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The Impact of Political Events on Sovereign Credit Risk

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Abstract

The purpose of this study is to determine how political events affects the perceived credit risk of sovereigns. We estimate the impact of elections, re-elections, government and finance minister changes on SCDS spreads, using a sample of 32 countries over the years 2009 to 2015. We use daily five-year SCDS spreads to capture the market reaction for these events. This study differs from other related papers by focusing on developed economies and specifically investigates the impact of finance minister change on sovereign credit risk. Our results show that government changes and finance minister changes increases the perceived credit risk by the financial markets. This occurrence is constrained to the period after the change, while having no significant effect prior to the political event. Even though the effect may be triggered by the sovereign debt crises, our findings imply that the financial market perceives, on average, political change as non-beneficial in terms of credit risk.

Contents

1 Introduction

Investment decisions under uncertainty have been studied considerably and are nowadays definitely seen as cornerstones in economics. It is therefore interesting that political uncertainty during elections and minister appointments have been left relatively uncharted. This paper investigates the effect of general elections, re-elections, government and finance minister changes on sovereign credit risk. The focus on government and finance minister change is different from other related papers in the field. In terms of election itself, some authors (Balding, 2011; Li et al., 2013) have studied the impact of elections on emerging economies while, to our knowledge, no recognized study has been undertaken on developed economies. We apply the idea of increased financial uncertainty during elections to see if that also applies to developed economies. Sovereign credit default swaps (SCDS's) is used as dependent variable, which is a type of credit derivative that insures bondholders against a credit default. Thus, the impact of political events on the creditworthiness of sovereigns is based on financial market behavior.

This paper investigates four different propositions: we hypothesize that an election/ government change/finance minister appointment leads, on average, to an upward shift in a nation's SCDS spread, while a re-election has the opposite effect. That is, these events induce a negative market reaction to the creditworthiness of sovereigns. A systematic upward shift in the SCDS spreads during elections could be interpreted from different perspectives. One interpretation is that the economy as a whole is relatively unstable during elections and following transition periods, as the election itself is the center of attention rather than the governance of the country. An upward shift in the SCDS spreads could also imply increased hedging, even if the financial position is left unaffected by the election. The interpretation of such behavior points toward risk aversion of investors, since political events entail a certain degree of unpredictability (Mei and Guo, 2004; Pástor and Veronesi, 2013). Hence, we argue that elections entail uncertainty with respect to the outcome and future governmental rule. Investigating the effect of re-election versus government change is an extension to the issue of elections. If a government change leads to an upward shift of greater magnitude in comparison to a re-election of the incumbent party, it could yet again be a case of risk aversion of investors. Increasing SCDS spreads could for instance imply investors' concern for the newly elected government's

inexperience, or that investors in general are reluctant to change. If a finance minister replacement also induces an upward shift, the same reasoning could be applied as in the aforementioned case.

The effect of political elections and finance minister change is estimated in several steps. First, we estimate the effect of elections on SCDS spreads, regardless of the election result. Second, we estimate the effect of re-election and government change. Third, we estimate the effect of replacing a finance minister. This is carried out on 32 countries of various origins, but mostly from the European Union. Five-year SCDS spreads are used since this is approximately the length of the term in office and the most liquid out of all maturities (Zhang, 2014). The model specification is reduced form and based on previous research in the area.

Our results show that neither elections nor re-elections have any significant effect on the SCDS spreads, while changing governments and finance ministers do. Thus, on average, no systematic shift in the SCDS spreads occurs solely because of elections. A government change increases, on average, the SCDS spreads by about 46 basis points, approximately 17 percent. Similarly, a newly appointed finance minister faces an immediate increase in SCDS spreads the periods following his or her appointment. A change of finance minister increases, on average, the SCDS spreads by roughly 37 basis points, about 14 percent. The magnitude of the increase are quite similar to those of government change, indicating that there may be a commonality between the two reactions.

This paper contributes to previous research in the field of sovereign credit risk as it identifies major political events to have significant impact on SCDS's. In general, our findings are contributory to the field of economics and the interaction between political events and financial market behavior. The knowledge about financial market behavior during elections and political change is valuable information to both investors and politicians. Overall, our findings imply that the financial market reacts negatively to political change.

An increased knowledge of the financial markets during elections and finance minister change is also of value to investors in trying to interpret the changes in SCDS spreads and to assess the overall importance of political events in the long run creditworthiness of a country. For politicians, increased credit risk due to political events would stress

the importance of communicating the changes relevant to financial markets in a clear and truthful manner in order to avoid unnecessary fluctuations. An alternative viewpoint is that these fluctuations are unavoidable, regardless of the quality and accuracy of communication from politicians.

Section two describes how the SCDS works, the market and its participants. It also contains a literature review which is followed by the model specification, in section three. The fourth section provides the data sources and some descriptive statistics. The fifth section presents the results of our estimations. The sixth section provides a discussion of the result and the seventh is the concluding section of the paper.

2 Literature review

This section covers theories and research findings of studies on the spread of SCDS's in order to provide a comprehensive view of the market and to discuss the main drivers of the spreads. The introductory subsection on the market defines the SCDS, who the market participants are and alternative measures of sovereign credit risk. The second subsection covers risk aversion, presents some general characteristics of investors and highlights the rationale for entering into a SCDS contract. The properties of risk aversion may also be a trigger for the spread during certain economic situations, such as political events. The following subsection relates to the topic of this paper and displays the commonalities between the political environment and events to the financial market and SCDS spreads. Finally, there is a brief introduction on global and local determinants that have had historically significant explanatory power on SCDS spreads.

2.1 An introduction to the SCDS market

A SCDS is a fixed income derivative instrument between two parties. The buyer of this type of instrument gains protection against credit defaults on a sovereign bond. The issuer of the SCDS is paid an annuity premium, the Credit Default Swap spread. This is paid quarterly or bi-annually and is much like the premium that you pay on any other insurance. If the sovereign, for which there is a SCDS issued, fails to meet the debt obligations of any given bond there is a credit event. The way that the insured part is reimbursed depends on whether a cash or physical settlement is agreed upon. In the case

of a cash settlement, the claimant keeps hold of the claim and the insurance party pays only the actual losses of the bond. A physical settlement occurs when the claimant hands the bond over to the insurer and obtains the full notional amount. As an illustrative example, we use a five-year SCDS contract on Spanish bonds. At the time of writing, it is priced at 104.5 basis points (2016-03-08, CNBC.com). If there is no default on Spanish debt during the time-horizon of the contract, the buyer would pay an annuity premium of 104.5 basis points for the next five years. However, if Spain defaults on the underlying reference obligation, the buyer utilizes its credit protection and is reimbursed by the seller at the par value of the bond obligation.

Market participants consist almost exclusively of institutional investors, where reported dealers is the dominating actor, accounting for approximately 70 percent of the trading volume. They are followed by banks, security firms and hedge funds. Noticeably, hedge funds frequently enter into a CDS contract for speculative reasons, rather than hedging a long position in sovereign bonds. While this behavior may seem conceptually unappealing it primarily increases the liquidity of the market (Augustin, 2014)

The reason for entering into a CDS contract is fundamentally for hedging purposes towards the credit risk exposure of an underlying bond. Thus, the size of the spread should intuitively correspond to how likely it is for a credit event to occur, i.e., that the borrower fails to meet their debt obligations. The SCDS spread therefore reflects the market perception of the credit risk exposure a sovereign is facing, making it an adequate dependent variable when modeling sovereign credit risk.

However, the SCDS's are not traded as often as could be expected with respect to its standardized nature, and could therefore be assigned a certain level of liquidity risk (Calice et al., 2013). Liquidity risk is a term that defines the amount you pay for holding a contract. If a contract is easy to sell, the liquidity risk is typically small. Of the few existing papers studying the issue of liquidity risk, Badaoui et al. (2013) and Tang and Yan (2006) conclude that the liquidity risk is a significant determinant of the SCDS spread variations. Thus, it is a relevant issue when claiming that the spread is a legitimate proxy for sovereign credit risk. Assuming that the liquidity component is relatively fixed over time, using fixed effects solves this issue.

Since the SCDS spread is a relatively new indicator to determine credit risk, it is appropriate to discuss other measures that are used for this purpose. The two most common measures that authors use when estimating credit risk, excluding SCDS spreads, are credit ratings (Packer and Suthiphongchai, 2003) and bond spreads (Arghyrou and Kontonikas, 2012; Li et al., 2013). Since these have been used for an extensive period of time, they are suitable for estimations with a long time horizon.

Credit ratings are provided by significant agencies like S&P and Moody's, which arguably serve as an accurate measure of credit risk. However, the ratings are not updated as frequently as SCDS spreads and therefore do not capture instant changes in the market perception of credit risk. Another shortcoming is that ratings are of discrete nature, which is disadvantageous when running panel data estimations.

Balding (2011) discusses bond spreads versus SCDS spreads as the optimal level of choice when modelling political risk. He argues that default risk is the primary source in pricing credit risk of CDS's, while bond spreads contain other risk factors as well, like inflation and prepayment risk, i.e., an early unscheduled repayment of a bond. Therefore, bond spreads involve a greater number of politically dependent channels and activities that impact financial risk, while this is not the case for SCDS spreads.

As explained above, a SCDS contract is largely limited towards one specific event: a credit default. Political risk has a direct channel to SCDS pricing since a government can primarily determine the level of public debt through policies and other political measures. Elections may therefore have an impact on the SCDS spreads given that the agents in the financial market can predict the type of political decisions that a government makes, and by that assess a probability of default on government bonds. This combined with the fact that bond spreads incorporate other sources of risk works in favor of using SCDS spreads.

2.2 Theories of risk aversion

In financial economics, theories related to risk aversion have been thoroughly developed. The overall consensus of existing literature points towards the fact that people, as investors, are averse to risk. In terms of pricing financial derivatives, risk-aversion implies that the amount of insurance is disproportional to the amount of risk inherent in the

investment. In other words, people are willing to pay premiums that are substantially above the expected value of the insurance. Regarding the market for SCDS's, investors' willingness to insure themselves will increase with greater uncertainty regarding the underlying reference entity. Furthermore, the SCDS spread may increase exponentially in relation to an increase of the assessed probability of default. This claim is argued for in detail by different aversion theories presented below.

