Why Creditor Elections Mattered More than Debtor Elections during the Euro Crisis

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Debtor countries were legally responsible for their sovereign bonds. Politicians with a good prospect of power were generally aware of the sensitivity of markets to their comments and the potentially drastic implications for their countries' welfare. So, they had to moderate their policies accordingly. Creditor countries, by contrast, had no such legal commitment and acted collectively through the Eurogroup. Therefore, ambitious politicians had an opportunity to free-ride on other creditor countries and make statements threatening to reduce or veto support for debtor countries, which should have influenced markets' risk assessments for those sovereign debtors. The impact of election in creditor nations should have been greater and more divisive. This paper probes these ideas using financial econometric estimates of the impacts of eighteen elections on the sovereign credit default swaps of eleven eurozone members. However, the estimates do not take into account how surprising the results were. Therefore, we also propose a measure of surprise and implement it in a case study of Bloomberg coverage of the French presidential election of 2012.

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1. Introduction

Debtor countries were legally responsible for their sovereign bonds. Politicians with a good prospect of power were generally aware of the sensitivity of markets to their comments and the potentially drastic implications for their countries' welfare. So, they had to moderate their policies accordingly. Creditor countries, by contrast, had no such legal commitment and acted collectively through the Eurogroup. Therefore, ambitious politicians had an opportunity to free-ride on other creditor countries and make statements threatening to reduce or veto support for debtor countries, which should have influenced markets' risk assessments for those sovereign debtors. Elections in creditor countries should have produced greater impacts in financial markets than elections in debtor countries. Moreover, changes in the relative risk associated with eurozone sovereigns should have been distributed differently according to whether elections took place in creditor or debtor countries. This paper probes these ideas using financial econometric estimates of the impacts of eighteen elections on the sovereign credit default swaps of eleven eurozone members.

The Efficient Markets Hypothesis states that public information is immediately incorporated into prices (Fama 1970). Therefore, an election result will only affect markets, in so far as the result is surprising. Estimates of the impact of elections require a measure of surprise. Euro crisis bailouts consisted of loans with policy conditions – "cash for reforms". Solidarity refers to the extent to which sovereign debts were internationalized through loans. Austerity refers to the extent of fiscal retrenchment on the part of debtors. Financial market trading and information is dominated by Bloomberg. This company's terminals constantly, comprehensively, and immediately feed media content to investors. Thus, party political positions on solidarity and austerity from reports on Bloomberg, interacted with opinion polls, constitute a good indicator of the market's expectations for an election. The difference between these expectations and actual results is our measure of surprise.

The paper is structured as follows. We begin by developing a theory of why creditor elections should have a greater impact than debtor elections. This theory is consistent with the Efficient Markets Hypothesis and the two-level-game approach to integrating comparative politics and international negotiation. The next section presents a case study of the measurement of surprise using the French presidential election of 2012. Then, we briefly introduce our financial econometric methodology and present results consistent with our hypotheses, albeit without a full measure of surprise. Finally, we conclude.

2. Theorising Market Reactions to Euro Crisis Elections

Bailout negotiations had a substantial and obvious impact on the creditworthiness of Eurozone countries. Bailout negotiations constituted a two-level game, in which elected politicians negotiated with their international counterparts, while trying to maximize their popular support at home. Domestic political competition influenced international negotiations and vice versa. The Greek referendum is an excellent example. The referendum narrowed the range of outcomes that would be acceptable to the Greek citizens. In game-theoretic language, it narrowed the win-set of the Greek government (Putnam 1988: 435-436). It made a beneficial deal much more likely for Greece, while also making less likely that there would be any deal at all. Given these links between democratic politics and bailout negotiations, investors should have incorporated information on electoral competition into the prices of assets linked to sovereign debt in the Eurozone.

Campaigning politicians in debtor countries were subject to countervailing incentives. Policies and rhetoric likely to escalate the crisis offered opportunities to win votes. However, such policies and rhetoric could provoke immediate reactions in the markets with potentially drastic consequences for the debtor country. Debtor-country politicians could not escape their state's sole legal responsibility for its debts. This second, restraining, incentive could operate in two ways. First, it could moderate policies and rhetoric during the election campaign. Second, it could pressure politicians to reverse their positions after the election if they were entering, or appeared likely to enter, government. This latter mechanism is, of course, partly general. Government tends to moderate party positions as politicians have to compromise with other parties or external realities. However, the inescapable and particular pressures of a sovereign debt crisis are likely to have multiplied this general tendency.[1]

Campaigning politicians in creditor countries had very different incentives. Like their counterparts in the debtor countries they knew that policies and rhetoric likely to escalate the crisis offered opportunities to win votes. Such policies and rhetoric were less likely to affect creditor countries immediately and drastically. Moreover, they could free-ride on other creditor countries. While campaigning politicians in one creditor country indulged in hard-line rhetoric they could rely on governing politicians in other creditor countries to adopt more responsible positions. Creditor politicians could evade, at least temporarily, their shared interest in ameliorating the crisis. Once in government, or in coalition negotiations, they would be under some pressure to moderate their position. However, this pressure would be much less than that on debtor politicians and there would be substantial scope to continue to make statements that would undermine the creditworthiness of Eurozone debtor countries.

[1] Obviously, this theory does not appear to explain the radical rhetoric and policies of Greece's Syriza government. However, this is not a counter-example. By the time Syriza won power, Greece owed very little to private creditors, its debts being due to official creditors such as the IMF and fellow Eurozone countries. This is perhaps a useful insight to add to the usual observation that desperate times increase the popularity of radical parties.

