1408	.2609***	.1188	.2455*	.1445
Residual Tests	**Test Statistic**	**p-value**	**Test Statistic**	**p-value**	**Test Statistic**	**p-value**
Q (12)	56.1221	0.0467	54.1443	0.0670	55.5306	0.0521
Q^2(12)	43.5722	0.3220	40.2617	0.4587	40.3182	0.4562

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

Table 6: Italy, Sovereign Bond Performance Model with Political Variables
GARCH (1,1)
Gaussian Distribution, Semi-Robust Standard Errors, 1 Jan 2009 – 18 Jan 2012

	Italy III		Italy IV		Italy V	
	Coefficient	Stand Err	Coefficient	Stand Err	Coefficient	Stand Err
Mean						
ΔEuroFXrate	-2.110***	.2988	-1.1205***	.2213	-2.1301***	.2823
ΔGreekSpread	.4335***	.0643	.6128***	.0432	.4288***	.0643
ECB News	--	--	--	--	-.0031	.0043
Council News	--	--	--	--	.0016	.0085
Government Change	--	--	--	--	.0050	.0066
Fiscal Policy Contestation	--	--	--	--	-.0005	.0044
Berlusconi Scandals	--	--	--	--	-.0013	.0058
Economic News (ISTAT)	-.0023	.0031	--	--	-.0022	.0032
Economic News (FT)	--	--	.0027	.0039	--	--
Constant	.0028	.0021	-.0006	.0012	.0037	.0025
Volatility						
ECB News	.2216	.4588	.4476	.5585	.2111	.4658
Council News	1.6115***	.3175	1.3689***	.3651	1.6403***	.3392
Government Change	-1.0648***	.3855	-.8015**	.4670	-1.1062**	.4341
Fiscal Policy Contestation	1.1226***	.2668	.9934***	.2651	1.1153***	.2440
Berlusconi Scandals	-2.5034	5.1721	-.6719	1.2378	-2.8882	8.3859
Economic News (ISTAT)	-1.1131	.8065	--	--	-1.1452*	.6138
Economic News (FT)	--	--	.1246	.3636	--	--
Constant	-7.8603***	.2300	-8.1250***	.6256	-7.9122***	.2869
ARCH / GARCH						
ARCH	.1135	.0811	.1132**	.05147	.1149*	.0675
GARCH	.5818***	.1761	.5578***	.1908	.5973***	.1556
Residual Tests	**Test Statistic**	**p-value**	**Test Statistic**	**p-value**		
Q (12)	57.7882	0.0340	49.2257	0.1504	58.3858	0.0302
Q^2(12)	31.9562	0.8138	27.3843	0.9354	32.9928	0.7760

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

Table 7: Italy, Sovereign Bond Performance Model with Political Variables
EGARCH (1,1)
Gaussian Distribution, Semi-Robust Standard Errors, 1 Jan 2009 – 18 Jan 2012

	Italy VI	
	Coefficient	**Stand Err**
Mean		
ΔEuroFXrate	-2.1165***	.2920
ΔGreekSpread	.4248***	.0643
ECB News	-.0020	.0043
Council News	-.00157	.0103
Government Change	.0050	.0060
Fiscal Policy Contestation	-.0062	.0045
Berlusconi Scandals	-.0009	.0058
Economic News (ISTAT)	-.0011	.0032
Economic News (FT)	--	--
Constant	.0030	.0025
Volatility		
ECB News	.0595	.2208
Council News	.5887**	.2636
Government Change	-.3231**	.1401
Fiscal Policy Contestation	.5153***	.1857
Berlusconi Scandals	-.1262	.2551
Economic News (ISTAT)	-.3130***	.1179
Economic News (FT)	--	--
Constant	-2.430**	1.034
ARCH / GARCH		
ARCH	-.0277	.0753
Asym. ARCH	.2942***	.1062
GARCH	.6374***	.1522
Residual Tests	**Test Statistic**	**p-value**
Q (12)	55.5518	0.0519
Q^2(12)	29.1518	0.8975

*** *Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level*

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[1] Work on the establishment of reputation in credit markets suggests that once lost, reputation takes a long time to be recovered (Tomz 2007). The recent empirical example of Argentina, which has been excluded from the international capital markets since its sovereign default in 2001, provides additional support.