In the field of behavioral finance, Kahneman and Tversky developed a well-known positive theory about the behavior of investors in financial markets, called the prospect theory (Ackert and Deaves, 2009). It explains different investors' characteristics that are contrary to normative theory, such as the expected utility theory. A feature of prospect theory is the concept of loss aversion introduced by Tversky and Kahneman (1991). It suggests that the dis-utility of a loss is larger than the earned satisfaction of an equivalent gain, i.e., a loss of 50 dollars feels worse than the corresponding joy of earning 50 dollars. This theory is often imposed when trying to explain why economic agents decide to be part of an insurance contract, or in our context, why people buy SCDS's. More specifically, it displays the reason for investors' willingness to pay an insurance premium that is greater than the expected payoff. The fact that losses loom larger than gains implies that investors are averse to default risk, which consequently drives up the spread. Amato (2005) refers to this as the "risk premia" of CDS spreads, existing primarily due to the risk aversion of investors. The author investigates the risk premia volatility of corporate CDS's between 2002 and 2005 and finds that its variation depends on fundamental macroeconomic factors, like monetary policy stance. Since governments play a key role in determining sovereign macroeconomic fundamentals, it is reasonable to believe that elections impact the price of SCDS's.

An extension to risk aversion is the theory of ambiguity aversion. In essence, ambiguity aversion means that people prefer known risk to unknown risk, and therefore might insure themselves to greater extent if they face the latter. An illustrative example is the phenomena called the Ellsberg paradox, stating that people prefer to know the exact probabilities of winning to unknown probabilities in lottery games, even if the expected outcome in the two games are the same. The analogy to elections and SCDS spreads is that if the election outcome is uncertain there would be an increase in the price of

insurance, i.e. the spread. Alary et al. (2010) model the effect of ambiguity on risk-averse investors. In their first proposition, risk-averse investors increase their willingness to pay for self-insurance if a risk is unknown. Their third proposition reinforces this behavior, and states that the insurance coverage rate is always higher for risk and ambiguity averse investors. This would explain increasing SCDS spreads during uncertain or unexpected election outcomes.

2.3 Empirical findings on political uncertainty and financial risk

The research on this topic has largely focused on emerging and periphery economies where political and democratic institutions are seen as more volatile than developed and core economies. One paper that examines the heterogeneity inherent in the Euro zone, Aizenman et al. (2013) find that most European periphery countries were paying interest on debt well below the level of interest to similar non-European countries prior to the crisis. However, during the crisis they paid well over the interest of these comparable countries. This finding could be indicative of a change in risk perception when a country's political system is backed by a larger more stable entity, the EU and EMU in particular. Adding to this, investors seem to incorporate a higher portion of risk premium when there is a change towards political regimes with less ability-to-pay or willingness-to-pay, as suggested by Moser et al. (2007). They use a mean comparison t-test prior to and post cabinet change, which yields an increase in bond spreads by 47 to 283 basis points, where the magnitude reach the upper bound if the country is in a financial crisis.

To determine whether financial markets are affected by political uncertainty, Pástor and Veronesi (2013) develop a model where stock markets depend on political decisions. In this model, they divide shocks to stock markets into political and economic shocks. Political shocks have higher importance during recessions, while economic shocks have a higher influence on stock markets during normal economic times. Further, governments are more likely to adopt new policies during times of economic distress, which might entail risk that investors consider when investing. Conversely, if investors regard policy decisions as being in favor of the stock market, the stock market return increases. A shock to SCDS spreads prior to or after elections could therefore be a market reaction towards the suitability of the party with respect to the financial market.

Cuadra and Sapriza (2008) investigate the effect of political uncertainty on sovereign default and interest rate spreads in emerging economies. They find that an uncertain political situation, measured by the turnover rates of policymakers, leads to a higher risk premium in international credit markets. Similarly, Mei and Guo (2004) conclude that eight out of the nine recent financial crises in emerging markets happened during political elections and political transition periods. They also identify political elections as a determinant for market volatility, which is in line with the findings of Cuadra and Sapriza (2008).

Balding (2011) argues that political elections have a major impact on financial market instability in emerging economies. The author finds that SCDS spreads are subject to significant increases during political elections, controlling for financial and macroeconomic variables. Similar to Balding (2011), Li et al. (2013) investigate the effect of elections on bond yields in Asia and Europe and find that elections are a significant factor in determining bond risk premium. The novel finding in this study is that electing a new government reduces bond yields in times of financial distress, while having the opposite effect during normal economic activity. This could mean that investors lose confidence in the existing regime during financial downturns, believing that a new government would do better than the previous one. Similarly, Block and Vaaler (2004) studies political risk for 19 presidential elections in 12 developing countries and find that as left-wing parties are likely to take over from the right-wing incumbent, the credit risk increases significantly. While ideological considerations might be an important factor for investors in their decisions to lend to a country or insure themselves against default, it might be more pronounced in developing countries.

Another important factor, when it comes to political uncertainty, is the appointment of new finance or economics ministers. A newly elected finance minister's credentials often tell investors what to expect and what they will accomplish during their tenure. Personal characteristics such as work experience and gender do play a role in the overall performance of a finance minister, which shows the importance of the individual rather than the office he or she represents (Jochimsen and Thomasius, 2014). Further, the tenure of the finance minister plays a significant role in the budget balancing, where a finance minister who sits for a long time generate smaller budget deficits (Moessinger, 2012;

Jochimsen and Thomasius, 2014). This finding is robust to both time and geo-location, which is relevant to our study. It is therefore understandable that a newly appointed minister could cause a market reaction, specifically through the mechanism of tenure.

Moser et al. (2007) study the effect on financial market risk, as proxied by bond spreads, of finance minister appointments in Latin America. The authors find that there seems to be a steady buildup in the bond spreads leading up to the appointment, stabilizing on a higher level after the appointment. Another factor that is directly related to our study is that countries who exhibit financial vulnerability are affected to a much higher extent than countries that are more stable. Since we are studying economies during the sovereign debt crisis, one could expect a slightly higher effect of a finance minister appointment.

To summarize, there is empirical evidence that shows that political factors impact sovereign credit risk, although predominantly related to emerging economies. Studying these economies may be favorable in finding significant results due to larger political uncertainty and more frequent default episodes in comparison to developed economies. Nevertheless, this paper aims to investigate for this occurrence with a sample of predominantly developed economies.

2.4 Empirical findings on determinants of SCDS spreads

In the field of pricing credit derivatives, it is reasonable to first consider the well-known Merton option pricing formula (Merton, 1973). On a corporate level, Merton suggests that the credit spread is largely dependent on the asset volatility of the balance sheet of a firm. On a sovereign level it means that credit spread variations, and simultaneously the probability of default, is predominantly driven by country specific fundamentals. Although this reasoning seems to be partly true, it only provides one side of the story. The importance of country specific fundamentals also seems to be time-varying, being more prominent during periods of economic downturns (Moser et al., 2007; Aizenman et al., 2013). Moreover, researchers have found that global factors also play a major role of SCDS spread variation over time. Thus, the limitations of the Merton formula show the need of a wider view when modeling sovereign credit default swaps, since global factors need to be accounted for. Longstaff et al. (2011) include the US implied stock volatility, equity market performance and fixed income market performance to proxy for such move-

ments and find that they are significant determinants when it comes to global market performance. Pan and Singleton (2008) and Augustin and Tédongap (2014) find strong co-variation between sovereign CDS spreads and the CBOE Volatility Index (VIX). The VIX is a measure of the market expected volatility over the next 30-day period in the S&P 500 stock index option prices, and is considered to be an accurate proxy of global risk (CBOE, 2016a).

The majority of research on CDS's comes from the corporate world and it can be used to draw analogies to the SCDS market. In a review article, Ericsson et al. (2009) conclude that firm leverage and asset volatility are important factors that determine CDS spreads for companies. For a sovereign country, Zhang (2014) defines firm leverage and asset volatility as public debt to GDP and the volatility of the country's assets respectively. The reason to account for Public debt to GDP is straight forward; the debt exposure of the country has a strong influence on its ability to pay off its debt. A higher level of leverage increases the amount of debt servicing, given a constant level of interest rates. This notion is confirmed by Caceres et al. (2010) who find that public debt to GDP does in fact increase the sovereign risk during crises. Similarly, Aizenman et al. (2013) conclude that public debt to tax ratio is a major determinant of SCDS spreads, based on a sample of 60 countries over a five-year period. Their estimation implies that an increase of one percentage point in debt to tax ratio leads to a 15 to 81 basis points increase of the SCDS spreads. In addition and somewhat surprisingly, external public debt to GDP does not seem to affect the risk premium in their estimation.

Other factors that affect the SCDS spread are real GDP growth and current account balance. Real GDP growth indicates how well the economy is doing as a whole and is indicative of whether the tax base with which the country pays its debts increases or decreases. It has been studied both for bond yields and SCDS spreads and have been shown to affect both (e.g. Aizenman et al., 2013; Balding, 2011; Li et al., 2013). Current account balance determines the actual competitiveness of a country. This measure has been found to be significant in credit risk terms, since it is indicative if the country is a net lender or borrower of credit. Thus, it is an indirect measure of sovereigns' capacity to repay foreign debt (Baldacci et al., 2008).

A way to determine the volatility of a country's assets is to use the domestic equity market volatility, which Longstaff et al. (2011) do when they estimate what factors determine the SCDS spreads of specific countries. They find that domestic equity market volatility is significant in nearly all specifications and countries in their sample. However, since VIX is a major determinant for all SCDS's, we argue that VIX alone is a suitable proxy for stock market volatility.

3 Model specification

In this section we present our framework for estimating the effect of different outcomes related to political elections and events on country specific SCDS's. The model specifications are introduced as well as the hypotheses for the four different tests that are conducted. The first test is related to the issue of elections themselves, while the second and the third test examines the effect of re-elections and government changes. The final test relates to how a change of finance minister may affect the market perception of country specific credit risk. The SCDS spread is the dependent variable for all estimations.