The incentive structure of campaigning politicians in Germany may have been distinctive. Again, policies and rhetoric likely to escalate the crisis offered opportunities to win votes. Such policies and rhetoric were unlikely to affect Germany immediately and drastically. However, Germany could not free-ride on its fellow creditors. Market hypersensitivity to German politics would have been a reasonable reflection of the country's importance. It would have been difficult for German politicians to evade their country's centrality to ameliorating the crisis. Electoral competition in creditor nations during the crisis should have been an example of "the exploitation of the great by the small" (Olson 1965). Germany was a large member, a member of a group so large that it had an incentive to provide a public good all by itself. In this case, the public good is the avoidance of statements that could undermine confidence in Europe's troubled debtor nations. Since Germany's incentive was so strong, it could be exploited by smaller countries. They could free-ride on Germany by indulging in market-inflaming rhetoric in the comfortable knowledge that Germany would not do the same.

These different incentives have implications for market reactions to elections.

1. Creditor elections should have larger impacts, reflecting free-riding rhetoric.

2. There should be a wider range of impacts between Eurozone members in creditor elections, as they suggest different fates for members of the currency union.

3. The impact of the election in the election country, relative to other Eurozone members, should be smaller in creditor countries, as it is the debtor countries that are more vulnerable.

4. Creditor elections should divide creditors from debtors, as markets re-evaluate the likelihood of support for debtors. Debtor elections should divide debtors, as markets re-evaluate which debtor is weakest.

It is not clear whether German politicians' incentives to exploit the crisis for votes or the country's inability to pass the buck would have a stronger effect on financial markets.

The electoral incentive theory provides some clear hypotheses for testing in the specific context of elections during the euro crisis. However, in order to test these hypotheses we need a more general theory of how financial markets might process information about elections. Finance is dominated by one theory perhaps more than any other social science discipline. The Efficient Markets Hypothesis states that markets immediately incorporate public information into asset prices. There is a huge amount of information about elections, including, crucially, opinion polls. Therefore, markets are likely to anticipate election results and "price in" the election. If the result has been obvious in advance, no reaction will be discernible. Nonetheless, elections are not completely predictable. Any reaction on the day of an election result is not the reaction of the markets to the election but rather the reaction of the markets to surprising election results. In the next section, we explain how we measure surprise in the context of euro crisis elections. Of course, surprise and creditor/debtor status are not the only two variables that might explain variations in the impact of euro crisis elections on financial markets. However, since these variables are less fundamental and less challenging to measure than surprise, so we defer them to a later section.

3. Surprise and Euro Crisis Elections

While the finance and political science literatures take guidance from the Efficient Markets Hypothesis, they provide little inspiration in developing a measure of surprise for euro crisis elections. Finance scholars often incorporate surprise into empirical models. Their measures tend to reflect the more straightforward nature of their subject. One well-known such variable is the difference between public companies' earnings announcements and the predictions of analysts. Political scientists often look for idiosyncratically unexpected events such as sudden resignations (Jayachandran 2006) or measure uncertainty, as in studies of the impact of government formation on markets (Bernhard and Leblang 2006). Studies of the impact of elections on financial markets have not confronted surprise directly, instead using the closeness of elections as a proxy (Sattler 2013).

Earnings announcements have an obvious and indisputable relevance for the value of a company and associated assets. By contrast, it is much less obvious what implications, if any, election results have for assets associated with sovereign debtors. Creditor-debtor relationships in the euro crisis were structured by the bailouts. The bailouts were, in turn, based on the exchange of loans for austerity. Responsible fiscal policies were supposed to be a guarantee to creditors that their solidarity would not be abused. If an election heralded changes in a parliament's positions on these two dimensions, that should have had implications for the creditworthiness of Eurozone sovereigns. To the extent that change on these two dimensions was unexpected the election was surprising in terms of our study of the euro crisis elections.

We distinguish between "creditor" nations and "debtor" nations and in doing so follow the discourse of contemporary politics, rather than any objective statistics. Nonetheless, the categorisation is surely uncontroversial (Steinbach 2015). We study elections to the lower house of parliament and the French presidential election. Table 1 details our sample.

