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The Impact of Political Risk on Sovereign Bond Spreads - Evidence from Latin America*

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Abstract

Sovereign risk is defined as a country's ability-to-pay and willingness-to-pay its debt. This paper examines how cabinet reshuffles affecting the ministry of finance or economics are perceived by sovereign bond holders in twelve Latin American countries from 1992 to 2007. We find that such political news instantaneously increases bond spreads. Furthermore, spreads trend significantly upward in the 40 days leading up to the minister change, before flattening out on a higher level in the 40 days thereafter. Evidence suggests that uncertainty about the future course of economic policy and the government's willingness-to-pay increases refinancing costs for respective emerging markets.

JEL classification: F30, F34, G14, H63.

Keywords: political instability, country risk, bond spreads, Latin America.

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1 Introduction

Finance Minister Roberto Lavagna's unexpected departure has highlighted tensions within the government of President Nestor Kirchner, and raises questions over the sustainability of its conservative fiscal policy [..] fiscal discipline is under strain, with pressure for more spending from populist politicians.[1]

Political events matter to financial markets and the literature on sovereign debt motivates a link between political risk and sovereign risk. Eaton and Gersovitz (1981) famously distinguish between a country's ability-to-pay and a country's willingness-to-pay its debt. Since sovereign debt repayment can hardly be enforced legally in case of payment arrears, the honoring of contractual obligations becomes a matter of cost-benefit calculus for the incumbent government. If the costs of repayment outweigh the benefits of repayment, the debtor country will interrupt its debt servicing. While some recent studies find evidence for an influence of political variables on financial vulnerability and sovereign defaults,[2] the decision to default on sovereign debt finally boils down to a political decision at the executive level.

Beyond structural political variables, the financial press suggests that political news are a major influence on financial markets. This view finds support in the academic literature, especially for emerging market economies during financial crises. Kaminsky and Schmukler (1999) find that nearly one fifth of the largest stock price movements during the Asian crisis were associated with news of political nature. Zoli (2005) finds Brazilian government announcements to raise the public sector surplus as well as concrete fiscal policy actions, such as budgetary cuts, implied a reduction in the perceived risk of default during the "confidence crisis" in 2002-03. Baig et al. (2006) extend the mentioned analysis and observe similar results for Poland and mixed results for Turkey.

[1] Financial Times (2005).

[2] The political variables considered are often of an institutional nature and change slowly over time, e.g. parliamentary system, political polarization, political elections and number of veto players. See for instance Bussiere and Mulder (2000), Van Rijckeghem and Weder (2004), Manasse et al. (2003) and Kohlscheen (2004).

The literature on the political (-economy) dimension of borrowing and debt repayment is quite limited so far. One notable exception are Aizenman and Powell (1998), who model governments as a set of competing groups. The authors argue that in the absence of a strong center (finance ministry) collective action problems can lead to a very low public savings rate and a high borrowing rate, respectively. In a similar vein, Santiso (2003) stresses that finance or economics ministers are playing a pivotal role for emerging market governments by communicating with international financial markets and ensuring market confidence.[3] Finally, Baecker (1999) states that changing governments or even changing moods within a government can suffice to change a country's debt servicing stance.

This paper argues that finance or economics minister changes may reveal important signals for market participants about the government's future policy course. In particular, a finance minister change may implicitly or explicitly signal a marginal change in the government's willingness-to-pay by altering its expected fiscal policy stance. This channel touches directly on the perceived probability of default of a sovereign bond. More indirectly, an economics minister change may alter expectations about the future growth potential of a country, affecting a country's ability to service its debt. Following the efficient market hypothesis, asset prices should always reflect all information publicly available. Hence, if a minister change offers new information, asset prices are expected to adjust instantly. Ganapolsky and Schmukler (2001) investigate the reaction of capital markets to Argentine policy announcement and news reports during the „Tequila crisis" and find a negative short-term effect on bond prices due to the replacement of Argentine's finance minister Domingo Cavallo, the renowned, long-serving architect of the (once successful) Argentine currency board. Nogues and Grandes (2001) also find a „Cavallo-effect" as exemplified in higher bond spreads. But both examples are confined to a single, well-known finance minister change.

[3]The exact wording of the quote is as follows, „*One basic rule of the confidence game [in international financial markets] is then to be very careful when nominating the official government voicer. For investors it is mainly the ministry of economics or finance or the governor of the central bank. He will be chosen not only for his or her political and technical abilities but also for his capacities to play the game that is to ensure market confidence and strengthen market loyalty.*"

This study contributes to the empirical literature on sovereign risk in two ways. First, we provide evidence for the impact of political risk, measured as political instability within the government, on sovereign bond markets.[4] We examine whether financial markets are sensitive to political instability stemming from cabinet changes involving key policy makers like the finance or economics minister. Daily bond spreads and a newly-collected data set for twelve Latin American economies over the period 1992 to 2007 allow us testing for changes in the level of bond spreads in the short run. Second, this paper sheds light on a country's willingness-to-pay and, hence, the political dimension of sovereign risk, since in particular finance minister changes may convey important signals about the future fiscal policy course.

The paper's main findings are as follows. We find evidence that financial markets are indeed susceptible to political instability in Latin America. First, we find a statistically significant contemporaneous effect of the minister change on bond spreads on the announcement day. Second, mean-comparison tests show that sovereign bond spreads are significantly higher in the 40 days before compared to the 40 days after the political event. This significant level-effect holds true for the overall sample as well as for the crisis and non-crisis sub-samples. Third, bond spreads exhibit a significant upward trend in the run-up and flatten out on a higher level in the aftermath of the cabinet change. Interestingly, countries that already signal some vulnerability, with secondary market spreads trading above 1000 basis points, turn out to be particularly affected by such government instability. We conclude that bond holders are apparently sensitive to signals within the government that may warrant a new fiscal policy and willingness-to-pay assessment.

The remainder of this paper: Chapters 2 and 3 provide a review of the relevant literature and discuss why political instability is expected to impact sovereign bond prices. Chapters 4 and 5 describe the empirical strategy and results. Conclusions follow.

[4]To our best knowledge no systematic study on the link between government instability and financial markets has been pursued so far. Reasons for this clear lack of cross-country evidence are twofold. On the one hand, factors associated with political risk are of qualitative nature and consequently hard to quantify. On the other hand, even though the relatively recent "Database of Political Institutions" offers data on political and institutional features (for further details, see Beck et al., 2001), the availability of reliable data is still very limited. In contrast to that we are interested in political events that shape the expectations of market participants in the short run.

2 Review of the literature

The literature relevant to our research question spans from the sovereign risk literature, financial crises theories and bond literature to financial markets studies that deal with announcement effects.

Political risk constitutes an important determinant of country risk. For our purposes we follow Bilson et al. (2001), who define political risk as "the risk that arises from the potential actions of governments and other influential domestic forces, which threaten expected returns on investment."[5] If the financial obligation is issued by a sovereign entity, creditors face sovereign risk. Eaton and Gersovitz (1981) were the first to stress an important characteristic of sovereign debt. Sovereign defaults are determined not only by the country's *ability-to-pay* but also by its *willingness-to-pay* its debt due to limited international enforceability in case of payment arrears.[6] Lee (1991) and Nunnenkamp and Picht (1989) empirically test whether rescheduling events can be explained by the willingness to pay approach.[7] Even though the determinants of the willingness-to-pay are expected to include institutional and political variables, both studies interestingly only rely on macroeconomic fundamentals that impact the relative costs and benefits of debt-servicing.[8]

Closely linked to political risk is the concept of *political instability,* which is generally defined as the propensity of an imminent government change, either by constitutional (new elections or cabinet crises) or unconstitutional means (coups d'état or revolutions). Several authors study the evolution of bond prices and spreads around government changes via *political elections.*[9] Pantzalis et al. (2000) find posi-

[5]For a survey of definitions of country risk and political risk, see Bouchet et al. (2003, ch. 2).

[6]While most studies restrict their investigation to the first dimension using solvency and liquidity indicators such as the debt-to-GDP ratio, the debt-service-to-exports ratio or the import coverage there is still relatively little known about the second dimension. A noteworthy exception is Kohlscheen (2004) who finds that parliamentary democracies experience a lower probability to default than presidential systems due to a higher number of veto players.

[7]Lee (1993) discusses whether a country's creditworthiness can be explained by its "willingness".