The estimation method we use is fixed effects, in order to remove the time-invariant heterogeneous effect. This method removes inherent characteristics on the country level that may influence the results, such as cultural and geographical differences that do not change over time. This is beneficial compared to a simple OLS regression or a random effects model in terms of reducing bias, since time-invariant characteristics do not have to be considered when specifying the regression. We use HAC-robust standard errors, which is common practice with panel data models in order to account for heteroskedasticity and autocorrelation in the error terms.

The time frames that we will examine are both 30, 60 and 90 days prior to or after a political event. A political event in this context is defined as a general election, presidential election or a finance minister appointment. When there is a political event it is coded as one, and zero otherwise. For instance, the SCDS observations 90 days prior (post) to a general election is coded as one with respect to the *election prior (post) 90* dummy, while all the other SCDS observations is coded as zero. Thus, we estimate the time frames surrounding the political events against the whole sample.

3.1 Political elections

The first test is performed to measure the impact of an election itself, without taking the final outcome into account. The baseline model presented below is used in the following regressions as well. Henceforth, the model specifications only differentiate with respect to the dummy variables that are related to the hypothesis in each regression. The specification for this estimation is:

$$SCDS_{it} = \beta_0 + \beta_1 Election_{it} + \beta_2 X_{it} + \beta_3 VIX_t + \epsilon_{it} \quad (1)$$

We use the five-year SCDS spread as the dependent variable, in contrast to one-year and 10-year, since the market for five-year SCDS's is the most liquid of the three maturities (Packer and Suthiphongchai, 2003; Pan and Singleton, 2008; Zhang, 2014). Besides, it is conceptually accurate in our context to use five-year swaps since the tenure of governments is close to five years in most cases. Thus, any changes of the five-year SCDS's that stems from our election variables reflects how the market perceives the capacity of the elected cabinet over their whole term.

The term X in equation (1) is a vector of the domestic control variables: GDP growth, public debt to GDP and current account balance to GDP. All these variables reflect fundamental economic measures that quite intuitively affect the credit worthiness of sovereigns. As mentioned in the literature review, they have have been found to be significant determinants of SCDS spreads in previous papers. Debt/GDP and public debt/GDP are established as major determinants by Zhang (2014) and Caceres et al. (2010) respectively. Balding (2011) as well as Li et al. (2013) use GDP growth and balance of payment (BOP) to GDP successfully in their modeling of SCDS spreads. We use a sub-category of BOP, current account balance (CA), like Baldacci et al. (2008). The most prominent reason for this inclusion is that CA contains information of countries' ability to repay foreign debt.

Apart from the domestic control variables, *VIX* is included in our specification. *VIX* captures the commonality between spreads that is attributable to the global sentiment relating to the economic performance as a whole. The reason for this inclusion is that the global risk factor have been proved to be important in determining the price dynamics of SCDS's (Pan and Singleton, 2008; Longstaff et al., 2011; Augustin and Tédongap, 2014).

We hypothesize that elections generate an upward shift in the market perception of credit risk, i.e., an increase in the SCDS spread. This perception is first of all based on the view that investors are averse to risk in general and that they display ambiguity aversion in particular. Unknown risk is inherent in election in the sense that future governmental rule is unknown, therefore, forthcoming policies and political decisions related to sovereign debt is unknown (Pástor and Veronesi, 2013). An upward shift is also in accordance with the findings of Mei and Guo (2004) and Balding (2011), as emerging countries are subject to financial market instability during election periods. Our hypothesis is thus:

$$H_a : \beta_{Election_{it}} > 0$$

It is important to stress that even though we hypothesize that elections in general drives the SCDS spreads upwards, there may be an heterogeneous effect among the countries in the sample. For instance, some elections could arguably be considered beneficial if the incumbent has conducted weak monetary policies and mismanaged the sovereign debt. Thus, if the opposing side is assigned a larger ability to run the sovereign finances, one could expect the SCDS spread to decline if a government change is anticipated. To examine this further, we carry out individual regressions for each sovereign to display the country specific effect of political events. This introduces a time-invariant component, but we argue that the informational value of these regressions is of importance to examine the heterogeneity between countries.

3.2 Re-elections and government changes

In this section we estimate the nature of the election outcome. If there is a systematic shift between periods of election and non-election, we can confirm that a change or re-election of a government has a disruptive effect on the pricing of SCDS's. The first estimation estimate the effect of re-elections on the SCDS spreads and the model specification is:

$$SCDS_{it} = \beta_0 + \beta_1 Re\text{-}election_{it} + \beta_2 X_{it} + \beta_3 VIX_t + \epsilon_{it} \tag{2}$$

We hypothesize that re-elections have a calming effect both prior to and after the election day compared to the whole sample. The logic behind this comes both from the risk aversion literature and the studies conducted on elections (e.g. Ackert and Deaves, 2009; Alary et al., 2010; Li et al., 2013). Given that investors are averse to unknown risk

(according to ambiguity aversion theory), an expected re-election should decrease the risk inherent in investing in a country, i.e., decreasing the SCDS spreads. Hence, we hypothesize that the re-election coefficient will be lower than zero, thus:

$$H_a : \beta_{Re-election_{it}} < 0$$

The second estimation on incumbency estimate the effect of government change. The model specification and sample is identical to the previous estimations, except for the dummy variable:

$$SCDS_{it} = \beta_0 + \beta_1 Change_{it} + \beta_2 X_{it} + \beta_3 VIX_t + \epsilon_{it} \tag{3}$$

We hypothesize that government change will have a detrimental effect on SCDS spreads both prior to and after the election day compared to the whole sample. The reason for this is similar to the reasons re-elections decrease credit risk. Government changes are often followed by policy changes that, according to Pástor and Veronesi (2013), increases the inherent risk in a country's ability to pay off its debt. Investors willingness-to-pay for a SCDS contract increases, thus causing an upward shift in the spreads. Therefore, the hypothesis is:

$$H_a : \beta_{Change_{it}} > 0$$

3.3 Finance minister appointments

The final estimation relates to the impact of a change of finance minister. The difference from the specifications above is yet again the dummy variable, which is based on the official date a new finance minister assumes office. The model we estimate for a finance minister appointment is therefore:

$$SCDS_{it} = \beta_0 + \beta_1 Finmin_{it} + \beta_2 X_{it} + \beta_3 VIX_t + \epsilon_{it} \tag{4}$$

In a similar way to government change, a new finance minister alters investors risk assessment of a country's governance, temporarily increasing the inherent risk (Pástor and Veronesi, 2013). Moreover, tenure has a significant impact on finance ministers ability to balance budgets (Moessinger, 2012; Jochimsen and Thomasius, 2014), i.e., the inexperience of a new finance minister should cause an upward shift in the SCDS spreads. The hypothesized coefficient prior to and after a finance minister appointment is:

$$H_a : \beta_{Finmin_{it}} > 0$$

4 Data

In this section we show which indicators that are used for the estimations and their origin. We have gathered data on 32 countries over an average of about 1700 trading days, which give us an amount of data that can be considered large enough for inferential purposes. Most countries are developed economies, primarily from the EU, but some emerging market economies are included as well. See table 14 in the appendix for the list of countries.

4.1 Data sources

The strategy is to include as many countries as possible, contingent on certain characteristics. Alongside the obvious criterion of data availability, we only include democratic countries with free elections. Examples of countries not included are Saudi Arabia, China and Khazakhstan. Greece suspended trade with SCDS's in 2012, due to a credit event trigger relating to the financial crisis in the country and is therefore not included in the analysis.

SCDS and VIX data are retrieved from the Bloomberg database (Bloomberg, 2016). Macroeconomic fundamentals for each country are retrieved from the OECD database. The macroeconomic variables comprise of GDP growth, public debt to GDP and CA. Most of this data are reported quarterly, which is inconvenient since the dependent variable is daily. This issue is dealt with by using a normal cubic spline interpolation between the data points. Normal cubic spline interpolation has adequate properties for constructing a daily data series that closely approximates real conditions. Interpolation methods have been used in prior research relating to sovereign defaults (Hatchondo et al., 2010; Balding, 2011; Li et al., 2013).

The election data are retrieved from Adam Carr's database (Carr, 2016) on elections, which are used in previous studies on financial risk during elections (Balding, 2011; Li et al., 2013). This database is used to define all elections in our sample, for which we have constructed the different dummy variables. Our primary database on elections have been cross-checked with the IFES database (IFES, 2016), a non-governmental organization based in US, in order to make sure that the election data is correct. Data on finance

ministers have been acquired for all the countries in our sample. It has been retrieved from the rulers database (Schemmel, 2016), but cross-checked with CIA world factbook (CIA, 2016).

4.2 Descriptive statistics

Table 1 indicates that our panel data is not entirely balanced, i.e., the number of observations between the variables does not correspond to each other. This is partly due to differing bank holidays between countries. However, the number of observations missing is relatively small and does not cause a major problem when estimating. Since all countries have bank holidays, this is not skewed to a particular subset of countries and can thus be neglected. Overall, the efficiency loss caused by this fact is relatively small.

The high dispersion in the SCDS spreads, referring to the minimum and maximum values, is expected as the sample consists of countries with large differences in economic stability. For instance, the Portuguese SCDS spread (greatly affected by the Sovereign debt crisis) was 1527 basis points in 2012 while it measured 11.18 basis points for Norway in 2014. The maximum value of the VIX of about 57 points could be put in relation to its peak after the outburst of the global financial crisis in 2008, when it occasionally closed at 80-90 points (CBOE, 2016b). The heterogeneity in the financial position among the countries in the sample generates a relatively large dispersion, similar to the case of SCDS spreads. The minimum GDP growth of negative 12.40 percent seems remarkably low, but was due to the great economic downturn in Lithuania in 2009. The last value that stands out is Japan's large public debt to GDP of 208 percent in 2015.