[2] There is a strong precedent in the literature for assuming that uncertainty about political outcomes will lead to financial market volatility. See Freeman, Hays and Stix 2000; Bernhard and Leblang 2002; Leblang and Satyanath 2006.

[3] Some might argue that the diverse origins of the financial crisis in these two countries make them an unsuitable comparison: Spain suffered from a dramatic fall in output and employment in the wake of collapse in real estate prices in 2009, with strong effects throughout the rest of the economy, including seven consecutive quarters of recession in 2008 / 2009 and a second period of recession in 2012. Italy, in contrast, did not suffer from an acute crisis but rather the accumulation of problematic growth and public deficit numbers throughout the 2000s, where its performance had consistently been under Eurozone averages. But from the standpoint of analyzing the impact of political contestation on sovereign debt markets, the origins of the two countries fiscal bargaining is not a great concern. What is instead important is that in both cases, the financial markets and European partners were keen to see the government pass a series of adjustment measures focused on deficit and debt reduction.

[4] Spain accepted aid for its ailing banking system in the summer of 2012, and has debated taking up a larger support package, but both of these actions fall after the completion of the dataset.

[5] The debt exchange organized for Greek bonds makes it impossible to accurately analyze the impact of domestic political variables on the pricing of Greek debt. Additionally, the large bailouts received by Ireland and Portugal in 2010 changed the funding situation, and therefore debt pricing, significantly. The debt of these three countries is no longer determined on a strictly market basis, and policy contestation has been changed by the bailout packages, which set a framework for fiscal policy consolidation in all three.

[6] Though both systems are proportional, each system has majoritarian impulses resulting in a quasi-two party system in Spain, and a two pole system in Italy. In Spain, as explored by authors such as Shughart (2001) and Hopkin (2005), a center right and center left party dominate national politics, but the disproportionate regional representation allows regional parties representing ethno-linguistic minorities to obtain national level representation. This occasionally results in national minority governments, which rely on ad hoc support from regional parties to pass their legislative initiatives. In Italy, the "mani puliti" corruption scandal of the early 1990s led to two large changes to the electoral law. In the first change, representation was organized 75% on a PR basis, and 25% on a majoritarian basis. This induced changes to the party system, forcing formerly distinct parties to form electoral alliances in umbrella parties. In the second electoral system change introduced by Berlusconi in 2005, which is still in use, the party which received the most votes in a PR system wins a "prize" which gives them a large working majority. This creates two distinct logics: an electoral one, in which parties form formal electoral alliances in order to access the majoritarian prize, and a parliamentary one, in which coalition governments face centrifugal forces that pull these alliances apart (Bardi 2007).

[7] Using the 2010 Database of Political Institutions, Italy had 3 "checks and balances" for 7 of the years between 2002 and 2009 and 4 during the last year; Spain had 3 checks and balances for the first 3 years and 4 checks and balances for the remaining 5 years. Polarization was slightly higher in Spain ("2" from 2005-2009) than in Italy ("2" only in 2009 and "1" elsewhere).

[8] The paragraphs that follow draw heavily on the news reports which are used to create the dataset in the empirical section, as well as accounts of the crisis in Italy and Spain by secondary authors, particularly Jones (2012) for Italy and Carbello-Cruz (2011) for Spain.

[9] Two caveats are in order. First, the austerity packages passed by the Zapatero government passed on thin margins on several occasions, in keeping with the fact that the government did not hold an absolute majority. Additionally, in the autumn of 2011 in the run up to the election that the Popular Party was widely expected to win, Zapatero's government was forced to backtrack on a couple of highly anticipated privatization policies, including Spanish airports and the postal system, and a proposed wealth tax.

[10] I code news as positive if reform measures are passed or are expected to pass, and negative if there are delays, rumours of likely failure, or actual failure of reforms.