[8]Eaton and Gersovitz (1981) model the willingness-to-pay as a function of macroeconomic volatility. The more volatile a country's income, the more important is its access to international capital markets to smooth consumption over time and the higher the costs associated with default. It is assumed that borrowing only occurs if the country has not defaulted in any period before.

[9]Political instability can negatively affect economic growth and/or investment as shown inter alia by Barro (1991), Alesina et al. (1996) and Alesina and Perotti (1996). For a comprehensive survey on political instability and economics, see Carmignani (2003).

tive abnormal returns in the two weeks prior to the election due to dwindling policy uncertainty. Alternatively, Block and Vaaler (2004) and Vaaler et al. (2005) offer a political business cycle interpretation. They find that bond yields demanded by international bond holders are conditional on the partisan orientation of the incumbent government and its likelihood to stay in power.

The literature on the *determinants of secondary market spreads* dates back to Edwards (1984, 1986) who empirically studies the pricing of public and publicly guaranteed loans and bonds.[10] Boehmer and Megginson (1990) are the first authors that incorporate not only a country's ability but also its willingness to service its debt in their empirical specification. Payment arrears and the cumulative level of U.S. banks' exposure in developing countries, employed as rough proxies for political will, turn out significant. In a recent study on sovereign spreads Ferrucci (2003) asserts that the divergence between market determined spreads and his model-based benchmark might be due to the exclusion of political risk or "willingness-to-pay". In two related papers Mauro et al. (2002, 2006) compare sovereign bond spreads of the first wave of globalization with its counterparts in modern times. The authors find that domestic news exhibit a less pronounced impact on modern bonds including eight emerging markets than on historical ones. Furthermore, bonds tend to co-move more strongly nowadays. Akitoby and Stratmann (2006) assess the influence of fiscal policy on sovereign bond spreads. The results show that cuts in current spending have a significant negative effect on spreads, while increases in tax revenues do not enter significantly. Finally, Dell'Ariccia et al. (2006) offer an important contribution to the hotly debated issue of IMF-induced investor moral hazard, by analyzing sovereign bond market reactions to the unanticipated non-bailout of Russia in 1998. Most studies of this strand of literature are restricted to quarterly or yearly data.

In contrast to that there is a nascent but growing literature on various announcement effects on daily sovereign bond spreads. Several studies find significant short-term reactions to sovereign rating actions and announcements (e.g. Kaminsky and Schmukler, 2002, and Gande and Parsley, 2005). Andritzky et al. (2005) investi-

[10]For a discussion of the determinants of primary bond spreads or so-called "launch spreads" see for instance Eichengreen and Mody (1998), Min et al. (2003) and Kamin and von Kleist (1999).

gate how emerging market bond markets react to macroeconomic announcements. While there is surprisingly no evidence of a systematic effect on the level of spreads (with the exception of rating announcements), announcements induce some market volatility. IMF (2001) explains movements in daily emerging market spreads by U.S. 10-year and 3-month yields, Nasdaq returns as well as the Volatility index (VIX) of the Chicago Board Options Exchange (CBOE), a proxy for global risk aversion. Furthermore, Zoli (2005) and Baig et al. (2006) find some evidence that news on fiscal policy actions and announcements move bond markets in the short run.

Finally, a strand of the *financial crisis* literature incorporates political variables. For instance, Obstfeld (1995) outlines the basic logic of the second generation of financial crisis models. If fundamentals lie in the so-called intermediate range, multiple equilibria and self-fulfilling expectations can occur. Hence, market expectations may determine the equilibrium, opening the door for political variables influencing market sentiment (e.g. Krugman, 1996, and Jeanne, 1997). Bussiere and Mulder (2000) empirically show that political instability has a strong impact on economic vulnerability for countries with weak economic fundamentals and low international reserves. Finally, Chang (2005) has recently presented a theoretical framework that allows for the simultaneous determination of financial crises and political crises.

3 How does political instability feed into bond spreads?

Under the *semi-strong form of the efficient market hypothesis*,[11] security prices are assumed to reflect all public information and to adjust swiftly to the arrival of new public information. Hence, political instability as exemplified by a minister change is expected to affect asset prices, if and only if, the minister change contains new information. If markets fully anticipate the event or an information leakage occurs, prices will not react at all.

[11] Even though empirical evidence is somehow mixed, the semi-strong form of efficient market hypothesis enjoys wide acceptance.

Edwards (1984) expresses in a seminal paper the spread (s) as

$$\mathrm{s} = \frac{\mathrm{pd}}{1 - \mathrm{pd}}(1 + \mathrm{i}^*),$$

where *(pd)* denotes the probability of default and *(i*)* the risk-free interest rate.[12] Since our data is restricted to public or publicly guaranteed debt, we are concerned with "sovereign risk", i.e. the risk that a government defaults on or not fully honors its bond contracts to foreigners (Obstfeld and Rogoff, 1996). Macroeconomic and political indicators determine the perceived probability of default and hence the sovereign bond spread.[13] One of the most important determinants of the probability of default is the level and evolution of public debt. The following simple debt sustainability equation will clarify how cabinet changes can alter the perceived probability of default. The dynamics of the initial debt stock are subject to the following constraint (see for instance Ferrucci and Penalver, 2003)

$$\mathrm{d}_0 \leq \frac{\mathrm{ps}}{(\mathrm{r} - \mathrm{g})},$$

where d_0, *ps, r* and *g* denote the initial debt stock (here total public-debt-to-GDP), the primary surplus (all primary revenues minus costs, excluding debt-servicing costs), the interest rate paid (ex-post interest rate on public debt) and the country's growth rate. Public finances are generally considered as "sustainable" if the public debt stock relative to GDP (at least) stays constant and the inequality above holds. By contrast, if this solvency ratio rises, the country is getting more indebted and its probability of default is expected to rise, resulting in higher sovereign credit spreads.

Cabinet changes affecting the minister of finance or economics can alter expectations and hence sovereign spreads through *two major channels.* First, *changing finance ministers* can signal markets a changing stance on fiscal austerity and the

[12] Edwards (1984) considers multiple, risk-neutral investors that compete for bonds in hard currency to borrower countries. We can write the emerging market yield *(i)* as the risk free yield *(i*)* and a credit spread *(s)* that compensates investors for the default risk $i = i^* + s$. For simplicity, assuming that the recovery rate in case of default is zero, even though this assumption is not essential for the results. The following no-arbitrage relation must hold for the next period: $(1 + i)(1 - pd) = (1 + i^*)$.

[13] More precisely, adverse news on the country's creditworthiness leads to a decline in bond prices and hence an increase in yields-to-maturity and bond spreads, respectively.

government's willingness to service its debt. This channel hinges on signals about the future course of fiscal policy and hence the expected primary budgetary surplus. This budgetary balance before interest payments is central for two reasons: First, the lion's share of the interest bill has to be covered by the primary surplus.[14] Second, the primary surplus is ultimately the result of political priorities. The incumbent government has to weigh up domestic absorption against its debt servicing capacity. In a presidential system, a finance minister change is often the result of the executive's vanishing support for his minister, which may creep in over time or may happen surprisingly.

The second channel stresses that *changing economy ministers* can lead to *deteriorating growth prospects* due to policy uncertainty and cause higher bond spreads. Rodrik (1991) shows that uncertainty about the future policy and the lasting power of reforms can have the detrimental effect on private investment, impairing a country's growth prospects. [15]

We expect the first channel to be the dominant one, since a finance minister has a more direct effect on fiscal and debt sustainability than a economics minister.[16] A priori the direction of the effect is not clear, but conditional on the type of minister ("conservative" vs. "non-conservative") both channels point in the same direction. We hypothesize:

> **Hypothesis 1a: Investors react negatively (positively) to signals within the government, if the new minister is expected to be less (more) "conservative", indicating changes in the fiscal policy and willingness-to-pay.**

Caballero and Krishnamurthy (2004) propose a theoretical model that accounts for the lack of financial depth in emerging economies. If the supply of funds available to the government and private sector of an emerging market is i) controlled by a

[14]This holds true as long as seignorage gains are negligible due to low inflation or the government abstains from rolling over the debt by issuing new bonds (see for instance Grandes, 2002).

[15]Furthermore, policy uncertainty may also trigger capital flight (see for instance Lensink and Hermes (2001)).