We cover roughly as many finance minister replacements (83) as election events (81). However, since governments and its ministers have been re-elected, changes of finance ministers have occurred that have no relation to elections. There are 40 re-elections and 41 government changes in our sample.

Table 1: Summary table

Variables	Observation	Mean	Std. Dev.	Min	Max
SCDS spread	53,386	144.96	145.97	11.18	1527
VIX	53,363	20.46	7.99	10.32	56.65
CA	49,483	0.53	4.66	-11.74	16.76
GDP Growth	51,264	0.44	0.99	-12.40	5.78
P. Debt	48,336	61.14	37.36	2.130	208.1
Election post 90	47,867	0.0876	0.283	0	1
Election prior 90	47,867	0.0899	0.286	0	1
Change post 90	47,867	0.0448	0.207	0	1
Change prior 90	47,867	0.0460	0.210	0	1
Re-election post 90	47,867	0.0405	0.197	0	1
Re-election prior 90	47,867	0.0415	0.200	0	1
Finmin post 90	47,867	0.0865	0.281	0	1
Finmin prior 90	47,867	0.0806	0.272	0	1

Figure 1 illustrates the co-movements of the VIX and the mean SCDS spread of the whole sample. There are large increases in the VIX when there are major economic events, such as the global financial crisis in 2008, the European sovereign debt crisis in 2010 and the fear of Greece leaving the EMU in 2011. These events have simultaneously also been a trigger for the spreads. However, it is evidently not just major economic events that cause simultaneous fluctuations in VIX and SCDS spreads. As shown in figure 1, these measures tend to co-move quite accurately over time. VIX is therefore an adequate variable in order to capture large as well as small global shocks that also affect the spreads. The dotted line corresponds to the VIX and the solid line corresponds to the mean SCDS spreads of the whole sample.

Figure 1: The VIX and Mean of SCDS Spreads

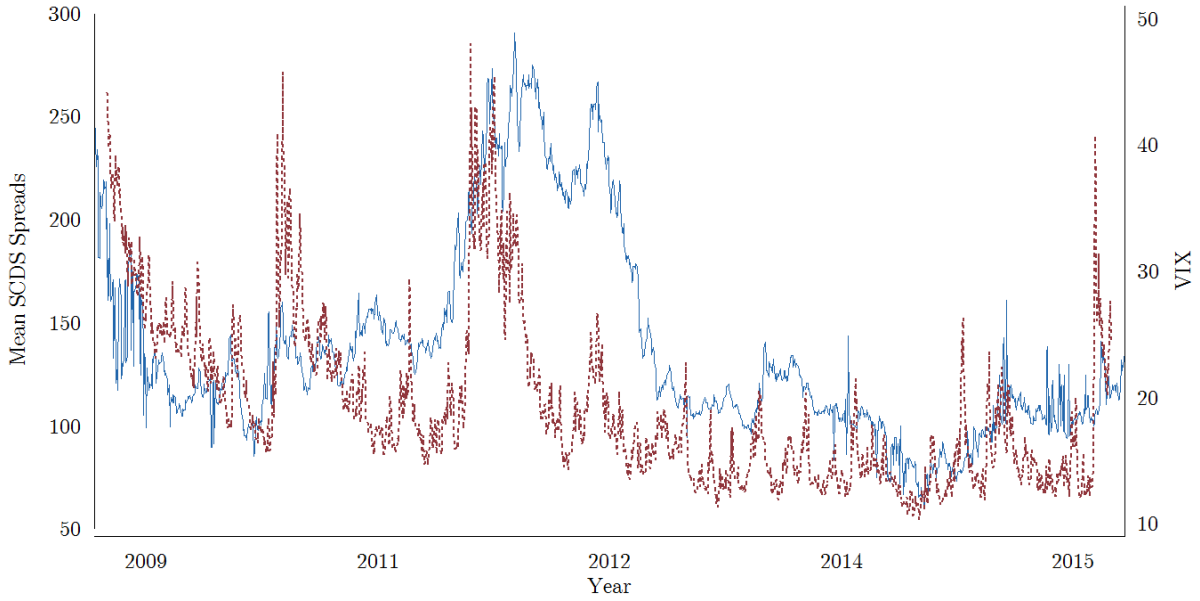


Table 2 shows the correlation between the different control variables and the dependent variable. It is important to examine the behavior of our control variables, especially since we conduct normal cubic spline interpolations on current account balance, GDP growth and public debt to GDP. Since these are quarterly data interpolated on a daily basis it is crucial that these variables behave in a way that is in line with previous studies (Li et al., 2013; Aizenman et al., 2013; Longstaff et al., 2011; Balding, 2011). The SCDS spread is negatively correlated with current account balance and GDP growth, while the relationship is opposite in terms of public debt and VIX. It is also evident that respective independent variable has the strongest linear dependency with SCDS spread and not to any other variable. The latter implies that multicollinearity is not an issue.

Table 2: Correlation matrix of interpolated variables and the SCDS spread

Variables	SCDS spread	CA Bal.	GDP Growth	Public Debt	VIX
SCDS spread	1.000				
CA	-0.235	1.000			
GDP Growth	-0.225	-0.092	1.000		
Public Debt	0.129	-0.056	-0.112	1.000	
VIX	0.249	-0.080	-0.091	-0.083	1.000

5 Results

In this section we present estimations to test the hypotheses described in the model specification section. The first part concerns elections, the second re-election and government change and the third finance minister change. Finally, we conduct robustness tests in order to test the significant results. Figures of lesser importance are not presented in this section but can be found in the appendix.

5.1 The effect of elections on SCDS spreads

Table 3 shows the effect of elections on SCDS spreads 30, 60 and 90 days prior to the event. None of the estimations yield any significant results in either time span dummy. The null hypothesis, that general elections have no impact on SCDS spreads, can therefore not be rejected. Hence, there is no common pattern in investor behavior prior to elections. The control variables are well behaved and have the expected signs. *VIX* and *Public debt* have a positive impact on the SCDS spread in all specifications, while GDP Growth has a negative impact. The estimated effects are significant at the one (*VIX* and *GDP Growth*) and five (*P. Debt*) percent level respectively. *CA* is insignificant in all specifications.

Table 3: Effect of elections on SCDS spreads prior to election

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.054***	0.0214***	3.044***	0.0214***	3.041***	0.0214***
	(0.367)	(0.00166)	(0.370)	(0.00166)	(0.373)	(0.00168)
GDP Growth	-36.88***	-0.152***	-36.88***	-0.152***	-36.96***	-0.153***
	(9.902)	(0.0323)	(9.909)	(0.0324)	(9.899)	(0.0324)
CA	1.586	0.0103	1.601	0.0104	1.599	0.0104
	(3.348)	(0.0140)	(3.341)	(0.0140)	(3.337)	(0.0140)
P. Debt	1.249**	0.00773**	1.256**	0.00776**	1.269**	0.00783**
	(0.583)	(0.00360)	(0.584)	(0.00360)	(0.587)	(0.00360)
Election prior 30	9.371	0.0433				
	(10.39)	(0.0426)				
Election prior 60			11.97	0.0569		
			(11.37)	(0.0454)		
Election prior 90					13.25	0.0693
					(12.19)	(0.0467)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.277	0.459	0.277	0.459	0.278	0.460
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4 shows the effect of elections on SCDS spreads post the event. The result is similar to the previous estimation, as there is no significant shift in SCDS spreads in either time span dummy following an election. Even though there is significance at the 10 percent level for the 90-day period after the election (see table 5), it is not sufficient to conclude that there is an upward shift in the SCDS spreads following an election.

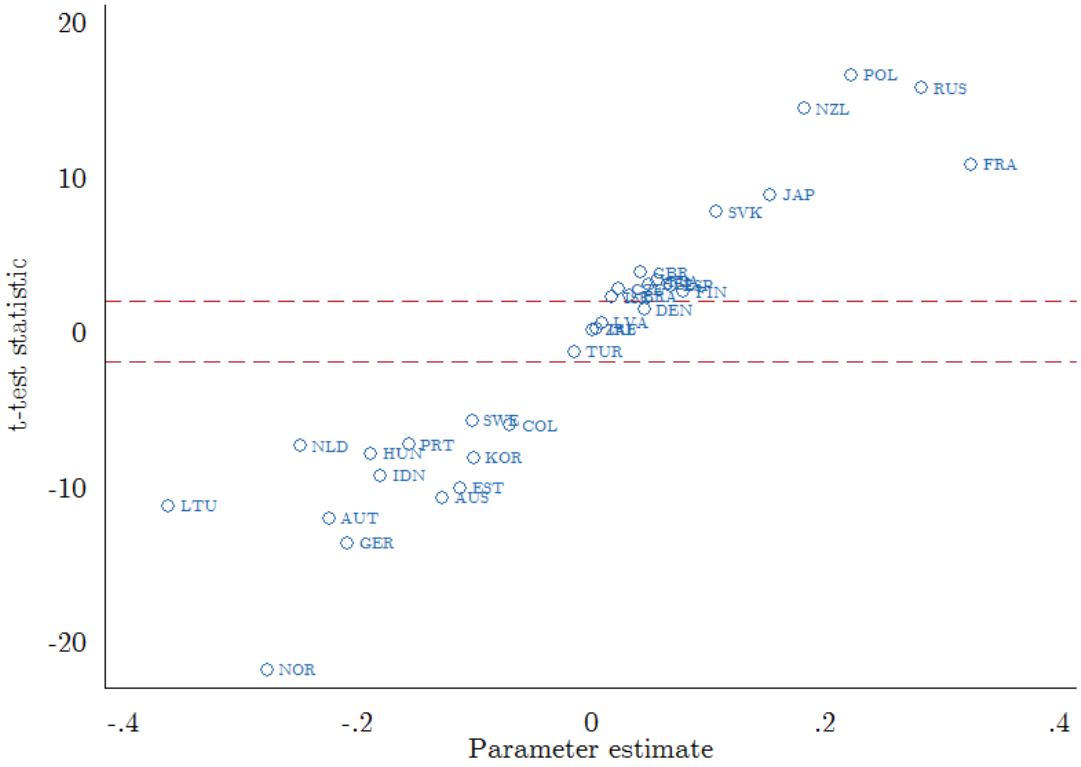
Table 4: Effect of elections on SCDS spreads post election day