Table 1: Sample elections and countries

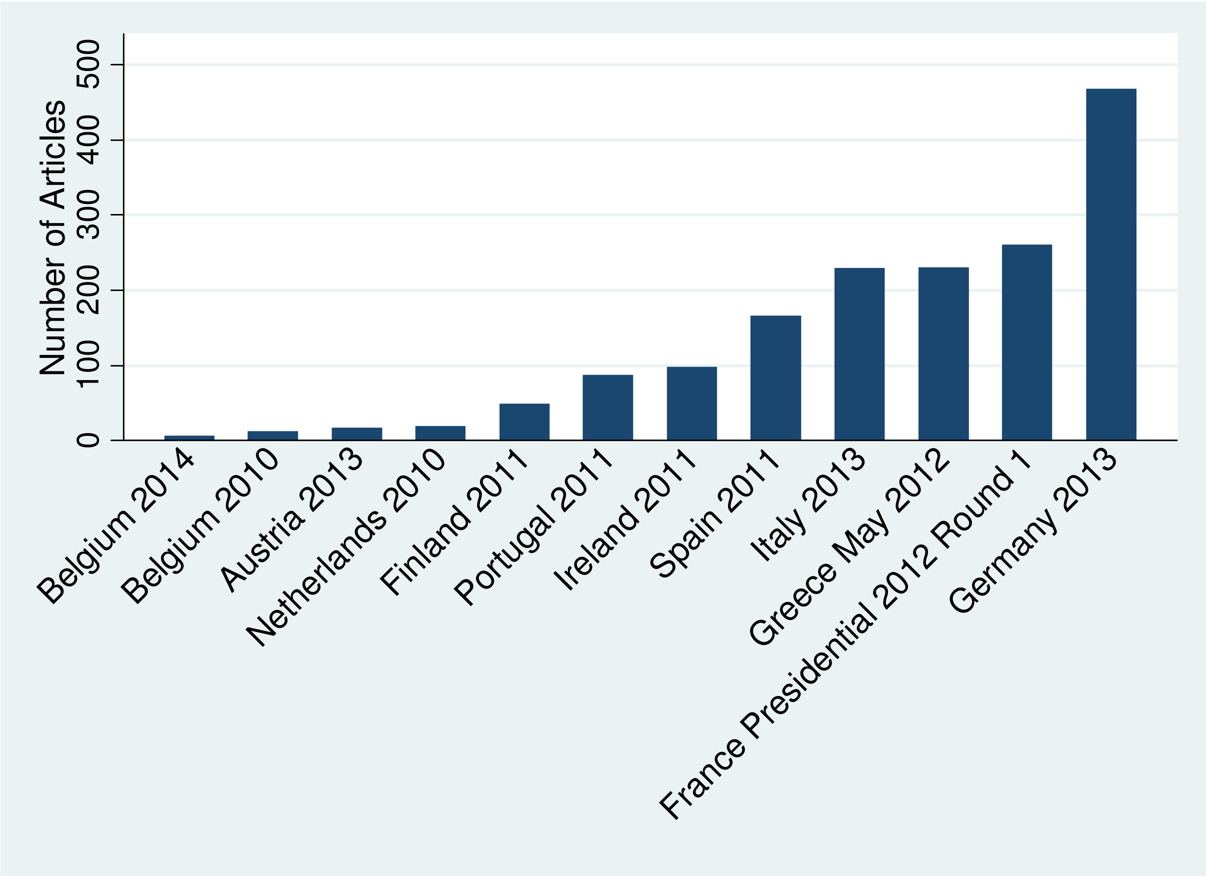
"Creditors"	"Debtors"
Austria 2013	Greece 2009, 2012 (May), 2012 (June), 2015
Belgium 2010, 2014	Ireland 2011
Finland 2011	Italy 2013
France 2012, 2012 (Presidential)	Portugal 2011
Germany 2009, 2013	Spain 2011
Netherlands 2010, 2012	

Notes: We study only the first round of French elections. Germany and Portugal held elections on the same day in 2009. We attribute financial market reactions to the much larger German economy.

The Efficient Markets Hypothesis orients us towards new information. Therefore, it is appropriate to anchor both policy scales in the middle with the status quo. The maximum amount of solidarity is to fully internationalise a member's debt. The minimum is to insist on solely national liability. In the context of an advanced economy in a sovereign debt crisis, the immediate abolition of the budget deficit is an appropriate maximum. The minimum is a fiscally neutral budget or budgetary expansion. Intermediate points of more or less national or more or less austerity make for a five-point ordinal scale that can be treated as continuous. While conceptually distinct the two dimensions were often correlated. Less solidaristic creditors demanded more austerity. Debtors that resisted austerity demanded more solidarity. However, more complex positions were also taken. The policy positions can be interacted with the party's predicted vote share from opinion polls to give a prediction for the party. The sum of all such party-predictions is the prediction for the national parliament. The difference between this prediction and the outcome is the surprise measure for a given election.

In order to assess the information available to investors we collected stories from the Bloomberg archive searching on the pre-defined topics of "Election" and "Country Name" for the two months prior to and including the election date. Bloomberg feeds stories from a very wide range of media immediately and directly into its financial trading terminals. These include newswires, newspapers, broadcast media from various countries, as well as the general and financial media. Indeed, much of the content comes from banks and financial institutions, rather than journalists. Newspaper articles generally appear the day before print publication. Bloomberg selects stories like an ordinary media organisation, not like a rational investor. For example, there were a huge number of articles reporting widely anticipated events, and often very few filling informational vacuums with potential for valuable trades. It is left to the company's customers to seek out the really valuable information from the volume of stories. Like domestic general media (McMenamin et al. 2013), Bloomberg's election coverage includes both articles that focus on policy and the game of politics – who will win and how. Figure 1 illustrates the volume of coverage for the twelve elections, the collection of data for which has so far been completed. We can see massive variation. The two big creditors receive the most coverage, followed by the debtors, and then the smaller creditors. The most remarkable aspect of the graph is that four elections receive almost no coverage: Belgium 2010 and 2014, Austria 2013, and the Netherlands in 2010. Belgium's 2014 general election was held on the same day as elections to the European parliament. However, the other three elections do not appear to have coincided with another big news story.

Figure 1: Bloomberg Articles and euro crisis elections



Note: Number of articles produced by search on election and country name for two months prior to election in Bloomberg news archive. Data collection has not been finalised for other elections.

We use the first round of the French Presidential election to show how the surprise variable is calculated. Table 2 summarises the policy positions observable from the Bloomberg articles. Twenty-two articles mentioned at least one policy position for one candidate. This represents approximately ten per cent of the articles covering the election in the Bloomberg archive. Thirty two positions were mentioned and only for the leading three candidates:

President Nicolas Sarkozy (Union for the Presidential Majority), François Hollande (Socialist Party), and Marine Le Pen (National Front). Like most elections, it focused on domestic matters. Fiscal policy was perhaps the dominant policy theme of the election. However, we have been careful to distinguish policy positions on domestic fiscal policy and policy positions on fiscal policy of the Eurozone debtor countries. This entered the campaign through discussion of the Fiscal Treaty. This was an international treaty, inspired by Germany, to enshrine fiscal rules in legislation. This was seen as a way of ensuring that crisis countries would be able to pay back their debts or at least that support for bailouts would be maintained in Germany. Hollande wanted to renegotiate the treaty to reorient it, and European fiscal policy, towards growth. Sarkozy had supported the treaty, but avoided specific reference to it in Bloomberg's coverage of the campaign. He did make some more general comments about fiscal policy in the eurozone. On April 15, it was reported that he thought more growth was necessary. However, a number of articles on April 20 and April 22 said that he supported the status quo. In the last days of the campaign, Sarkozy had aimed to stoke fears that Hollande's economic policies would escalate the European debt crisis and cause financial markets to lose trust in France. These statements advocated the status quo for European fiscal policy. Sarkozy and Hollande both campaigned to change the European Central Bank's mandate to focus on growth as well as inflation. However, since this is, strictly speaking, a matter of monetary, not fiscal, policy, we ignore it here. There are four mentions of Hollande's support for a further internationalisation of debt, but nothing about Sarkozy, partly perhaps because it could be assumed that he supported the status quo. The National Front advocated France's withdrawal from the euro, thereby removing the key rationale for solidarity with troubled debtor nations. The abolition of the euro strongly suggests, although does not inevitably imply, strict national liability for debt. Le Pen was hardly very concerned about the effects of austerity on debtor nations, but she did reject the Fiscal Treaty, thereby removing one fiscal straitjacket.

We collected the results of thirty-six opinion polls from Wikipedia, again for the two months before the election. We used a weighted moving average of these polls to predict the vote. The polls were weighted by an exponential decay function, such that the previous day's value is weighted at half that of the previous day. This rapid decay reflects the fact that it is only the election day that matters, not so much long-term trends in support. We apply the same technique to predict policy positions. Many scholars now use Bayesian models to make predictions from polls. However, for many of our polls we lack margins of error and numbers of respondents and for some of our country-case studies there is only a handful of polls.

Table 2: Surprise Data for the French Presidential Election

<table>
<tr><td rowspan="2"></td><td colspan="2">Sarkozy</td><td colspan="2">Hollande</td><td colspan="2">Le Pen</td><td rowspan="2">N</td></tr>
<tr><td>Debt</td><td>Fiscal</td><td>Debt</td><td>Fiscal</td><td>Debt</td><td>Fiscal</td></tr>
<tr><td>Article-Mentions</td><td>0</td><td>6</td><td>4</td><td>16</td><td>5</td><td>1</td><td rowspan="2">32</td></tr>
<tr><td>Position Prediction</td><td>-</td><td>.009 (status quo)</td><td>1 (more international)</td><td>1 (less austerity)</td><td>-2 (fully national)</td><td>1 (less austerity)</td></tr>
<tr><td>Poll Prediction</td><td colspan="2">26.42</td><td colspan="2">27.79</td><td colspan="2">16.06</td><td>36</td></tr>
<tr><td>Election Result</td><td colspan="2">27.18</td><td colspan="2">28.63</td><td colspan="2">17.9</td><td>-</td></tr>
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Note: These were coded by one team member. Before further coding, we will demonstrate the reliability of our coding scheme by calculating Krippendorff's alpha for a sample coded by two team members.

Each of the three major candidates did better than predicted in the first round of voting. For Hollande and Sarkozy the increases were relatively marginal. However, for Le Pen the 1.8 percentage point increase was almost 11 and a half percent better than her predicted vote. Recall that surprise is the difference between the weighted policy position for the prediction and the policy position weighted by the actual election result. Fiscal policy moved 0.026 towards austerity and, due to Le Pen's extreme position on the re-nationalisation of debt, debt policy moved 0.029 towards national liability. Therefore, the total surprise, the sum of the absolute values of the two dimensions, was 0.055. This number does not have much absolute meaning. Rather it is intended as a measure of relative surprise. This case study serves to facilitate evaluation of the validity and reliability of the measure. We now proceed to explain how we measure the impact of elections on financial markets.

4. Measuring the impact of euro crisis elections

We study the impact of elections on 5-year credit default swaps for eleven older Eurozone members.[2] These credit default swaps are insurance policies against the default of associated five-year government bonds, but were traded separately. In other words, they are bets for and against sovereign default. Our statistical method combines the techniques of event studies and vector auto-regression (VAR). Event studies compare price changes during an event window to a counterfactual derived from a model of price changes during an estimation window. Therefore, we do not take actual price changes as our dependent

[2] We use the logged first difference of the CDS to reduce the impact of outliers and induce stationarity.

variable, but rather the difference between price changes and the changes that would have been observed had there been no election. Traditional event studies tend to look at the effect of an event on individual assets, usually benchmarked against the performance of an overall reference market: for example, the effect of the appointment of a new CEO on a company's share price. We seek to understand the effect of an election in a given, not just on assets linked that country, but on assets associated with ten other countries (Arezhki et al. 2011: 11-12). This introduces the familiar problem of endogeneity. If the price of an Irish CDS increases after a German election, it is not clear if this is the impact on Ireland, or the impact of the election on other countries, say Greece, which then feeds through to Ireland's CDS. Our prediction model uses vector auto-regression, a technique that embraces endogeneity. The model includes the CDS for each sample country, as well as the equivalent CDS for the UK and UK, and the VIX ("fear") index. An equation for each variable is explained by its own values lagged t-1 to t-10 and each other variable lagged t-1 to t-10[3], the number of lags having been identified by appropriate tests. Models for each dependent variable are estimated simultaneously. The impact of an event on a country's CDS is the residual from its equation, known in finance as the abnormal return. It is usual to look at impact over a number of days known as an event window, in which case, the impact is the cumulative abnormal return (CAR).