[16]In the case of so-called "super ministers" both administrative competencies are unified in one ministry. This can be observed for instance in Argentina, Ecuador and Uruguay.

small set of specialized investors and ii) limited, fiscal fears can amplify crowding-out effects and lower the valuation of the country's assets. We hypothesize:

> **Hypothesis 1b: Investors react negatively to signals of a lack of fiscal discipline of the government.**

For our second hypothesis we retreat to Aizenman and Powell (1998) who stress that a government is not a unified force, but a set of competing groups. Hence, the fiscal budget is the outcome of an internal political process. If the center (finance ministry) is weak, the competition for scarce funds can lead to strong bias towards overspending, pushing the country to its credit ceiling. "Weakness" is defined as (i) the inability to detect overspending and (ii) the lack of power or will to punish non-cooperative behavior of the opportunistic group. We hypothesize:

> **Hypothesis 2: Investors negatively price in signals of a weak ministry of finance.**

4 Data, estimation strategy and results

4.1 Data description and sources

Our analysis is based on several types of data. We employ *sovereign bond spread indices* from J.P. Morgan as our dependent variable. Concretely, we use the following sovereign bond spread data: the Emerging Markets Bond Index (EMBI), the Emerging Markets Bond Index Plus (EMBI+) and the Emerging Markets Bond Global (EMBIG).[17] A country-specific EMBI sub-index, expressed in basis points, is the yield difference between the weighted average of external-currency-denominated individual bonds issued by a particular country and a comparable risk-free U.S. bond. Only sovereign bonds that comply with well-defined liquidity requirements are

[17] Henceforth, the notion EMBI is used synonymously for EMBI, EMBI+ and EMBIG. We mainly rely on the EMBI+ due to his relatively large coverage in Latin America, his liquidity requirements and his record up to date. Bond spread data from the early 1990s are obtained from EMBI. For Chile, Dominican Republic and Uruguay only EMBIG data is available.

eligible for J.P. Morgan's bond indices.[18] These country indices are closely watched indicators for perceived country risk or default risk in emerging markets. The Financial Times once called the yield spread *"the most widely accepted measure of political risk"* (Financial Times, 2003).

The sample covers all daily bond spreads available for Latin America, spanning the following twelve countries for the period 1992-2007: Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Mexico, Panama, Peru, Uruguay and Venezuela. Appendix 1 gives an exact listing of the available data. Appendices (2) and (3) provide summary statistics on the bond spreads for the respective empirical approaches to be discussed below. The sample is fairly homogenous with respect to the political system. All countries are set up as a *presidential system,*[19] where a single executive is elected (directly or indirectly through an assembly) by popular vote. The president is the head of the government and exerts direct power over the cabinet by directly appointing and dismissing ministers.

A *newly-collected sample on cabinet changes involving finance or economics ministers* in Latin America lies at the heart of our data set. It is important to note that we solely consider minister changes (with constitutional means) during the legislative period. Cabinet announcements following presidential elections, a normal political process in democracies, are not considered.[20] We have drawn on various sources.[21] Our data crucially depends upon a full-text research on the Economist, the Wall Street Journal and the Financial Times through the online data base provider Lex-

[18]Instruments in the EMBI+ have to exceed the issue amount of USD 500 millions and must be available and liquid. The average bid/offer spread has to be smaller than 1.5 basis points. Sy (2001) concludes that EMBI spreads have consequently little or similar liquidity risk premia. For this reason we can assume that the impact of liquidity risk on the total country risk premium is negligible. For a more comprehensive discussion on the the total country (risk) premium, see for instance Peter (2005).

[19]The Database on Political Institutions (DPI) categorizes all sample countries as „direct presidential" and shows a high degree of political contest, with nearly all countries included scoring 7 out of 7, for both indicators on political competitiveness, namely the Legislative and Executive Index on Political Competitiveness, respectively.

[20]While we do not deny heightened political or devaluation risk during (presidential) elections times in emerging markets, as evidenced for instance by Bussiere and Mulder (2000) or Stein and Streb (2004), we argue instead that elections and political or cabinet crises (as reflected in the finance minister change) constitute two different types of political instability.

[21]In a first step, we have analyzed the respective "country chronicle" in various issues of the Fischer Weltalmanach (1993-2005). All major political and economical events are documented.

isNexis. These important financial news-papers are backed by other press sources available through LexisNexis, if necessary. All in all, this procedure yields 66 cabinet reshuffles affecting the ministry of finance or economics. Appendices 4 and 5 show the number of observations per country and give details on the events, including the minister's name, position and date of departure.[22]

We also employ a series of *control variables.* The sovereign rating data is obtained from the Standard & Poor's (S&P) website.[23] Sy (2001) finds an explanatory power of country ratings for EMBI+ spreads. We include announcements of rating actions by S&P, which cover changes in the actual rating, rating outlooks, and watch listings, since they have proven to affect bond markets in the short term.[24] We also control for *US financial market indicators* like the yield of 10-year US Treasury bonds and 3-month US Treasury bills. Both variables are widely used to control for international liquidity. Finally, we add the volatility index (VIX) of the Chicago Board Options Exchange (CBOE) as a proxy for financial market uncertainty. The VIX measures the implied volatility from option contracts on the Standard and Poor's 100 (S&P 100) index. First suggested by Duecker (1999) and for instance employed by IMF (2001) in a study on sovereign bond spread spreads, this index gives an idea about the market expectation of the volatility of the S&P 100 in the subsequent month. The VIX can be interpreted as a forward looking indicator on global risk aversion. Summary statistics for all control variables are provided in Appendices 2 and 3.

4.2 First evidence

We provide first evidence by comparing the average pre-event level of bond spreads with the corresponding post-event level. Table 1 summarizes the results. The mean-comparison tests show that the average pre-event spread level is significantly higher

[22]Beyond this reliable information further details on the type of departure (resignation vs. forced resignation) and the information content (anticipated vs. non-anticipated) have to be interpreted more cautiously, since news paper articles do not allow definite classifications.

[23]For further details see http://www2.standardandpoors.com.

[24]Gande and Parsley (2004, 2005) find that S&P is more active in making rating changes and often precedes other companies' rating adjustments. Generally speaking, Standard & Poor's, Moody's Investor Service and Fitch Investor Service are widely regarded as the three major international players for sovereign risk ratings making up for about 80 per cent of the market.

than the post-event level.

Table 1: Mean-Comparison tests of bond spreads (in basis points).

Sample Period	-20/+20	-40/+40	-60/+60	-80/+80
Full sample	88**	**137*** **	153***	148***
Full without extreme	39**	**66*** **	78***	74***
Non-Crisis only	28**	**47*** **	56***	52***
Crisis only	184**	**283*** **	312***	307***
Crisis without extreme	64**	**110*** **	127***	123***

Mean-comparison tests for pre-event versus post-event periods of equal length.
Absolute average difference between periods in basis points displayed.
***, **, * denote 1%, 5% and 10% level of significance.

This difference in levels is robust to different sample definitions ranging from the full sample to a non-crisis sample and the inclusion or exclusion of extreme observations (observations with average bond spreads above 2000 basis points or default episodes). For the time window of principal interest (-40 to +40) t-tests are robust on the 1%-level independently of the sample definition, with absolute spread differences varying between 47 and 283 basis points.

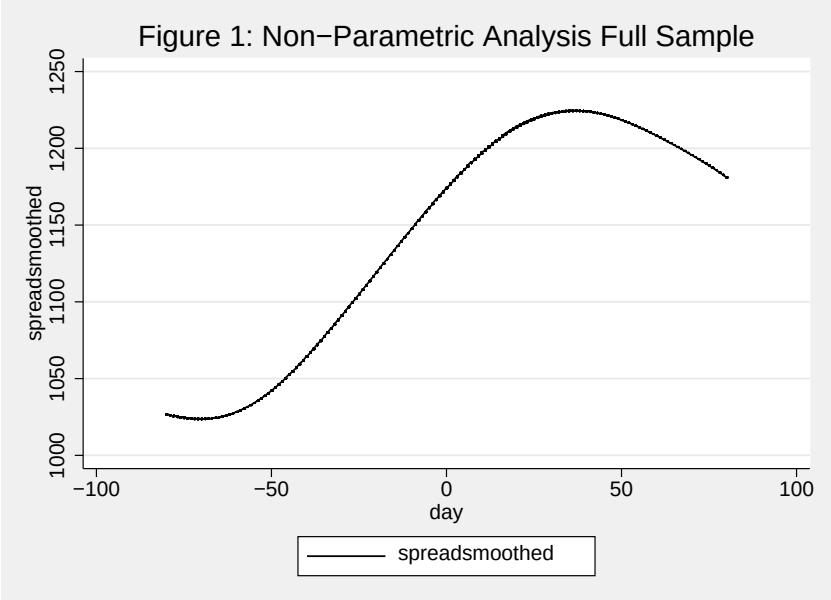

Figure 1: Non-Parametric Analysis

This first impression of higher bond spreads in the post-event period is confirmed graphically. We employ a non-parametric analysis of the time trends. In Figure 1

the smoothed bond spread values are plotted on the Y-axis against the day counter on the X-axis. Bond spreads exhibit a strong increase before the cabinet reshuffle and a slow but steady decline in the second half of the post-event window.