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.058***	0.0215***	3.055***	0.0215***	3.046***	0.0214***
	(0.365)	(0.00166)	(0.366)	(0.00166)	(0.364)	(0.00165)
GDP Growth	-36.84***	-0.152***	-36.77***	-0.152***	-36.76***	-0.152***
	(9.896)	(0.0323)	(9.893)	(0.0324)	(9.891)	(0.0324)
CA	1.609	0.0104	1.701	0.0106	1.817	0.0110
	(3.344)	(0.0140)	(3.327)	(0.0140)	(3.307)	(0.0139)
P. Debt	1.247**	0.00772**	1.244**	0.00771**	1.241**	0.00770**
	(0.583)	(0.00361)	(0.583)	(0.00361)	(0.583)	(0.00362)
Election post 30	10.74	0.0398				
	(9.580)	(0.0394)				
Election post 60			15.87	0.0473		
			(10.52)	(0.0402)		
Election post 90					20.18*	0.0624
					(11.78)	(0.0415)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.277	0.459	0.278	0.459	0.280	0.460
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 2 shows the *election post 90* coefficients based on individual OLS regressions for each country, using the logarithm of the SCDS spread. Elections seem to have heterogeneous effect, since the spread of the coefficients above and below the dotted significance line indicates that there is no common build-up of credit risk post elections. Both periphery countries and core countries of the European Union and the other countries in the sample exhibit different signs, indicating that regions cannot explain the spread in the estimates. Countries with positive parameter estimates exhibit, in general, lower magnitude than countries with negative parameter estimates. However, the positive point estimates seem to have a higher spread than the negative point estimates, which is illustrated by countries such as France, Russia and Poland.

Figure 2: Individual coefficients of *election post 90*



Note: The dotted lines correspond to a t-value of ±1.96.

5.2 The effect of re-elections and government changes on SCDS spreads

Table 5 shows the effect of re-elections on SCDS spreads prior to the event. None of the three different time span dummies exhibit any statistical significance at the five percent level. Hence, there seems to be no build-up of sovereign credit risk in the countries examined. Investors might anticipate re-elections and believe that the policies relating to the financial market will remain in place, thus not reacting to the outcome. Our second hypothesis, that re-elections would calm the financial market, cannot be confirmed.

Table 5: Effect of re-election on SCDS spreads prior to election

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.065***	0.0215***	3.067***	0.0215***	3.067***	0.0215***
	(0.361)	(0.00165)	(0.361)	(0.00165)	(0.362)	(0.00165)
GDP Growth	-36.92***	-0.152***	-36.91***	-0.152***	-36.92***	-0.153***
	(9.895)	(0.0322)	(9.888)	(0.0322)	(9.882)	(0.0322)
CA	1.463	0.0106	1.465	0.0106	1.468	0.0107
	(3.354)	(0.0140)	(3.354)	(0.0140)	(3.353)	(0.0140)
P. Debt	1.257**	0.00764**	1.257**	0.00764**	1.257**	0.00766**
	(0.584)	(0.00360)	(0.584)	(0.00359)	(0.584)	(0.00361)
Re-election prior 30	-5.762	-0.0148				
	(7.420)	(0.0488)				
Re-election prior 60			-2.982	0.00132		
			(6.902)	(0.0516)		
Re-election prior 90					-0.708	0.0301
					(7.300)	(0.0524)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.277	0.459	0.277	0.459	0.277	0.459
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6 shows the effect of re-elections on SCDS spreads post the event. None of the three time span dummies exhibit any statistical significance at the five percent level, thus the second hypothesis cannot be rejected. It therefore seems that investors do not exhibit any change in behavior when the re-election of a government is confirmed.

Table 6: Effect of re-election on SCDS spreads post election

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.058***	0.0215***	3.053***	0.0214***	3.055***	0.0214***
	(0.359)	(0.00166)	(0.358)	(0.00168)	(0.359)	(0.00168)
GDP Growth	-36.99***	-0.153***	-37.00***	-0.153***	-36.96***	-0.153***
	(9.895)	(0.0322)	(9.891)	(0.0322)	(9.895)	(0.0322)
CA	1.436	0.0105	1.416	0.0103	1.424	0.0103
	(3.353)	(0.0140)	(3.355)	(0.0140)	(3.355)	(0.0140)
P. Debt	1.256**	0.00763**	1.255**	0.00762**	1.255**	0.00762**
	(0.581)	(0.00358)	(0.578)	(0.00357)	(0.579)	(0.00357)
Re-election post 30	-17.82	-0.0800				
	(11.46)	(0.0586)				
Re-election post 60			-14.69	-0.0801		
			(10.81)	(0.0544)		
Re-election post 90					-8.765	-0.0558
					(9.464)	(0.0494)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.277	0.459	0.277	0.459	0.277	0.459
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7 shows the effect of government changes on SCDS spreads prior to the event. There is no significant effect on SCDS spread in any of the time span dummies at the five percent level. It therefore seems that investors do not alter their risk assessment prior to a government change. Thus, the hypothesis that government change causes the SCDS spread to increase cannot be rejected when examining the effect prior to the event.

Table 7: Effect of government change on SCDS spreads prior to election

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.039***	0.0214***	3.033***	0.0214***	3.046***	0.0214***
	(0.372)	(0.00167)	(0.374)	(0.00168)	(0.372)	(0.00168)
GDP Growth	-36.86***	-0.152***	-36.78***	-0.152***	-36.79***	-0.152***
	(9.901)	(0.0322)	(9.899)	(0.0321)	(9.886)	(0.0320)
CA	1.501	0.0108	1.515	0.0108	1.501	0.0108
	(3.344)	(0.0140)	(3.343)	(0.0140)	(3.346)	(0.0140)
P. Debt	1.258**	0.00764**	1.265**	0.00767**	1.280**	0.00773**
	(0.582)	(0.00359)	(0.579)	(0.00358)	(0.577)	(0.00357)
Change prior 30	20.03	0.0791				
	(16.96)	(0.0660)				
Change prior 60			22.88	0.0913		
			(18.94)	(0.0686)		
Change prior 90					23.73	0.0915
					(20.10)	(0.0710)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.277	0.459	0.278	0.460	0.279	0.460
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8 shows the effect of government changes on SCDS spreads post the event. The effect of a government change after an election is significant for all time span dummies. However, the post 30-day effect of a government change is only significant at the 10 percent level when estimating with the linear SCDS spread as the dependent variable. In all other estimations the effect is significant at the 5 percent level, which means that we can reject the null hypothesis and confirm that there is an upward shift in credit risk after a government change. The effect seems to increase with time, which means that investors have a higher willingness-to-pay for SCDS's as time passes. The estimated average increase of the SCDS spread in the first 30 days is approximately 14 percent. For 60 and 90 days, the SCDS spread increases by roughly 16 (42.6 basis points) and 17 (45.7 basis points) percent respectively.

Table 8: Effect of government change on SCDS spreads post election

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.027***	0.0214***	2.999***	0.0213***	2.966***	0.0211***
	(0.367)	(0.00168)	(0.365)	(0.00169)	(0.360)	(0.00172)
GDP Growth	-36.86***	-0.152***	-36.79***	-0.152***	-36.78***	-0.152***
	(9.869)	(0.0321)	(9.831)	(0.0320)	(9.812)	(0.0320)
CA	1.560	0.0110	1.685	0.0114	1.808	0.0119
	(3.340)	(0.0140)	(3.329)	(0.0139)	(3.312)	(0.0139)
P. Debt	1.253**	0.00762**	1.240**	0.00757**	1.227**	0.00753**
	(0.579)	(0.00359)	(0.567)	(0.00357)	(0.555)	(0.00355)
Change post 30	34.83*	0.137**				
	(17.32)	(0.0601)				
Change post 60			42.62**	0.156**		
			(20.32)	(0.0615)		
Change post 90					45.69**	0.166**
					(21.98)	(0.0616)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.278	0.460	0.281	0.461	0.285	0.463
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 3 shows the *change post 90* coefficients based on individual OLS regressions for each country, using the logarithm of the SCDS spread. The heterogeneity is large when regressing on individual country level and the figure shows that government change does not always increase credit risk. Given that *change post 90* is significant at the five percent level in the aggregate model in table 8, the individual coefficients presented in this figure seems contradictory. However, the coefficients in this figure are based on individual OLS regression with relatively few observations. Thus, there might be some bias in the estimator due to the time-invariant heterogeneity of the countries.

Figure 3: Individual coefficients of *change post 90*

Note: The dotted lines correspond to a t-value of ±1.96.

5.3 The effect of finance minister changes on SCDS spreads

Table 9 shows the effect of a finance minister changes on SCDS spreads prior to the event. There is no significant effect in either time span dummy at the five percent level. When using linear SCDS spreads there is a significant upwards shift, but only at the 10 percent level. This relationship breaks down when using the logarithm of SCDS spreads, which indicates that the results are not robust to different specifications. The hypothesis that finance minister change causes an upward shift in the SCDS spread prior to the appointment cannot be rejected.