The outcome of event studies depends somewhat on the estimation window, but even more on the event window, which is shorter and therefore more sensitive. Our estimation window is t-215 to t-16.[4] This was the shortest window that could accommodate the large number of lags. The three-week insulation period reflects the shortest sample time between the official calling of an election and the election itself. There is no theory that guides the length of event windows. Instead, we select our window empirically (Bølstad and Elhardt 2015, 9). Line graphs of the mean CAR across all elections and countries (N=198) suggest a clear impact beginning at t-3 and ending at t+3.[5]

Our first hypothesis states that creditor elections should have bigger effects on financial markets. We chose the median absolute CAR as an indicator of the size of the impact of elections: absolute because we have no hypothesis on direction and opposite signs can cancel each other out and median because there are only eleven countries and the mean could be misleading as a measure of central tendency. Similarly, when summarizing the impact of the ten creditor elections and eight debtor elections, we again use the median. This data is illustrated in Figure 2. Austria 2013, Germany 2013, and Netherlands 2012 are

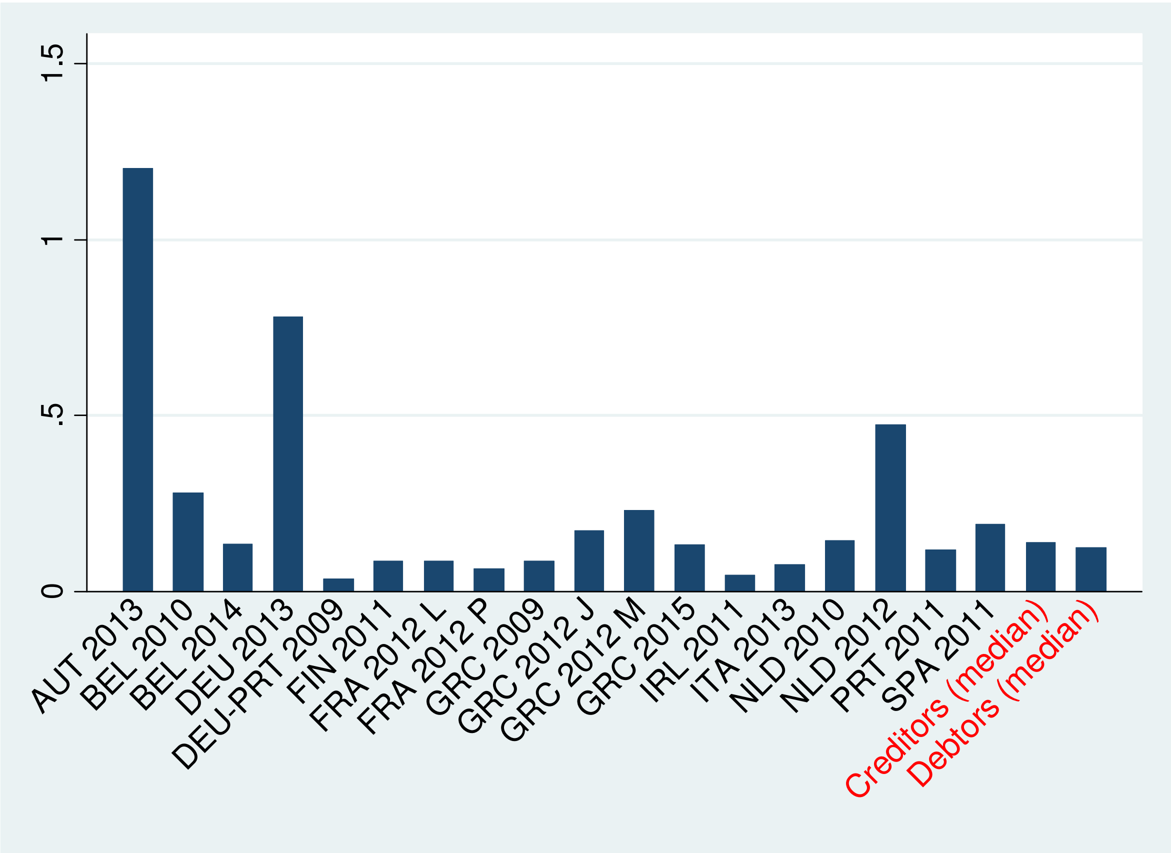
[3] Trading days since election result adjusts for the difference between weekday and weekend elections. It adds 1 to the series for those countries with weekday elections, so that the count is the number of days since the first trading day after the election.

[4] Gaps in the Greek CDS require somewhat shorter estimation windows for Austria 2013, Belgium 2010, and Belgium 2014.

[5] Reassuringly, the impact is somewhat more pronounced if we restrict the sample to those elections above the mean on a crude surprise variable defined as the sum of differences between the last poll value and election results.

outliers with much bigger impacts than any other. That a German election would have such a massive impact is not surprising. Also, the Dutch election of 2012 returned a pro-European government when many were worried about further gains for the radical right. Eurosceptic and anti-bailout parties featured strongly in the Austrian elections, but it is far from obvious why the election would have such a large median impact. The median amongst the ten creditor elections at 0.140 is eleven per cent bigger than that of debtors at 0.126. However, this difference does not appear so large in terms of the range across the eighteen elections. The evidence is only weakly in favour of the first hypothesis.

Figure 2: Hypothesis 1 – Size of Impact



Note: Median Absolute CAR

Figure 3 tests our second hypothesis on the range of impacts. Again, Austria and Germany 2013 are outliers. The median for creditors is 0.2, an impressive forty fiver per cent bigger than the debtor median of 0.138. The data clearly support this hypothesis.