4.3 Estimation strategy

We employ two different methodologies. First, we estimate the announcement effect of the minister change. Second, we perform panel regressions to test for trending behavior of spreads before and after the political event.

4.3.1 Contemporaneous effect

We first study the *daily reaction of sovereign bond spreads* to the political event. The following regression (equation 1) is estimated by pooled OLS[25]

$$\Delta \mathrm{Y}_{\mathrm{i,t}} = \alpha + \lambda \Delta \mathrm{Y}_{\mathrm{i,t-1}} + \beta \mathrm{CABINET}_{\mathrm{i,t}} + \gamma_{\mathrm{c}} \Delta \mathrm{X}_{\mathrm{c,t}} + \nu_{\mathrm{w}} \mathrm{D}_{\mathrm{w}} + \epsilon_{\mathrm{i,t}}, \tag{1}$$

where the subscripts i an t indicate country and time, respectively. $Y_{i,t}$ is the dependent variable, the EMBI bond spread, denoted in log-differences. Our variable of interest *CABINET* stands for a cabinet change involving a finance or economics minister.[26] The variable takes the value of one on the day of the change (t) and the day after (t+1). The careful build-up of the data base allows us to pinpoint the day of the announcement. However, we are (in most cases) not able to identify the exact hour. Since the EMBI bond spread indices are calculated at 3pm Eastern Time, we cannot be sure that the public news arriving at time t is also priced in at time t. For this reason, we extend the event window by one day.

For our variable of main interest *Hypothesis 1a* does not determine a priori the *direction of the effect*, if there are any level-effects. On the one hand, bond spreads are expected to decrease *(β<0)* in response to the dismissal of a less conservative

[25]The fact that we use daily data does not allow us to control for country fundamentals, which are typically reported on a lower frequency.

[26]We assume that this variable is exogenous. It seems highly implausible that a minister change is triggered by daily changes in the country's spread.

minister or "fiscal dove". On the other hand, the sacking of a "conservative" minister or "fiscal hawk" is expected to send negative signals to the markets, resulting in a spike in bond spreads *(β>0)*. Since we abstain from classifying the minister changes into "good" and "bad" ones in the baseline specification, the coefficient β will necessarily comprise both effects. If we do not find a significant daily impact of the minister change on bond spreads, this may be grounded on three different reasons: (i) the opposite effects cancel each other out; (ii) this kind of political news is not a determinant for bond spreads; or (iii) financial markets have fully anticipated the political event. *Hypothesis 1b and 2* offer clear predictions. If Hypotheses 1b or 2 holds, we will expect a rise in bond spreads *(β>0)*.

The dependent variable also enters the equation lagged by one period. It is possible that a correlation between the lagged bond spreads and the error term exists. To correct for this possible bias, we use a further lagged value as an instrument for the lagged dependent variable in a robustness check. Furthermore, our regression includes X, a vector of up to four of the following control variables. The variable $\Delta\, USYield$ stands for the log-difference of the 10-year US Treasury yield.[27] Economic theory suggests a positive effect of U.S. interest rates on emerging market bond spreads. The main reason is that a rise in U.S. interest rates increases the debt burden for an emerging market government and, hence, negatively affects the capacity to repay its debt.[28] We also include the log changes of the 3-month US T-bills to control for US interest rates with a short maturity. Additionally, the variable $\Delta\, VIX$ stands for log changes in the volatility index, proxying for time varying risk appetite of international investors. We expect a positive coefficient for the volatility variable. Finally, the variable *Rating action* takes the value 1 (-1) for upgrades (downgrades) in the actual foreign currency sovereign ratings or their outlooks and 0 otherwise. If rating changes convey new information, we expect the coefficient to be negative. Finally, we employ dummy variables D_w, running from Monday to Thursday, in order to control for week-day-effects.

[27] We define the variable USYield as $100 * log(1 + i_t^{US})$.

[28] For more details see Kamin and von Kleist (1999) and Arora and Cerisola (2001).

Next, we provide a number of robustness checks. Our specification changes to:

$$\begin{aligned}\Delta \mathrm{Y_{i,t}} &= \alpha + \lambda \Delta Y_{i,t-1} + \beta_1 CABINET_{i,t} + \beta_2 CABINET_{i,t} * CHARACT_{i,t} + \\ &+ \gamma_c \Delta X_{c,t} + \nu_w D_w + \epsilon_{i,t}, \end{aligned} \tag{2}$$

where $CHARACT_{i,t}$ are dummies that take the value of one if one of the following characteristics holds true and zero otherwise. $ECONOMICSi,t$ stands for a cabinet reshuffle that only affects the ministry of economics but not the finance ministry. $CORRUPTi,t$ represents minister changes due to alleged corruption, allowing for a distinction between "good" and "bad" ministers. One might expect a negative sign for the interaction coefficient. $CRISISi,t$ proxies for debt crisis. Our definition follows Sy (2004), who defines debt crisis as a sovereign default or secondary market spreads above 1000 basis points.[29] Consequently, our dummy variable $CRISISi,t$ takes the value of one if the average bond spreads are above 1000 basis points in the month preceding the cabinet change and zero otherwise.

Finally, we add a further variable to our matrix of control variables in order to take movements in the sovereign bond market into account. We cannot directly include the EMBI overall index in our specification, because it would - by definition - cause endogeneity problems, since our dependent variable is part of the market. Hence, we follow Dell'Ariccia et al. (2006) by including the residual from a regression of the respective dependent variable on the market, whereby $EMBIi,t$ and $EMBI\_Latin_{i,t}$ stand for the world market and the Latin American market, respectively.

4.3.2 Trend behavior

Second, we employ a different *panel approach*. Following for instance Block and Vaaler (2004) we resort to a flexible General Estimating Equation (GEE) approach. The GEE procedure provides linear model estimates, with independent correlation structures and semi-robust standard errors for defined groups. Furthermore, the

[29] Sy (2004) and Pescatori and Sy (2004) argue that their results are in favor of interpreting the 1000 basis points mark for bond spreads as a psychological barrier for market participants.

GEE allows for first through tenth-order autocorrelation adjustment of errors terms for observations in each group.[30] We examine whether spreads exhibit a trend behavior and, if so, whether this trend is significantly different in the run-up of finance minister changes as compared to a post-event period of equal length. Equation (3) is our baseline specification

$$\begin{aligned} \mathrm{Y_{i,t}} &= \alpha + \beta_1 CABINET_{i,t} + \beta_2 (CABINET * POSTDAY)_{i,t} + \qquad (3) \\ &+ \phi CRISIS_{i,t} + \delta Country_i + \xi Year_t + u_{i,t}. \end{aligned}$$

The dependent variable, $Y_{i,t}$, is once more the respective sovereign bond spread subindex.[31] Our independent variables of main interest are two variables that gauge time trends in the bond spreads. The first time variable, $CABINET_{i,t}$, is a day counter running from 40 days before to 40 days after the political event.[32] The second time variable interacts the first time variable with a dummy variable called $POSTDAYi,t$, which takes a value of one if the day is after the political event and zero otherwise. This allows us to test for a structural break in the time trend on the day of the minister change. The parameter estimate β_1 represents the overall time trend during the estimation window, while the post-event bond spreads slope can be calculated as the sum of the two parameter estimates, $\beta_1 + \beta_2$. Additionally, we incorporate dummies to control for fixed *Country* and *Year* effects as well as periods of crises.