Table 9: Effect of finance minister appointment on SCDS spreads, prior to event

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.041***	0.0214***	3.035***	0.0214***	3.033***	0.0214***
	(0.355)	(0.00167)	(0.357)	(0.00167)	(0.358)	(0.00168)
GDP Growth	-36.74***	-0.152***	-36.63***	-0.151***	-36.55***	-0.151***
	(9.887)	(0.0321)	(9.868)	(0.0319)	(9.871)	(0.0318)
CA	1.464	0.0106	1.466	0.0106	1.459	0.0106
	(3.361)	(0.0140)	(3.363)	(0.0140)	(3.362)	(0.0140)
P. Debt	1.264**	0.00766**	1.275**	0.00769**	1.291**	0.00775**
	(0.584)	(0.00359)	(0.582)	(0.00358)	(0.579)	(0.00357)
Finmin prior 30	19.89*	0.0511				
	(9.884)	(0.0459)				
Finmin prior 60			20.19*	0.0590		
			(10.06)	(0.0460)		
Finmin prior 90					19.25*	0.0615
					(9.953)	(0.0464)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.278	0.459	0.279	0.459	0.279	0.460
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 10 shows the effect of finance minister changes on SCDS spreads post the event. The average shift in SCDS spreads increases over time and has both the largest significance and magnitude 90 days after the minister change. All estimates are at least significant at the 5 percent level, while the 90-day dummy, using the logarithm of the SCDS spread, is significant at the 1 percent level. The estimated average increase of the SCDS spread in the first 30 days is approximately 11 percent (32.2 basis points). For 60 and 90 days, the SCDS spread increases by roughly 12 (33.5 basis points) and 14 (36.7 basis points) percent respectively.

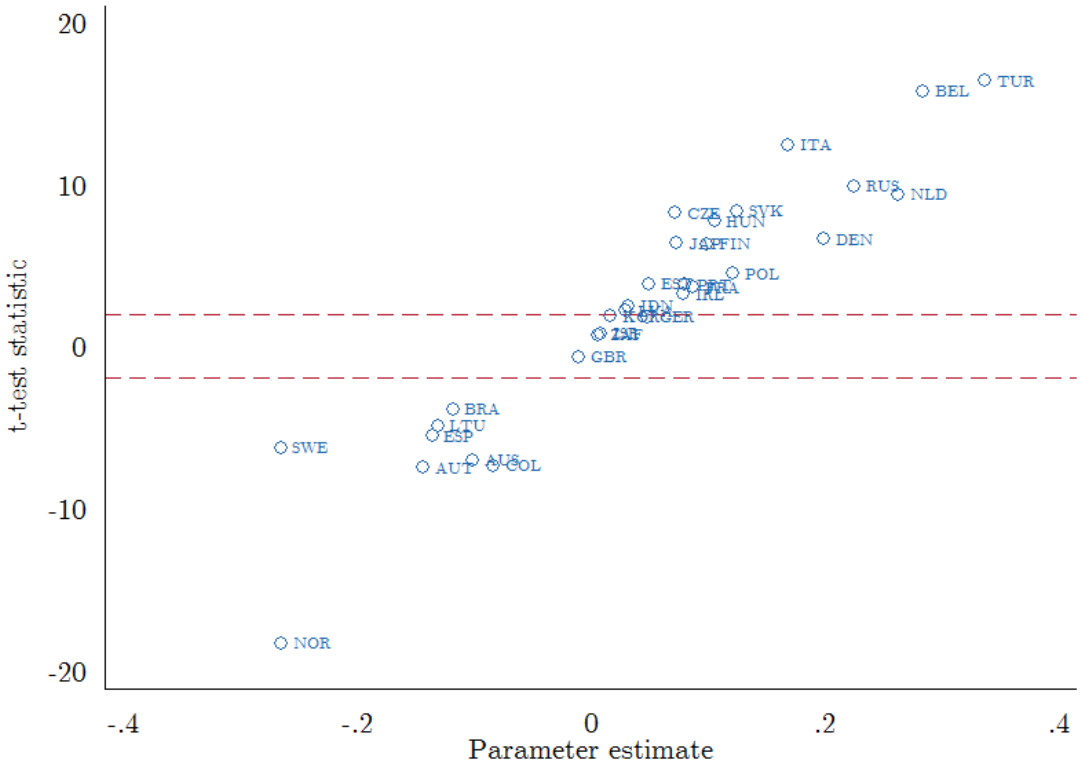
Table 10: Effect of finance minister appointment on SCDS spreads, post event

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.025***	0.0214***	2.987***	0.0212***	2.971***	0.0211***
	(0.352)	(0.00167)	(0.343)	(0.00170)	(0.335)	(0.00170)
GDP Growth	-36.67***	-0.151***	-36.54***	-0.151***	-36.51***	-0.151***
	(9.830)	(0.0320)	(9.760)	(0.0317)	(9.679)	(0.0313)
CA	1.480	0.0107	1.455	0.0106	1.410	0.0104
	(3.364)	(0.0140)	(3.368)	(0.0140)	(3.363)	(0.0139)
P. Debt	1.260**	0.00765**	1.272**	0.00769**	1.292**	0.00777**
	(0.580)	(0.00358)	(0.574)	(0.00356)	(0.568)	(0.00353)
Finmin post 30	32.18**	0.112**				
	(12.37)	(0.0486)				
Finmin post 60			33.51**	0.123**		
			(12.86)	(0.0498)		
Finmin post 90					36.69**	0.144***
					(13.80)	(0.0501)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
R-squared	0.279	0.460	0.282	0.462	0.286	0.465
Number of id	32	32	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 4 shows the *Fin min post 90* coefficients based on individual OLS regressions for each country, using the logarithm of the SCDS spread. Compared to the other two figures, figure 2 and 3, the effect of finance minister change is not as heterogeneous between the countries in our sample. After a finance minister change there seems to be a general increase in SCDS spreads, given that the majority of coefficients are in the upper part of the graph.

Figure 4: Individual coefficients of *Finmin post 90*



Note: The dotted lines correspond to a t-value of ±1.96.

5.4 Robustness tests

In this section we present alternative specifications in order to test if our significant results are robust to changes in sample or control variables. Specifically, the reason for doing this is to establish that the upward shift in both finance minister change and government change are robust.

A correlation matrix is presented in table 11, which shows the degree of correlation between finance minister appointments and government change. The objective of this matrix is to ensure that these two events are not perfectly correlated. If a government change takes place there is a high likelihood of a finance minister change, inducing correlation between the two dummies. All finance minister appointments does not take place solely because of a change of government, thus the correlation is not that large. Further, it takes time for a government to take their place in office and therefore there are some lag between the two dummies, decreasing the correlation.

Table 11: Correlation matrix

Variables	Finmin post 90	Change post 90
Finmin post 90	1.000	
Change post 90	0.249	1.000

We include both government and finance minister change in the same regression. The objective is to examine whether a government change drives the significant results of finance minister change or vice verse. We use the time span of 90 days both prior to and after the government change and finance minister appointment. Table 12 shows the results of this regression, where both of our dummies are still significant after the day at which the change was made. It is still insignificant prior to the event, thus it seems that investors do not alter their risk assessment until after the change has taken place. Government change in the linear specification is now significant only at the 10 percent level contrary to the five percent level in the previous specification. However, the logarithmic specification is still significant at the 5 percent level, albeit with a lower magnitude. Finance minister change is still significant at the 5 percent level in the linear specification, but the significane level is lower in the logarithmic specification (compared

to table 10). Further, finance minister change has a lower magnitude in this specification, which could be attributed to the fact that there is some correlation between government and finance minister change, as shown in table 11.

Table 12: Finance minister change and government change model

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	3.023***	0.0213***	2.908***	0.0209***
	(0.366)	(0.00170)	(0.338)	(0.00174)
GDP Growth	-36.51***	-0.151***	-36.45***	-0.151***
	(9.847)	(0.0317)	(9.639)	(0.0313)
CA	1.566	0.0103	1.764	0.0109
	(3.361)	(0.0140)	(3.323)	(0.0138)
P. Debt	1.292**	0.00787**	1.253**	0.00776**
	(0.570)	(0.00356)	(0.542)	(0.00351)
Change Prior 90	18.06	0.0746		
	(19.83)	(0.0696)		
Finmin Prior 90	15.28	0.0451		
	(9.124)	(0.0443)		
Change Post 90			35.59*	0.125**
			(19.46)	(0.0552)
Finmin Post 90			30.25**	0.121**
			(11.73)	(0.0471)
Year Dummies	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867
R-squared	0.280	0.460	0.291	0.467
Number of id	32	32	32	32

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Previous studies have shown that elections and finance minister appointments have caused a significant upward shift in credit risk for developing economies (Moser et al., 2007; Balding, 2011; Li et al., 2013). Table 13 shows an estimation on only the countries that are considered developed by the UN (2015), to see if a government or finance minister change has any impact on developed economies. The countries that have been removed from the sample are Brazil, Colombia, Indonesia, South Africa and Turkey. The objective of this estimation is to examine whether the countries that are considered developing drive the results upwards, or if both developed and developing economies exhibit similar characteristics with respect to political change. The magnitude of both government and finance minister change 90 days after an election are approximately the same, in comparison to the full sample estimation. However, the significance of both variables increases from the five percent level to the one percent level in the logarithmic case. Prior to removing the developing economies, the finance minister dummy was the only dummy significant at the one percent level. Thus it can be established that finance minister change and government change generate an upward shift in SCDS spreads for developed economies.

Table 13: Government change model, excluding developing economies

Variables	SCDS	ln(SCDS)	SCDS	ln(SCDS)
VIX	2.857***	0.0218***	2.866***	0.0217***
	(0.415)	(0.00193)	(0.384)	(0.00190)
GDP Growth	-39.47***	-0.150***	-39.09***	-0.149***
	(10.12)	(0.0331)	(10.02)	(0.0327)
CA	4.119	0.0300***	3.643	0.0284**
	(3.189)	(0.00990)	(3.272)	(0.0102)
P. Debt	1.072**	0.00723**	1.165**	0.00758**
	(0.508)	(0.00300)	(0.538)	(0.00303)
Change Post 90	47.59**	0.164***		
	(22.35)	(0.0572)		
Finmin Post 90			38.59***	0.148***
			(13.81)	(0.0433)
Year Dummies	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes
Observations	40,372	40,372	40,372	40,372
R-squared	0.336	0.584	0.337	0.586
Number of id	27	27	27	27

HAC robust std. errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

6 Discussion

The insignificant result from table 3 and 4, the effect of elections on SCDS spreads, is contrary to the findings of previous studies that conclude that political events lead to increased sovereign credit risk (Balding, 2011; Li et al., 2013). The most apparent difference from their studies to ours is the group of countries being examined. Their results and conclusions are drawn from a sample consisting exclusively of emerging economies, unlike our sample that consist of predominately developed economies. The political system of the former group is arguably more characterized by weaker political institutions and unstable electoral conditions. Thus, the finding of a negative impact of general election on the creditworthiness of sovereigns may be more reasonable for emerging economies.