Figure 3: Hypothesis 2 – Range of Impact

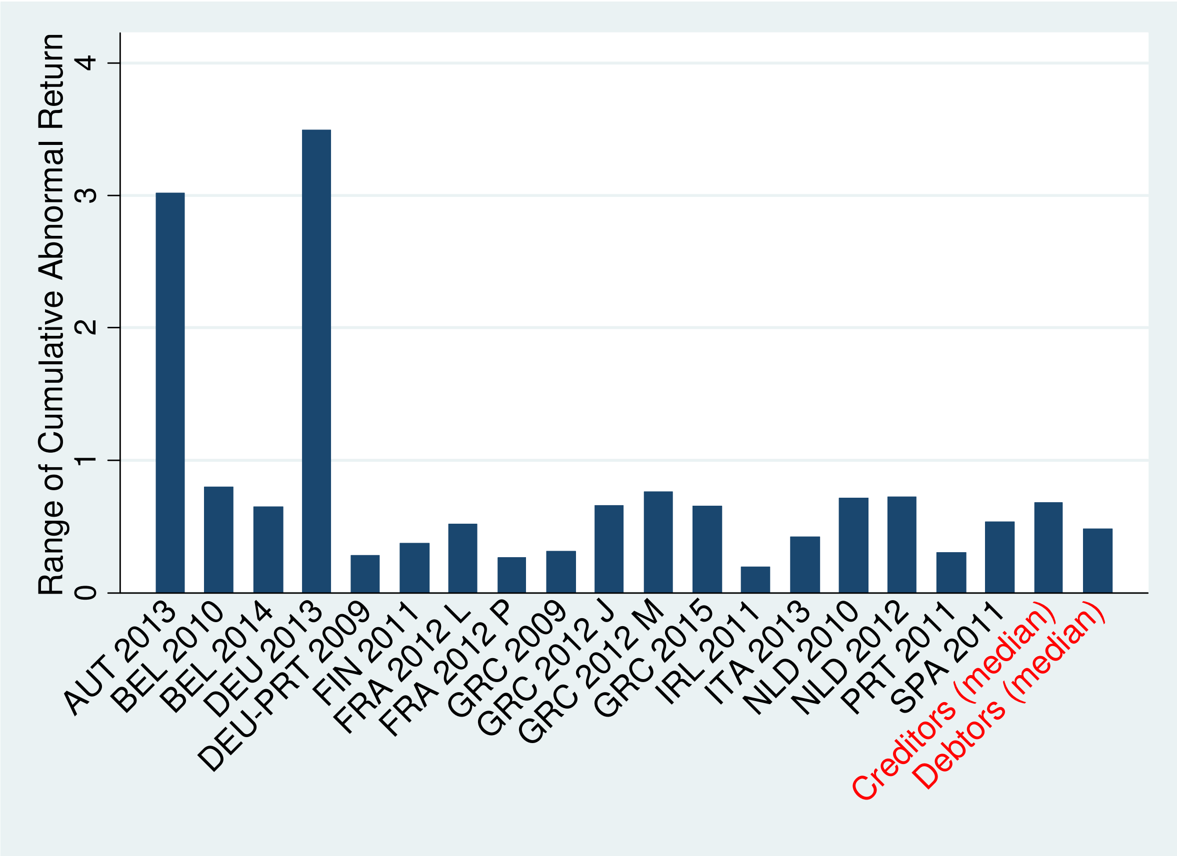
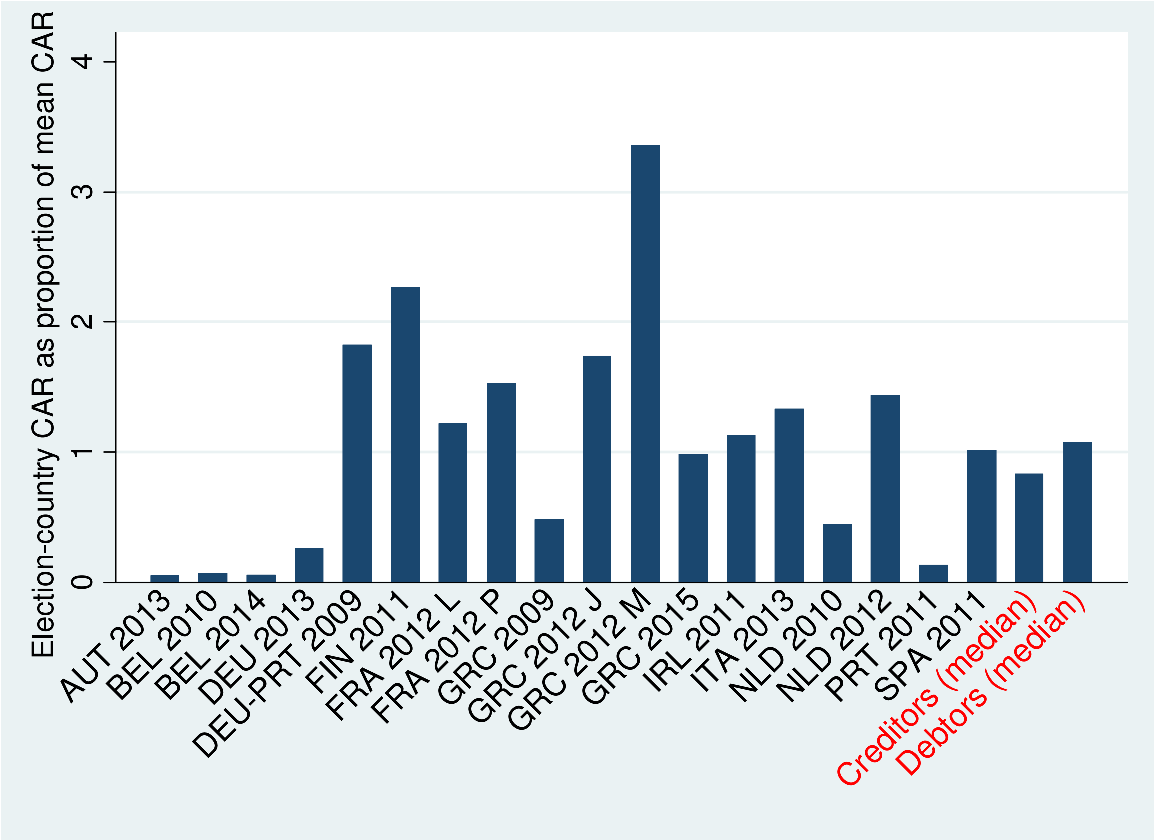