The regression specification (4) allows for different slope coefficients for tranquil periods and periods of financial distress by interacting the two existing time trend

[30] Block and Vaaler (2004) assess the impact of presidential elections on bond spreads. Hardin and Hilbe (2003) offer further details on this panel estimator, which can be performed in STATA through "xtgee".

[31] Standard augmented Dickey-Fuller and Phillips-Perron tests yielded mixed results in our case, which may be due to the low power of standard unit root tests. Independent of that we abstain from pursuing cointegration analysis because *a priori* we expect interest rates - and all the more bond spreads - to be I(0). Cochrane (1991) stresses that interest rates are almost certainly stationary in levels since interest rates nowadays are comparable to interest rates in medieval times. Chances that any random walk process would yield such a pattern are very slim.

[32] We found no guidance in the literature for choosing the length of the event window. Our results are robust to any pre-event and post-event period of equal length between 30 to 50 days.

variables with our debt crisis dummy variable.[33]

$$\begin{aligned} \mathrm{Y_{i,t}} &= \alpha + \beta_1 CABINET_{i,t} + \beta_2 (CABINET * POSTDAY)_{i,t} + \\ &+ \beta_3 (CABINET * CRISIS)_{i,t} + \beta_4 (CABINET * POSTDAY * CRISIS)_{i,t} + \\ &+ \phi CRISIS_{i,t} + \gamma_c X_{c,t} + \delta Country_i + \xi Year_t + u_{i,t}. \end{aligned} \tag{4}$$

We add step by step the same control variables as in the preceding section, namely U.S. interest rates (10-year U.S. Treasury bonds and 3-month U.S. T-bills) and the volatility index (VIX), and expect the same signs for the coefficients.

Finally, we will exclude all those observations from our main analysis that occurred in times of severe debt crisis or (imminent) default (7 events), such as the resignation of Argentine finance minister Domingo Cavallo (and his cabinet) in December 2001 with bond spreads around 4000 basis points. To foreshadow the results, our findings are not driven by such extreme events.[34]

4.4 Empirical results

4.4.1 Contemporaneous effect

We start by looking at the *contemporaneous impact* of changes in the finance ministry. Table 2 reports the panel regression results. Column (1) shows that bond spreads exhibit some persistence, with the lagged dependent variable being significant at the ten percent level. The coefficient on cabinet change is positive and statistically significant at the five percent level over different specifications.

[33] The results are robust to the alternative definition of the average two preceding months.

[34] In this context, we come back to the assumption of exogeneity for our variable cabinet change. It seems highly unlikely that a finance minister will be forced out of office due to "normal" variation in bond spreads over the period of two months. Even in the case of (very) high and rising bond spreads the reasoning in favor of reversed causality is far from clear-cut (in the short run). The pressure on budgetary discipline that potentially makes the finance minister vulnerable to power struggles within the government still depends largely on a country's debt structure. The impact on ongoing debt servicing costs will be the higher, the larger the outstanding debt, the part of outstanding debt linked to floating domestic interest rates[35] and the greater the country's need to tap international capital markets through a bond issuance in the near future. To mitigate such endogeneity concerns, we exclude extreme events.

Table 2: Panel Regression Results Finance and Economics Minister Changes

	Alternative Specifications				
	(1)	(2)	(3)	(4)	(5)
					IV
Δ *log Spread, lagged*	0.0316*	0.0329*	0.0312*	0.0314*	0.0474
	(1.99)	(2.08)	(1.99)	(2.01)	(0.12)
Cabinet	0.0100**	0.0098**	0.0095**	0.0099**	0.0098**
	(2.88)	(2.92)	(2.95)	(3.13)	(2.94)
Δ *log US T-bond 10 years*	-0.0040*			-0.0032	-0.0032
	(2.16)			(1.74)	(1.72)
Δ *log US T-bill 3 months*		-0.0022***		-0.0011***	-0.0011***
		(6.25)		(6.20)	(3.76)
Δ *log VIX*			0.1270***	0.1217***	0.1217***
			(11.21)	(9.20)	(9.70)
Rating action				-0.0179***	-0.0177***
				(4.26)	(3.37)
Observations	32195	32195	32195	32195	32187
R-squared	0.017	0.007	0.045	0.058	0.058

The dependent variable is in (log) changes. Results are based on clustered robust standard errors. Absolute t-statistics in parentheses. The variable cabinet change takes the value one on the day of the cabinet change (t) and the day after (t+1) and zero otherwise. Week-day effects and a constant are estimated but not reported. The instrumental variable (IV) estimation in column (5) uses the second lag of the dependent variable as instrument. Testing for first-order autocorrelation in the error terms via "areg" indicates no first order correlation.
***, **, * denote 1%, 5% and 10% level of significance.

Investors apparently view such cabinet changes negatively, with bond spreads rising on average by about one percent upwards on the announcement day. Hence, a finance minister change tends to signal a worsening willingness-to-pay and/or is seen a sign of weakness of the treasury.

Taking into consideration that we abstained from classifying the political events into positive and negative ones, this result is remarkable. The overall negative effect on the spread is partly offset by positively perceived minister changes for which we are not controlling. This conjecture is confirmed by Table 3, which shows that in one out of three cabinet changes spreads actually fall on the event day.

Table 3: Short-term Market Reactions to Finance and Economics Minister Changes

	x < 3%	**3% > x < 7%**	**7% > x < 20%**	**x > 20%**	**Sum**
Rising Spreads	26	11	8	2	47
Falling Spreads	12	7	3	0	22
Sum	38	18	11	2	69

Cumulative daily changes of bond spreads (in percent) on the day of the cabinet change (t) and the day after (t+1).

Coming back to Table 2, the coefficient on the 10-year US Treasury bond rate is on the verge of the 10 percent significance level for most specifications and displays an unexpected negative sign. We would have expected that higher U.S. interest rates lead to higher bond spreads. Interestingly, the same finding applies to the highly significant 3-month US Treasury rate, which we add as another control variable in column (2): We find an unexpected negative impact of the U.S. interest rate.[36] The third column adds the volatility index (VIX) as an additional explanatory variable to the baseline specification. As expected, a higher expected volatility in U.S. markets leads to an increase in emerging markets spreads at 1 percent confidence level. In column (4) we incorporate all control variables, including the rating announcement variable, which shows up highly significantly and with the expected negative sign. Finally, column (5) reports the results obtained from instrumental variable estimation. We control for the potential biases by instrumenting the lagged dependent variable by its second lag. All major findings hold for the two-stage least squares estimation.

Finally, Table 4 provides a number of robustness tests to our baseline specification. Column (1) confirms the conjecture that the channel via the ministry of finance dominates the channel via the ministry of economics. Once we control for economics minister changes, the isolated negative announcement effect stays significant on a 5 percent level and even slightly increases in magnitude. We conclude that investors are mainly concerned about the future fiscal policy stance and marginal changes in the willingness-to-pay. Column (2) offers a proxy for "bad" ministers. Interestingly, we find that minister changes due to alleged corruption are indeed significantly different from other minister resignations. However, such changes - on average - do not impact markets ($\beta_1 + \beta_2 = -0.002$). Column (3) explicitly controls for minister changes during debt crisis. The announcement effect proves robust to this modification, even though the level of significance decreases to 1 percent. Finally, Columns (4) and (5) seek to control for market movements, by introducing the residual of the

[36] In the previous literature Eichengreen and Mody (1998) and Kamin and von Kleist (1999) also found a negative correlation between U.S. interest rates and emerging market spreads, while Ferrucci (2003) and Arora and Cerisola (2001) report the expected positive correlations.