An additional viewpoint is that elections at different times and in different countries are quite heterogeneous in nature. For instance, some elections may be very close and difficult to predict, while others are more or less decided in advance. Hence, it is reasonable to assume that a highly expected outcome does not induce higher volatility in the SCDS market, since there is little to no uncertainty prior to the election. Figure 2 displays the heterogeneity in results and indicates that the post 90-day effect of general elections is different between countries, providing an additional insight to the insignificant result. However, the individual regressions imply that elections have a country-specific statistical significant impact on SCDS spreads (negative and positive), as most of the sovereign individual coefficients lie outside the non-rejection region. The number of countries in the group where elections did have a negative impact on the SCDS spreads is larger than the corresponding group with the opposite result. A possible explanation for this occurrence is that an election could be perceived as an opportunity to change political governance, if the incumbent government has little confidence from the public. Another feature is that the parameter estimates are on average larger (in absolute terms) when there is an upward shift compared to a downward shift in the SCDS spread. The latter may suggest that the potential downside of elections is greater than the potential upside in terms of creditworthiness of sovereigns.

The insignificant re-election coefficients are most likely the result of investors knowing or at least suspecting that no major changes in financial policy will take place, thus not

affecting SCDS spreads. Given these results it also seems implausible that a re-election would give such a reassurance regarding the sovereign's fiscal position that it in itself would decrease prices. Therefore, the model that Pástor and Veronesi (2013) introduce does not apply to re-elections in the post-crisis environment of developed economies. Rather, it seems that other factors such as public debt to GDP, the VIX and GDP growth determines the price of the SCDS during such times.

Contrary to the results of re-election, we find that a government change is followed by an upward shift in the SCDS spread. As a newly elected government may have a different view on financial policy and are possibly more inexperienced, an initial increase in the spread is reasonable. Aizenman et al. (2013) argue that a shift in perception related to the Euro zone countries lead to a divergence in SCDS spreads after the European sovereign debt crisis. The authors find that investors put more weight on country specific macroeconomic fundamentals after the crisis, which political events is arguably a part of. The estimated upward shift in SCDS spreads during a government change could be an indication of the perceived difference that Aizenman et al. (2013) find. Another feature is the sovereign debt crisis in itself. Since the countries studied are mostly European and the time horizon involves the turbulent period of this crisis, large fluctuations are more likely because of investors' negative perceptions towards countries ability to pay off their debt.

Another point related to the estimation with government change is that prior to the replacement, no change in SCDS spreads can be distinguished. While it is possible that financial markets would hold off on buying SCDS's in countries about to have a government change, the insignificant result is surprising since the outcome often is known before the election day. A possible explanation for this could be that the effect of a change in government is internalized earlier than the 90 days prior to the election, i.e., in cases of landslide victories, which is not accounted for in the estimation. However, it could also be the case that a more advanced model would capture an effect even prior to the government change. This is unfortunately beyond the scope of our study, but would be an interesting topic for future research.

The results from the regressions related to finance minister change reinforces the phenomena that the financial market assesses political change as a non-beneficial. Our findings are in line with Moser et al. (2007) in the sense that the bond spread increases in relation to the replacement of finance minister. However, Moser et al. (2007) conclude that there is a steady build-up prior to the appointment, and stabilizing on a higher level after the appointment. The relationship based on our estimations is different, where the effect of the appointment is realized after the replacement has occurred. The upward shift is in line in with the findings of Moessinger (2012) and Jochimsen and Thomasius (2014); the inexperience of newly appointed finance ministers increase the risk of budget deficits.

The insignificant results prior to the replacement are reasonable in the sense that a change outside election periods may be difficult to anticipate. Even though the date of replacement may be known a long time in advance, it is often uncertain who the new finance minister will be. Furthermore, the entrant finance minister rarely announce economic polices and plans prior to his or her appointment. Hence, the information availability about the entrant finance minister is scarce, holding off investors' valuations until after the appointment.

The upward shift in SCDS spreads post the event is the effect of the change itself, not controlling for personal characteristics of the finance minister in question (not captured by our model specification). On average, a newly appointed finance minister seems to disrupt the market even if he or she may be more suitable for the job than his or her predecessor. Considering the fact that many of the countries experienced high financial instability during the sovereign debt crisis, a change of leadership could be assessed as an opportunity to change policies and avoid credit defaults. Applying such mindset, it is interesting to draw the parallel to CEO, COB or CFO replacements of firms and consequent stock market behavior. If the firm has experienced poor governance, the stock market generally welcomes announcements of replacement of leaders in the company. This reasoning suggests that a change of finance minister following the crises would cause a downward shift in SCDS spreads. However, our findings imply that a change on average leads to a substantial upward shift in the spreads.

An interesting feature that is related to the results of both government change and finance minister change are the gradual increases in the coefficients over time. It seems unlikely that this increase holds throughout the incumbency, but further investigation on this matter is beyond the scope of this study.

Five-year SCDS spreads correspond to the market assessment of sovereign credit worthiness in the coming five-year period. Hence, investors base their judgments on their long-term expectations, not only the short period that follows the change of government or finance minister. The magnitude of the upward shift attributable to political events is large in comparison to other macroeconomic fundamentals, which could reflect a temporary overreaction that is gradually reduced over time. Many of the countries experienced financial distress due to the sovereign debt crises, therefore the belief of an overreaction seems plausible as countries who exhibit financial vulnerability is affected to a higher extent than more stable countries (Moser et al., 2007).

7 Conclusion

In this study, we have estimated the effects of major political events on sovereign credit risk measured by SCDS spreads. We conclude that general elections and re-elections have no significant effect on sovereign credit risk, while government change and finance minister appointment on average cause an upward shift in the spreads.

In terms of the effect of election itself, we found that there is no general increase in SCDS spreads prior to or post the event. The individual regressions show that there are significant shifts in the spreads in most cases, but the effect is heterogeneous. If there is an increase in a single country SCDS spread following an election, it is quite large, while it is relatively small if there is a decrease in a country's spread. However, as explained in the model specification section, these estimated coefficients are prone to inconsistency due to the addition of possible individual time-invariant characteristics of each country. The result is different from that of Balding (2011), which most probably have to do with the countries examined. The sample in his study consists exclusively of emerging economies, while our sample is predominately represented by developed economies.

Re-elections, on average, do not have any impact on the SCDS spreads, while government changes lead to an average increase in the spreads. This result implies that the financial market usually perceive a government change to weaken the creditworthiness of a country. In fact, a government change yields an estimated average increase in the spread of about 16 percent (45 basis points) during the 90 days after the election. A similar conclusion is reached when testing for finance minister change, the estimated average increase in the spread is roughly 14 percent (36 basis points) during the 90 days following the replacement of a finance minister. We therefore conclude that a change of governance has a deteriorating effect on the creditworthiness of countries, as perceived by the financial market.

This paper contributes to previous research in the field of sovereign credit risk as it identifies major political events to have significant impact on SCDS's. More specifically, it shows that developed economies experience higher credit risk following government and finance minister change. In general, our findings are contributory to the field of economics and the interaction between political events and financial market behavior. Additionally, our findings are of interest to both future government officials and investors. Since the market in general reacts badly to a change in government, it would be beneficial to have a clear and trustworthy agenda regarding the future policy decisions that might have a positive effect on the financial environment. If there is no such agenda to declare, the findings of this paper display essential features of the financial market to be aware of and take into account. From an investor's viewpoint, an optimal strategy would be to engage in a SCDS contract prior to an election that seems to result in a government change. In other words, the buyer of the swap may be forced to pay a higher insurance premium after an election, even though major macroeconomic fundamentals are unaffected.

It is reasonable that elections in general have an effect on SCDS spreads, but neither the model nor the time frame we have investigated capture the effect. Therefore, our suggestion for venues of future research would be to take winning margin into account, or polls conducted before the election to capture market expectation of the final outcome. Elections outcomes that have been easy to anticipate are less likely to generate a shift in the spread. Hence, a model that takes this feature into account, such as including winning margin or poll results, would be an interesting extension to this study. Other

possible extensions would be to investigate the underlying factors driving the impact of government and finance minister change on SCDS spreads. A different model specification that captures the performance and tenure of the previous finance minister and the personal characteristics of the new finance minister would most likely increase the precision of the estimates. Additionally, a natural extension to this paper would be to investigate the persistence of the increases in government and finance minister change and when the possible turning point might be. Finally, since SCDS's are a relatively new measure in terms of determining credit risk, a study similar to this can be conducted when additional business cycles have taken place. This would include periods where the global economic markets are not as volatile as the period we have examined in this paper.