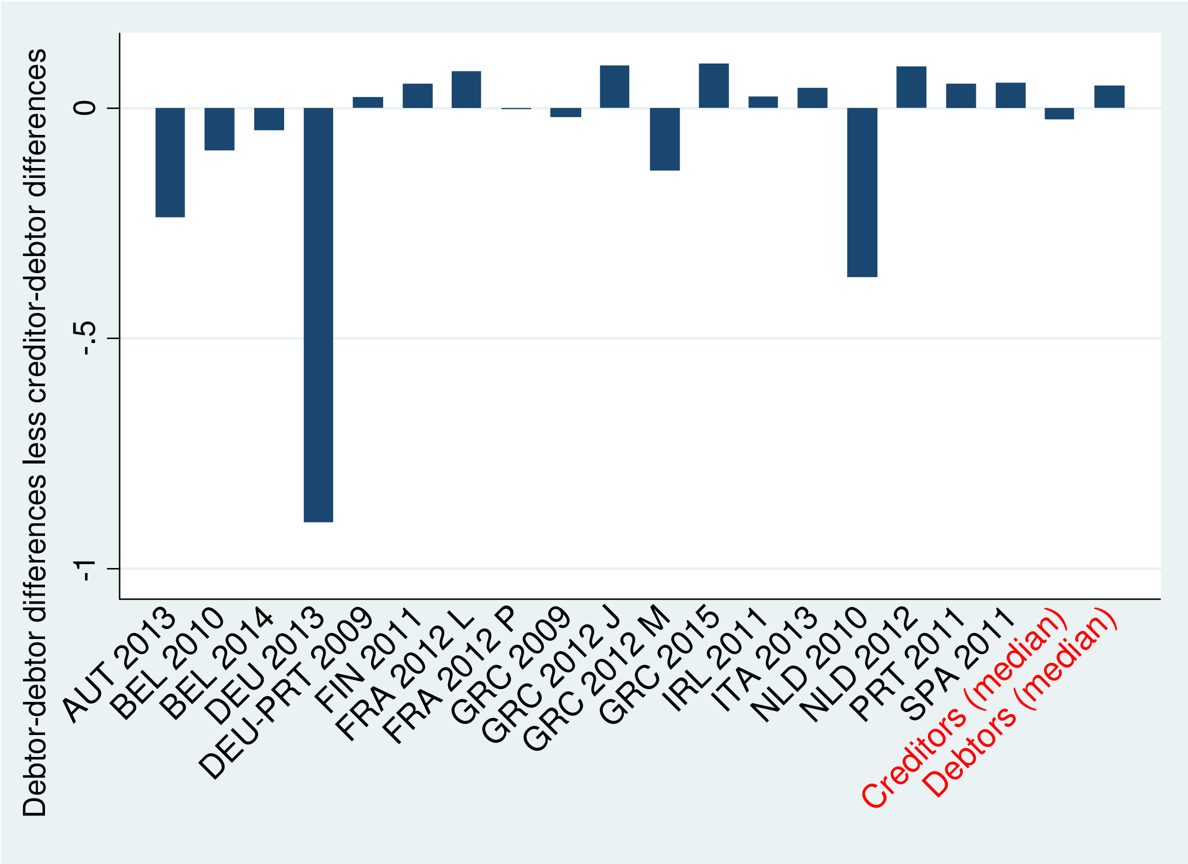
Figure 4 evaluates hypothesis three on the home-country impact of elections. The measure is the election-country CAR as a proportion of the mean CAR for the all countries at that election. There are outliers at both ends of this statistic. Austria 2013 and the Belgian elections of 2010 and 2014 barely influenced the election-country's CAR when compared to the mean for the eleven eurozone countries. Each scored less than 0.1. At the other end, the election of May 2012 in Greece produced a CAR for the Greek CDS that was 3.35 the mean. The German election of 2009 scores over two. The median for creditors was 0.92 and for debtors it was sixteen per cent bigger at 1.07. The evidence favours this hypothesis too, but not emphatically.

Figure 4: Hypothesis 3 – Election country impact



Finally, Figure 5 shows the data on our final hypothesis, which predicts different distributions for creditor and debtor elections. Creditor elections should divide creditors and debtors, as these elections should indicate changes of support for the class of debtors. Debtor elections say more about the fate of that individual country and less about the currency area as whole. Debtor elections should divide debtors from each other, as investors recalculate the relative creditworthiness of the troubled nations. To measure this concept, we calculated the difference in CARs between all pairs of countries. Then we calculated the median difference between each pair of debtors and the median difference between each creditor-debtor pair. Finally, we subtracted the debtor-debtor score from the debtor-creditor score. We predict that larger numbers on this statistic should be associated with debtor elections. Germany 2013 is again an outlier and this was the election that most divided creditors from debtors. A very big division also occurred around the Dutch election of 2010. The median score for creditors was -0.025 and for debtors it was 0.048. The data favours our last, and most interesting, hypothesis.

Figure 5: Hypothesis 4 – Distribution of impact



The German election of 2013 had the second largest median impact, the greatest range, the fifth smallest home-country relative impact, and by far the sharpest division between creditors and debtors. By contrast the German election of 2009 had a small impact, had a tight range, influenced the German CDS almost twice as much as the mean, and did not exhibit a clear pattern in its distribution. The German election of 2013 is perhaps the most distinctive election of the eighteen and appears to underline the importance of Germany. The 2009 election had a much less dramatic effect. Of course, the crisis was only beginning at this stage. This was before Greece announced a drastic upward revision to its deficit, but the European Central Bank had been buying sovereign bonds for almost four months.