Table 4: Panel Regression Results Finance and Economics Minister Changes II

	Alternative Specifications				
	(1)	(2)	(3)	(4)	(5)
Δ *log Spread, lagged*	0.0314*	0.0314*	0.0314*	0.0335**	0.0333**
	(2.01)	(2.01)	(2.01)	(2.25)	(2.28)
Cabinet	0.0109**	0.0107***	0.0089*	0.0095***	0.0096***
	(2.99)	(3.26)	(2.19)	(3.90)	(3.78)
*Cabinet*economics*	-0.0051				
	(0.96)				
*Cabinet*corrupt*		-0.0127*			
		(1.94)			
*Cabinet*crisis*			0.0027		
			(0.26)		
EMBI				-0.0679	
				(0.32)	
EMBI Latin					0.0702
					(0.35)
Δ *log US T-bond 10 years*	-0.0032	-0.0032	-0.0032	-0.0032	-0.0031
	(1.74)	(1.74)	(1.74)	(1.76)	(1.79)
Δ *log US T-bill 3 months*	-0.0011***	-0.0011***	-0.0011***	-0.0011***	-0.0011***
	(6.20)	(6.21)	(6.20)	(7.30)	(7.43)
Δ *log VIX*	0.1217***	0.1218***	0.1217***	0.1264***	0.1271***
	(9.20)	(9.20)	(9.19)	(7.94)	(7.85)
Rating action	-0.0179***	-0.0179***	-0.0179***	-0.0175***	-0.0175***
	(4.26)	(4.26)	(4.26)	(4.51)	(4.52)
Observations	32195	32195	32195	32195	32195
R-squared	0.058	0.058	0.058	0.059	0.059

The dependent variable is in (log) changes. Results are based on clustered robust standard errors. Absolute t-statistics in parentheses. The variable cabinet change takes the value one on the day of the cabinet change (t) and the day after (t+1) and zero otherwise. Week-day effects and a constant are estimated but not reported. Testing for first-order autocorrelation in the error terms via "areg" indicates no first order correlation.
***, **, * denote 1%, 5% and 10% level of significance.

EMBI and the EMBI Latin. All major results hold for these robustness checks.

4.4.2 Trend behavior

Next we discuss the results from the GEE panel regressions. The first column of Table 5 refers to equation (3) based on the full sample, namely 66 cabinet changes. Our event window spans from 40 days before the cabinet change involving a finance minister to 40 days after.[37] While the pre-event slope estimate is positive (β_1=5.60) at the 1 percent level, indicating a rising trend in the bond spread, the post-event slope is negative (β_2=-4.91) at the 5 percent level.

[37]All main results of this study hold, when we only consider so-called "clean events", i.e. finance minister changes do not overlap in the windows of +/- 40 days. If we were to allow for overlapping windows, the events would be serially correlated and estimated coefficients would exhibit a bias.

Table 5: Panel regression results trending behavior

	Alternative Specifications				
	(1)	(2)	(3)	(4)	(5)
Cabinet	5.60***	2.43***	2.17***	1.63***	1.57**
	(3.48)	(3.17)	(3.13)	(2.73)	(2.33)
*Cabinet*Postday*	-4.91**	-1.71*	-1.47*	-1.16	-0.88
	(2.37)	(1.71)	(1.70)	(1.44)	(1.02)
US T-bond 10 years			-19.06	25.91	23.06
			(0.34)	(0.58)	(0.47)
US T-bill 3 months			30.09	16.67	9.04
			(0.58)	(0.35)	(0.18)
VIX			12.64***	3.94	4.39
			(4.12)	(1.23)	(1.26)
EMBI				1.21***	1.14***
				(5.18)	(4.72)
Crisis	1195.81***	445.06***	424.22***	426.74***	258.47***
	(4.76)	(8.70)	(7.38)	(6.70)	(2.90)
Constant	885.05***	774.50***	408.37	-135.51	-69.88
	(4.60)	(9.21)	(1.17)	(0.50)	(0.25)
Observations	5214	4661	4661	4661	3871
Groups	66	59	59	59	49

Results are based on population-averaged panel data model. Stata's General Estimating Equation (GEE) procedure provides general linear model estimates, allows for independent correlation structures for each of the cabinet change groups, and provides semi-robust standard errors. Semi-robust standard-errors are adjusted for clustering and equation error terms are adjusted for first through seventh order autocorrelation (AR7). Country and year dummy variables are included but not reported. Re-estimations for the time windows 6 - 10 weeks are very similar and available from the author on request.
***, **, * denote 1%, 5% and 10% level of significance.

This means that the post-event slope is statistically different from the overall trend during the event window. By summing up the two coefficients we get a slope point estimate, which is marginally positive ($\beta_1+\beta_2=+0.69$). In other words, bond spreads on average trend upwards and remain at a higher level in the aftermath of the political turmoil. In column (2) we exclude all extreme events. Not surprisingly, the size of the slope coefficient as well as the magnitude of the dummy variable crisis decrease substantially. The overall picture remains the same. Bond spreads trend upwards in the up-run and level-out on a higher level thereafter. Bond spreads trend on average 2.43 basis points per day upwards in the 40 days before the cabinet change, resulting in an increase of nearly 100 basis points. Spreads tend to continue to increase by a small margin thereafter (2.43-1.71=0.72). Next, we add a number of financial market indicators as control variables in column (3). While neither short-

term nor long-term U.S. interest seem to explain the emerging markets time trend around the event window, the volatility index is highly significant.

Turning to column (4) we further include the residual of the EMBI in order to control for market developments in the same asset class. While the EMBI indeed shows up highly significant, the post-event slope coefficient and the volatility index turn insignificant. Still, the general picture of the trending behavior remains, even though the structural break is not significant any longer.

Finally, in column (5) we exclude cabinet changes that solely involve the ministry of economics in order to isolate the impact of finance minister changes on sovereign bond markets. Indeed, once more it turns out that the overall effect seems to be driven by finance minister changes, indicating that concerns about the fiscal policy course and the government's willingness-to-pay move markets.

Table 6 presents the results of equation (4),where we allow for different slope coefficients for tranquil times and periods of debt crises. While the pre-event slope coefficient for tranquil times shows a slight upward trend and is at least once significant at the 10 percent level, the post-event coefficient is not significant at conventional levels. It does not come as a surprise that financial markets in normal times do not show any remarkable trending behavior during the event window. Market participants are apparently not sensitive to political instability in the "medium term", i.e. over two months following the minister change, if the fundamentals, as reflected in the relatively low level of country spreads, are relatively strong.

In contrast to that we do find a pronounced trending effect for periods of financial distress. The pre-event and post-event slope coefficients are statistically significant at the 5 and 1 percent level, respectively, and can be computed in the following way to get a better idea about the magnitude of the effect for debt crisis. For the specification in column (4) we get a pre-event slope coefficient in height of 4.25 ($\beta_1+\beta_3$=0.49+3.76=4.25) and a post-event slope coefficient in height of -1.21 ($\beta_1+\beta_2+\beta_3+\beta_4$=0.49+0.73+4.25-6.19=-1.21). This implies that sovereign bond spreads trend upwards by about 170 basis points (4.25*40) in the up-run and fall again by about roughly 50 basis points (-1.21*40) in the aftermath of a cabinet

Table 6: Panel regression results trending behavior II

	Alternative Specifications				
	(1)	(2)	(3)	(4)	(5)
Cabinet	0.86*	0.86	0.73	0.49	0.46
	(1.64)	(1.63)	(1.53)	(1.36)	(1.17)
*Cabinet*Postday*	0.50	0.50	0.44	0.73	0.99
	(0.66)	(0.66)	(0.72)	(1.25)	(1.62)
*Cabinet*Crisis*	12.54***	5.16**	4.76**	3.76**	4.67**
	(3.39)	(2.54)	(2.50)	(2.22)	(2.01)
*Cabinet*Postday*Crisis*	-14.26***	-7.38***	-6.19***	-6.19***	-7.74***
	(2.92)	(2.83)	(2.77)	(3.34)	(3.60)
US T-bond 10 years			-10.06	26.40	29.19
			(0.18)	(0.56)	(0.58)
US T-bill 3 months			35.74	20.76	12.73
			(0.65)	(0.41)	(0.24)
VIX			12.65***	3.76	3.93
			(4.41)	(1.25)	(1.25)
EMBI				1.19***	1.12***
				(5.08)	(4.55)
Crisis	1336.65***	517.90***	486.66***	488.27***	337.02***
	(4.76)	(8.07)	(7.43)	(6.99)	(3.30)
Constant	831.70***	752.27***	316.32	-166.77	-116.28
	(4.46)	(9.32)	(1.17)	(0.55)	(0.39)
Observations	5214	4661	4661	4661	3871
Groups	66	59	59	59	49

Results are based on population-averaged panel data model. Stata's General Estimating Equation (GEE) procedure provides general linear model estimates, allows for independent correlation structures for each of the cabinet change groups, and provides semi-robust standard errors. Semi-robust standard-errors are adjusted for clustering and equation error terms are adjusted for first through seventh order autocorrelation (AR7). Country and year dummy variables are included but not reported. Re-estimations for the time windows 6 - 10 weeks are very similar and available from the author on request.
***, **, * denote 1%, 5% and 10% level of significance.

reshuffle involving the minster of finance or economics. Hence, the GEE results indicate that the spread level in the period after a cabinet change is on average about 120 basis points higher during times of financial distress than before the change. This estimate confirms our impression from the mean-comparison tests (110 basis points). Column (5) once more highlights that finance minister changes and uncertainty about the fiscal policy drive the results.