[11] The selection of the Bund as a metric against which to measure Spanish and Italian risk is consistent with general practice, which defines the Bund as the local "risk free" asset. It is rare to see European spreads measured against US treasuries. Nonetheless, there could be a bias introduced by using German bonds as the yields on German Bunds were very low or negative and demand was strong during the period in question, reflecting a "flight to safety." This potential bias would not be erased by comparing against US Treasuries, as a flight to safety mechanism kept US yields low

or negative during the same period. As a spread is by definition measured against a comparable asset, there appears to be little choice but to compare against Bunds, despite these drawbacks.

[12] I do this by differencing the log of today's spread with yesterday's spread, and multiplying by 100. The transformed dependent variables reject the null hypothesis of a unit root.

[13] The coding methodology is straight forward: I search for all articles whose headlines contained any of the following words: "Italy / Italian / Rome / Berlusconi / Monti" or "Spain / Spanish / Madrid / Zapatero / Rajoy." This yielded 1,078 pieces of potentially relevant news for Italy and 765 news pieces for Spain, though many were not significant (e.g. articles about travel, culture and sport; opinion and editorial pieces as well as letters to the editor and news analysis which presented no new information).

[14] Except in cases when the news was reported on a Monday, or a day following a national holiday, or when the news article explicitly reported something as having occurred "late last night," when I expect the impact on trading price to occur on the day the news is printed.

[15] The obvious shortcoming of utilizing the FT as my main source of political news data is that by being an international financial newspaper, it does not report all domestic political or economic news about these two countries but rather reports only what could be considered "major" events, which may introduce some bias in the results. In particular, it might under-emphasize the importance of some data (due to underreporting of news), and over-emphasize others (making major events, or events which drove large market reactions, appear to be even more important).While this bias is partially corrected for with regards to the economic news variable by coding

news releases from ISTAT and INE, it would be highly desirable to nuance the political contestation dataset by coding news on the same variables as captured by domestic business oriented newspapers (e.g. *Cinco Días* for Spain and *Il Sole 24 Ore* for Italy). However, this is a much larger undertaking which would require more sophisticated coding laws and search structures.

[16] Given the central role of the German government in the discussion about resolution of the debt crisis, it would also be informative to include information about domestic political contestation there. However, I assume that this contestation is being picked up in other variables, i.e. the news about European decisions or the spread of Greek sovereign bonds.

[17] While there were no relevant official news releases from the IMF about Spain during the course of the dataset, IMF officials commented on the viability of the Spanish economic program informally at several points in the dataset (4 observations in the *Financial Times*). I tested to see whether this variable was significant, despite the small n, and found no statistically significant relationship. Results not reported for sake of space.

[18] I did not include a dummy for the regional elections in Spain or local (mayoral) and regional elections in Italy.

[19] A Jarque-Bera test for skewness and kurtosis rejects the null hypothesis of a normal distribution, as does a skewness / kurtoisis test for normality.

[20] I have not tested Markov switching models (an alternative estimation technique often used in similar studies) in this paper because of the robust comparison between the two models completed by Leblang and Mukherjee (2004) that suggests GARCH models are more efficient.

[21] A Lijuing-Box test rejects the null hypothesis that the data are random (not auto-correlated) with up to 50 lags. A Portmanteau test for white noise suggests that there is autocorrelation; the Portmanteau test for white noise for the GARCH (1,1) model rejects the null hypothesis.

[22] Bernhard and Leblang (2006a) and Leblang and Mukherjee (2005) test the impact of political variables on both the mean and volatility. Political variables are significant in the mean equation only in the first study.

[23] For Spain, results are not robust for an EGARCH estimate with one lag, and are also problematic for models with 2 and 3 lags. In the model with 2 and 3 lags, where some of few of the symmetric and asymmetric ARCH terms and the GARCH term are significant and Q tests are variable, the same variables are statistically significant in the mean and volatility estimates as the standard GARCH model. Thus given questions about robustness and limited additional explanatory power, results are not included.

[24] I first added political variables to the variance equation to test for significance, and then added these variables to both the variance and mean equations. Results are broadly similar, and therefore only the consolidated models are discussed. Both models are presented.

[25] "Election" is significant at the 10% level in the first regression, in which political variables are only presented in the variance equation and economic news is taken from the Spanish national statistics agency. This significance fades away when other variables (e.g. macroeconomic news from the *Financial Times*) are introduced.