This data do not show the Greek elections to have been as distinctive as conventional wisdom would have assumed. The Greek election of May 2012 was the most impactful debtor election, but was dwarfed by the effects of the German election of 2013 and the Dutch election of 2012. Spain 2011 comes next amongst the debtors followed by Greece June 2012 and 2015. The range of Greek elections was on the high side for a debtor, but not at all noteworthy when compared to the creditors. By contrast, the May 2012 election had by far the greatest relative impact on the home country's CDS. Again June 2012 and 2015 are not so remarkable. May 2012 also stands out in terms of distribution, in that it is the only debtor election that sharply divided debtors and creditors. It looks like a counter-example to the campaign incentives theory's implication that debtor elections do not cause systemic crisis. Nonetheless, it could also be the exception that proves the rule: that inconclusive election that heralded the rise of Syriza was associated with political uncertainty that was only surpassed by the Greek referendum of July 2015. Once again, the other Greek elections are not particularly noteworthy.

Omitted variable bias is a threat to our conclusions. Perhaps creditor elections had a different impact because of the greater significance of those countries as debtors, not because of their status as creditors to fellow Eurozone members. However, a scatterplot between the IMF's estimate of the US dollar value of each country's debt is not correlated with earlier but similar estimates of our dependent variables. Another confounding explanation to which we have already adverted is the intensity of the crisis. Using the same previous estimates we tested this idea using an index of Eurozone CDS (ITRAXX SOVX_WE). However, crisis intensity was somewhat associated with lower and more divisive impacts. Finally, it is possible that domestic political institutions are driving the outcomes. Leaders of consensual countries have less flexibility in international negotiations than their counterparts from relatively majoritarian polities. We plotted our previous data against the Political Constraints Index[6] (Henisz 2002) and again found no correlation.

In spite of these encouraging tests, we are still worried that our results might change substantially if we capture the surprise reflected in the results. For example, Greece's 2015 election does not appear dramatic from our calculations. This is surely because Syriza had a commanding and long-established lead in opinion polls and the result was not surprising. Our plan is to measure surprise for each election in the way illustrated by the French case study. Then we will regress surprise on the CAR for each country. The residual from this regression will be the CAR net of surprise. This will then serve as a dependent variable and we will re-conduct the analysis as above.

[6] We use POLCONV, which refers to the legislative and executive institutions at stake in general elections and excludes state or regional and judicial constraints.

5. Tentative conclusions

We have presented a theory that incorporates the two level-game of international negotiations into the calculations of financial markets about the creditworthiness of eurozone members during the euro crisis. Our theory focuses on the different incentives of campaigning politicians in debtor and creditor countries. Politicians in debtor countries know their country's name is on debt contracts and therefore feel constrained to moderate their rhetoric and politics during the campaign and/or reverse them afterwards when entering government seems likely. By contrast, creditor politicians fear no such drastic immediate consequences for their own country. Moreover, during elections they can free-ride on more responsible government politicians in their fellow creditor nations. This theory predicts that financial market reactions to creditor elections will be bigger across the eurozone; have a greater range of impacts; be relatively smaller in the election country itself; and divide creditors from debtors. Each of these hypotheses is politically important and potentially helps to explain why it has been so hard for Europe to agree a credible long-term response to the crisis. Campaigning politicians from creditor countries did not receive clear signals from financial markets that reminded them of their long-term enlightened self-interest in helping their debtor-country counterparts. On the contrary, elections in creditor countries tended to underline the difference between creditors and debtors.

We have tested these hypotheses using a financial econometric technique that poses a plausible counterfactual and accounts for the endogeneity inherent in the close relationships between eurozone members. Our tests support three of our four hypotheses. The exception is that the median impact of elections does not differ much between creditors and debtors. These results are preliminary because these calculations do not take account of variations in the extent to which markets were surprised by results. Unsurprising results, even if there were massive changes in the composition of parliament, should have little effect on markets. By contrast, surprising results, even if they herald no change, should have substantial effects. We have proposed a measure of surprise that focuses on the relevant policy dimensions of solidarity and austerity. We have shown in a case study how this can be implemented using articles from the Bloomberg archive. Once we have incorporated surprise into our analysis we will be able to mount a very strong test of our explanation for the difference between creditor and debtor elections during the euro crisis.

References

Arezhki, Rabah, Candelon, Bertrand, Sy, Amadou N. R. 2011. *Sovereign Rating News and Financial Markets Spillovers: Evidence from the European Debt Crisis*. IMF Working Paper WP/11/68.

Bernhard, William, and David Leblang. 2006. *Democratic processes and financial markets: Pricing politics*. Cambridge: Cambridge University Press.

Bølstad, Jørgen and Elhardt, Christoph. 2015. To bail out or not to bail out? Crisis politics, credibility, and default risk in the Eurozone, *European Union Politics*.

Fama, Eugene F. 1970. "Efficient capital markets: A review of theory and empirical work." *The Journal of Finance* 25 (2): 383-417.

Henisz, Witold J. 2002. The Institutional Environment for Infrastructure Investment, *Industrial and Corporate Change* 11: 355-389.

Jayachandran, Seema. 2006. The Jeffords Effect, *Journal of Law and Economics*, 49(2): 397-425.

McMenamin, Iain, Flynn, Roderick, O'Malley, Eoin, and Rafter, Kevin. 2013. Commercialism and Election Framing: A Content Analysis of Twelve Newspapers in the 2011 Irish General Election, *International Journal of Press/Politics* 18 (2): 167-187.

Olson, Mancur. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.

Putnam, Robert D. 1988. Diplomacy and Domestic Politics: The Logic of Two-Level Games, *International Organization* 42 (3): 427-460.

Sattler, Thomas. 2013. Do Markets Punish Left Governments?, *Journal of Politics* 75 (2): 343-356.

Steinbach, Armin. 2015. The Mutualization of Sovereign Debt: Comparing the American Past and the European Present, *Journal of Common Market Studies*.