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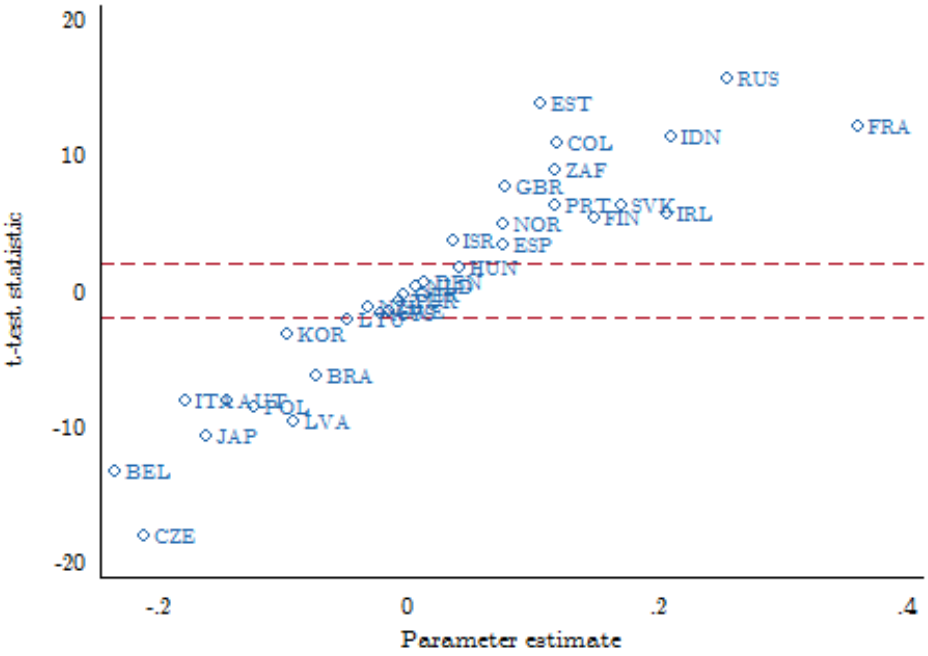
9 Appendix

Table 14: List of countries

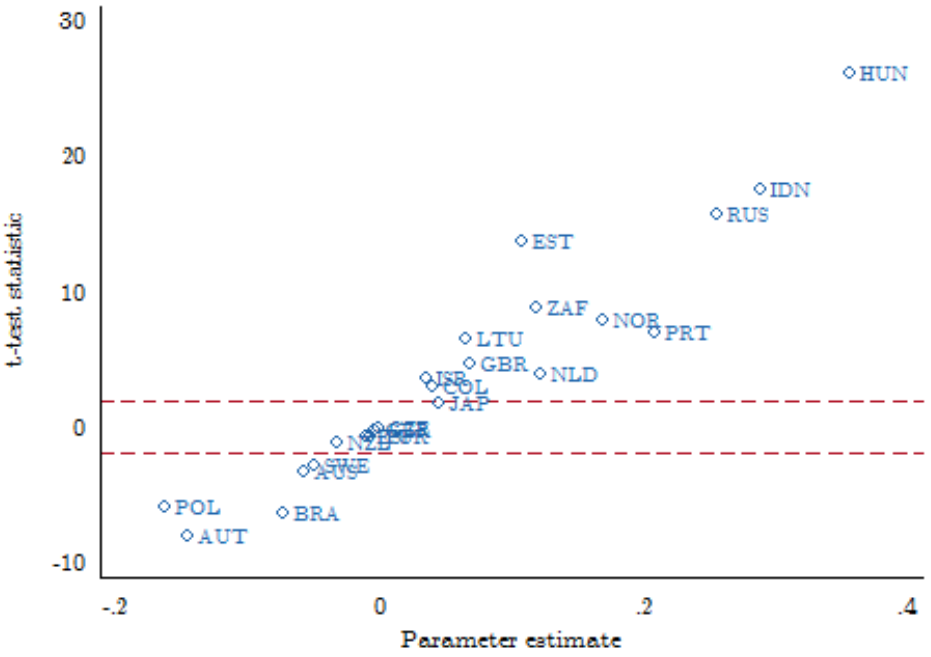
Argentina	Australia	Austria	Belgium
Brazil	Colombia	Czech Republic	Denmark
Estonia	Finland	France	Germany
Hungary	Indonesia	Ireland	Israel
Italy	Japan	Latvia	Lithuania
Netherlands	Norway	New Zealand	Poland
Portugal	Russia	Slovakia	Sweden
Turkey	South Africa	Spain	United Kingdom

Figure 5: Individual coefficients of *Election prior 90*



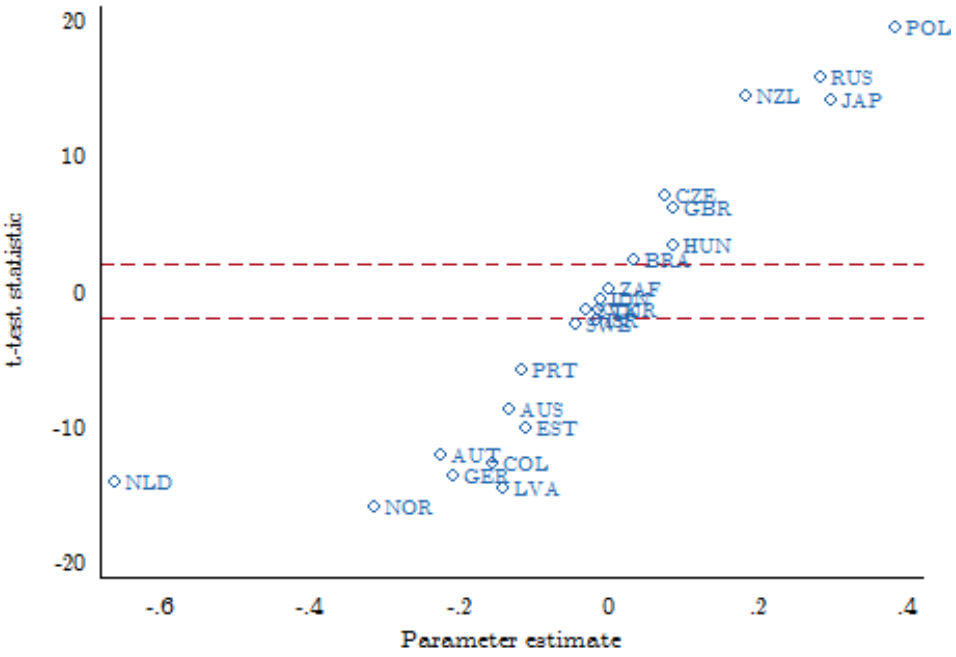
Note: The dotted lines correspond to a t-value of ±1.96.

Figure 6: Individual coefficients of *Re-elction prior 90*



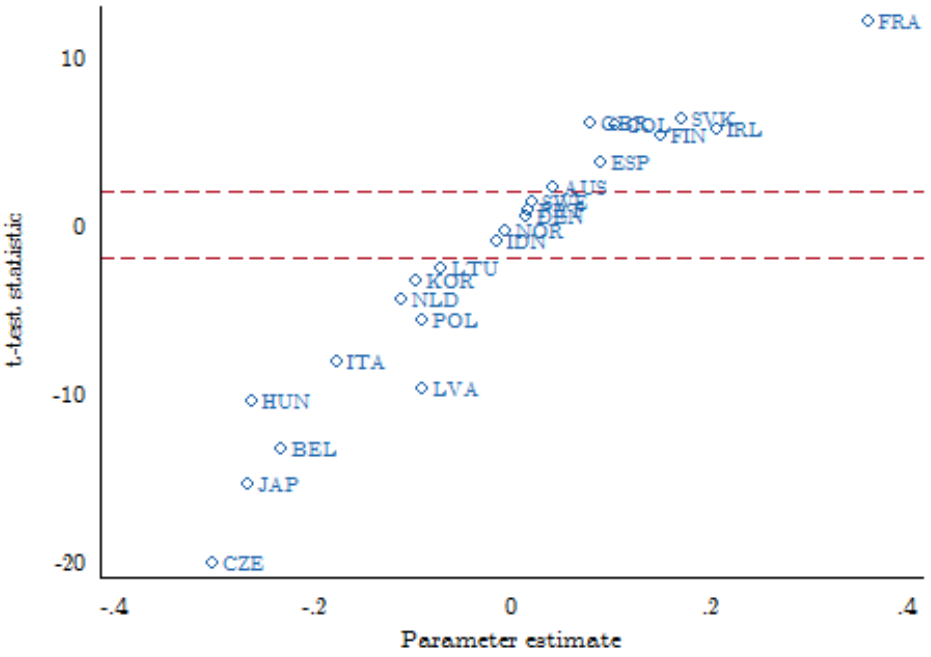
Note: The dotted lines correspond to a t-value of ±1.96.

Figure 7: Individual coefficients of *Re-election post 90*



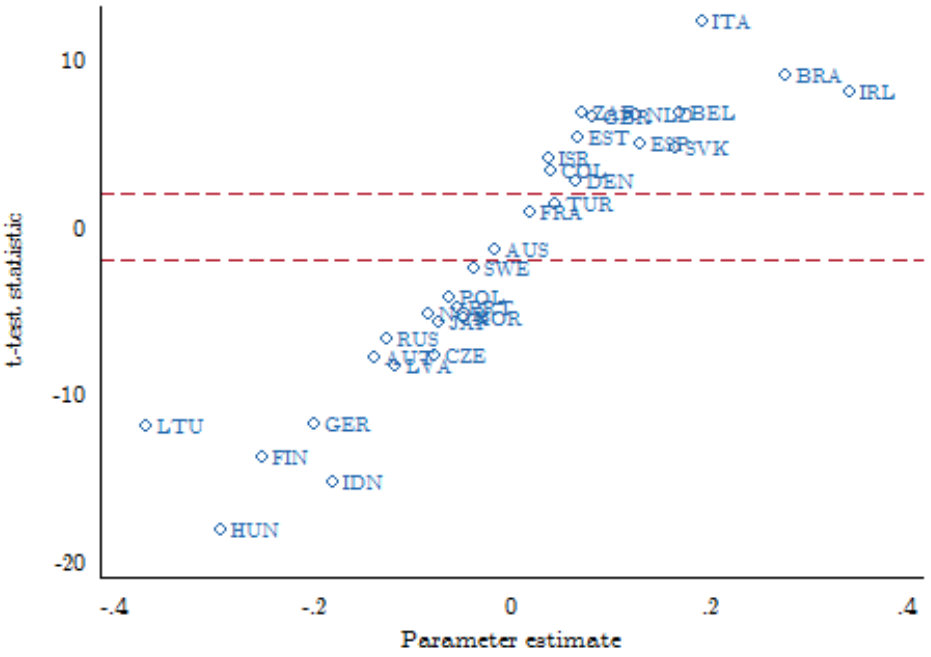
Note: The dotted lines correspond to a t-value of ±1.96.

Figure 8: Individual coefficients of *Change prior 90*



Note: The dotted lines correspond to a t-value of ±1.96.

Figure 9: Individual coefficients of *Finmin prior 90*



Note: The dotted lines correspond to a t-value of ±1.96.