To summarize, we find evidence that bond spreads exhibit an upwards trend in the weeks running up to the cabinet reshuffle involving a finance and/or economy minister, before remaining at a higher spread level in the aftermath. Even though

bond spreads tend to fall in the two months following the minister change, the decrease in spreads only recoups about one third of its preceding rise. In this sense, political uncertainty apparently persists for several weeks. These results apply to periods of heightened economic vulnerability but are not driven by extreme periods of financial distress. For tranquil periods we find no systematic time trend.

5 Summary and Conclusions

This paper has demonstrated that political instability, captured by a cabinet reshuffle involving the minister of finance or economics, matters to international investors. On the announcement day of the minister change we find a rise in bond spreads of roughly one percentage point. Such an instantaneous negative reaction of financial markets confirms anecdotic evidence from the financial press. Interestingly, a financial press report (Financial Times, 2006) shows that a remarkable widening in Brazilian bond spreads due to the resignation of Antonio Palocci, the investor-friendly Brazilian finance minister, even though this event has been largely anticipated. Furthermore, mean-comparison tests show that the average bond spread level is significantly higher in the aftermath of the political event than before. This level effect is robust to different time periods and sample definitions. Beyond this level-effect, we find for crisis events that bond spreads significantly trend upward in the 40 days leading up to the political event before partially ebbing away in the 40 days following the cabinet change. For the overall sample and the debt crisis sample (excluding extreme events) bond spreads trend upwards by about 100 (170) basis points in the up-run, implying a substantial increase in refinancing costs for the affected country.

We conclude that investors are apparently sensitive to signals within the government. In particular, finance minister changes are viewed negatively, since they put the future fiscal policy stance and a country's willingness-to-pay into question. This negative effect is also in line with the interpretation of fears about the fiscal responsibility of the incumbent government or signs of weakness for the treasury. We

find that investors' demand for higher yields especially plays a prominent role when countries' fundamentals are in the middle ground, i.e. their spreads signal some economic vulnerability but no sovereign default is imminent. This interpretation is in line with second-generation crisis models. We coin this "political risk premium".

Could this indicator of political instability serve as an explanatory variable in an early warning system (EWS)? In fact, both debt crisis episodes in Latin America in the last few years were preceded by a cabinet change affecting the ministry of finance. The resignation of Domingo Cavallo and the entire De La Rua cabinet came only a few days before the new government declared a debt moratorium in December 2001. Similarly, the Ecuadorian finance minister explicitly stepped back in summer 1999, declaring his reluctance to back discrimination between different groups of investors. Shortly later, such a partial default was announced by the Ecuadorian president. While the limited data set allows only for cautious conclusions on the predictive power of political instability, country risk analysts may interpret these results as an alert to scrutinize the fiscal position of the respective country.

There are several potential extensions to this paper. Future research may test whether international investors are more sensitive to political instability when countries have a repudiation as so-called "serial defaulters". Expanding the current data set to include all major emerging markets would allow to examine this question. Another interesting question would be to analyze if there is evidence for "political contagion". Are there negative spillover effects on bond spreads for one emerging market when a country within the same region suffers from a political crisis? Furthermore, there is still relatively little known about factors driving daily volatility in emerging markets. Further research would be obviously desirable.

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Appendix

Appendix 1: Data Availability daily EMBI bond spreads

Country	Initial date	End date
Argentina	30-Apr-94	21-Sept-07
Brazil	31-Dec-91	21-Sept-07
Chile	28-May-99	21-Sept-07
Colombia	31-Dec-97	21-Sept-07
Dominican Republic	30-Nov-01	21-Sept-07
Ecuador	30-Jun-95	21-Sept-07
El Salvador	30-Apr-02	21-Sept-07
Mexico	31-Dec-91	21-Sept-07
Panama	28-Feb-97	21-Sept-07
Peru	30-May-97	21-Sept-07
Uruguay	31-May-01	21-Sept-07
Venezuela	31-Dec-91	21-Sept-07

Appendix 2: Summary Statistics for First-differences-approach in Logarithms

	Mean	Standard Deviation	Min	Max	Number of Obs.
Log change in bond spreads	-0.00026	0.0332	-1.9824	1.0601	32195
Log change US Note 10 years	-0.00006	0.0102	-0.0395	0.3144	32195
Log change US Bill 3 months	-0.00001	0.0099	-0.1307	0.1002	32195
Log change VIX	-0.00005	0.0546	-0.2998	0.4960	32195

Summary statistics for changes in logarithm (first-differences-approach). Daily observations from 1992 to 2007. The US yields are expressed in percentage points.

Appendix 3: Summary Statistics for GEE Panel Regressions

	Mean	Standard Deviation	Min	Max	Number of Obs.
Bond spreads (bps) 80 days full sample	1083.34	1009.23	72	7220	10607
Bond spreads (bps) 80 days reduced sample	804.84	469.09	72	2941	9480
Bond spreads (bps) 40 days full sample	1110.79	1033.26	77	6239	5214
Bond spreads (bps) 40 days reduced sample	812.58	475.96	77	2941	4661
US Note 10 years (percent)	5.42	1.05	3.1	8.03	10607
US Bill 3 months (percent)	3.71	1.59	0.8	6.24	10607
VIX	19.74	6.87	9.31	45.74	10607

Summary statistics for GEE-approach. Control variables are derived from the 80 days full sample period. Differences to the 40 days sample are not reported but negligible. The US yields are expressed in percent. Reduced sample refers to the sample excluding periods of extreme financial distress or default.

Appendix 4: Number of political events by country

Country	Total Events	Country	Total Events
Argentina	7 (5)	*Mexico*	4 (4)
Brazil	8 (8)	*Panama*	3 (3)
Chile	2 (2)	*Peru*	7 (7)
Colombia	3 (3)	*Uruguay*	2 (2)
Dominican Republic	2 (2)	*Venezuela*	14 (13)
Ecuador	14 (10)		
El Salvador	0 (0)	**Total Events**	66 (59)

Number of cabinet changes involving finance or economics minister reported for period 1992-2007. The events are domestic events. Number of observations in parentheses constitutes the reduced sample excluding events of extreme financial distress and default.

Appendix 4: Finance and Economics Minister Changes in Latin America, 12 countries, January 1992 to September 2007.

Country	Date+	Name	Position*	Reason	News Character	Financial Distress?
Argentina	1996	Domingo Cavallo	Finance and Economics	Cavallo is dismissed by President Menem due to ongoing infighting after 5 years in office.	Partly anticipated	No
Argentina	2001	José Luis Machinea	Finance and Economics	Machinea steps back amid growing criticism.	Not anticipated	No
Argentina	2001	Ricardo López Murphy	Finance and Economics	Murphy steps back after only two weeks in office due to political infighting.	Not anticipated	No
Argentina	2001	Domingo Cavallo	Finance and Economics	Cavallo steps back and little later the whole cabinet.	Partly anticipated	Extreme
Argentina	2002	Jorge Remes Lenicov	Finance and Economics	Remes steps back and triggers another cabinet reshuffle.	N/A	Extreme
Argentina	2005	Roberto Lavagna	Finance and Economics	Lavagna is forced to step back after frictions between President Kirchner and him intensified.	N/A	No
Argentina	2007	Felisa Miceli	Finance and Economics	Miceli resigns due to the "bathroom-scandel".	N/A	No
Brazil	1992	Gustavo Krause	Finance	Krause resigns in a policy dispute with acting President Franco.	Partly anticipated	Yes
Brazil	1993	Paulo Haddad	Planning	Haddad resigns as Planning Minister in order to move full time to the Finance Ministry.	N/A	Yes
Brazil	1993	Paulo Haddad	Finance	Haddad tenders in his resignation in protest against political interference in the central bank.	N/A	Yes
Brazil	1993	Yeda Crusius	Planning	Crusius resigns after having been excluded from consultations on the government's economic plan.	Partly anticipated	Yes
Brazil	1993	Eliseu Resende	Finance (and acting Planning)	Resende (under pressure for alleged conflict of interest dealings) departs as part of a wider reshuffle.	Partly anticipated	Yes
Brazil	1994	Fernando Henrique Cardoso	Finance	Cardoso resigns in order to run in October's presidential elections.	Partly anticipated	No
Brazil	1994	Rubens Ricupero	Finance	Ricupero resigns after embarrassing comments on inflation in an interview.	Not anticipated	No
Brazil	2006	Antonio Palocci	Finance	Palocci steps down following intense pressure over his role in an alleged corruption scheme.	Partly anticipated	No
Chile	2001	Jose de Gregorio	Economy, Energy and Mining	De Gregorio surprisingly resigns to head Chile's Central Bank.	Not anticipated	No
Chile	2006	Ingrid Antonijevic	Economics	Antonijevic is replaced during a cabinet reshuffle.	N/A	No
Colombia	2000	Juan Camilo Restrapo	Finance	Restrapo announces his resignation with no specific reasons for his decision.	Partly anticipated	No

Colombia	2003	Roberto Junguito	Finance and Public Credit	Junguito resigns saying that he had achieved his aims in the post.	Not anticipated	No
Colombia	2007	Alberto Carrasquilla	Finance	Carrasquilla resigns for personal reasons.	N/A	No
Dominican Republic	2002	Fernando Alvarez Bogaert	Finance	Alvarez Bogaert steps down saying he had finished the term for which he agreed to serve.	N/A	No
Dominican Republic	2003	Jose Lois Malkum	Finance	Malkum is appointed Central Bank chief during a larger cabinet shuffle.	N/A	No
Ecuador	1995	Mauricio Pinto	Finance and Credit	Pinto is censured and dismissed by Congress by means of an impeachment.	N/A	Yes
Ecuador	1997	Pablo Concha	Finance and Public Credit	President Bucaram ("el loco") and his cabinet are sacked by the Congress.	N/A	No
Ecuador	1999	Fidel Jaramillo	Finance	Jaramillo resigns due to the failure of the Congress to pass badly needed tax measures.	N/A	Yes
Ecuador	1999	Ana Lucia Armijos	Finance	Armijos resigns due to fierce opposition in Congress.	N/A	Extreme
Ecuador	1999	Guillermo Lasso	Economics	Lasso resigns after disagreements over the decision to default on Brady bond payments.	N/A	Extreme
Ecuador	2000	Alfredo Arizaga / Javier Espinosa	Finance / Economics	President Mahuad announces the resignation of his entire cabinet.	N/A	Extreme
Ecuador	2000	Jorge Guzman	Finance and Economics	Guzman suddenly resigns because of a dispute over the best way to remove subsidies.	Not anticipated	Extreme
Ecuador	2000	Luis Yturralde	Finance and Economics	Yturralde resigns citing personal reasons (even though opposition against tax increases demanded by the IMF may be at the centre)	N/A	Yes
Ecuador	2001	Jorge Gallardo	Finance and Economics	Gallardo quits shortly before being charged with corruption.	N/A	Yes
Ecuador	2002	Carlos Julio Emanuel	Finance and Economics	Emanuel tenders his resignation amid corruption allegations in his ministry.	N/A	Yes
Ecuador	2004	Mauricio Pozo	Finance and Economics	Pozo resigns for personal reasons.	N/A	Yes
Ecuador	2005	Mauricio Yepez	Finance and Economics	President Gutierrez and his cabinet are ousted by Congress.	Partly anticipated	No
Ecuador	2005	Rafael Correa	Finance and Economics	Correa resigns over policy differences with President Palacio.	N/A	No
Ecuador	2007	Ricardo Patino	Finance and Economics	Patino is replaced after having been censured by the Congress for alleged manipulation of bond markets.	N/A	No
Mexico	1994	Jaime Serra Puche	Finance	Serra is replaced after having mismanaged the currency crisis.	Partly anticipated	Yes

Mexico	1997	Guillermo Ortiz	Finance	President Zedillo named Ortiz to head Mexico's central bank in an unexpected move.	Not anticipated	No
Mexico	2003	Luis Ernesto Derbez	Economics	Derbez changes from the economy to the foreign ministry.	N/A	No
Mexico	2005	Fernando Canales	Economics	A minor cabinet reshuffle moves Canales from the ministry of economy to energy.	N/A	No
Panama	1996	Olmeda Miranda	Finance and Treasury	Miranda leaves the Finance Ministry in order to become the Presidency Minister.	N/A	No
Panama	1999	Guillermo Chapman / Miguel Heras Castro	Planning and Policy Economic / Finance and Treasury	Chapman and Castro are replaced by economist Fernando Aramburu, who heads a newly created Ministry of Finance and Economy.	N/A	No
Panama	2000	Victor Juliao	Finance and Economics	Juliao is not re-appointed as Finance Minister following the resignation of the entire cabinet.	Not anticipated	No
Panama	2007	Ricaurte Vásquez	Finance and Economics	Vásquez, resigns from his post for personal reasons.	N/A	No
Peru	1998	Jorge Camet	Finance and Economics	Camet resigns on the second day of a cabinet reshuffle after having served for 5 1/2 years.	N/A	No
Peru	1999	Jorge Baca	Finance and Economics	Baca is replaced in the most sweeping cabinet reshuffle since president Fujimori took office.	N/A	No
Peru	1999	Victor Joy Way	Finance and Economics; Prime Minister	Joy Way resigns to run for Congress elections. As he holds the position of prime minister as well, the constitution demands the whole cabinet to resign.	N/A	No
Peru	2000	Carlos Bolona	Economics and Finance	The whole Peruvian cabinet resigns amid social protest against President Fujimori who steps back the next day.	N/A	No
Peru	2002	Pedro Pablo Kuczynski	Finance and Economics	Kuczynski is part of a broader government reshuffle.	Partly anticipated	No
Peru	2003	Javier Silva Ruete	Finance and Economics	Silva Ruete is named to head the central bank.	N/A	No
Peru	2004	Jaime Quijandria	Finance and Economics	Quijandria is moved back to his former mines and energy ministry, leaving the place for Kucynski in another cabinet shake-up.	Partly anticipated	No
Peru	2005	Pedro Pablo Kuczynski	Finance and Economics	Prime Minister Ferrero (and due to Peruvian constitution the whole cabinet) resigns in protest over a cabinet pick made by President Toledo.	N/A	No
Venezuela	1992	Roberto Pocaterra	Finance	Pocaterra is replaced by President Perez due to considerable political pressure about economic reform.	N/A	Unbalanced
Venezuela	1992	Miguel Rodriguez	Planning	Rodriguez is appointed as Central Bank chief.	N/A	Unbalanced

Venezuela	1993	Pedro Rosas / Ricardo Haussman	Finance / Planning	Rosas and Haussman are part of the departing cabinet of President Perez who faces corruption charges for misappropriating government funds.	N/A	No
Venezuela	1994	Enzo del Bufalo	Planning	Del Bufalo resigns and starts a partial reshuffle.	Partly anticipated	Yes
Venezuela	1994	Luis Carlos Palacios	Planning	Palacios offers his resignation in protest over policy measures taken by the cabinet.	N/A	Yes
Venezuela	1995	Jose Sosa Rodriguez	Finance	The government announces Sosa's resignation amid a banking crisis.	N/A	Yes
Venezuela	1995	Werner Corrales	Planning	Corrales is replaced amid a mounting economic crisis in Venezuela.	N/A	Extreme
Venezuela	1996	Edgar Paredes	Planning	Paredes's ministry is involved in a cabinet reshuffle due to ongoing strikes.	N/A	Yes
Venezuela	1997	Raul Matos Azocar	Finance	Matos Azocar resigns under – unjustified – threat of censure by the Congress for alleged "irregularities".	Partly anticipated	No
Venezuela	1998	Freddy Rojas	Finance	Rojas's resignation is announced, citing personal reasons.	N/A	No
Venezuela	1999	Maritza Izaguirre	Finance	Izaguirre resigns and returns to the IDB.	N/A	No
Venezuela	2001	Jose Rojas	Finance	Rojas departs from the cabinet to take up a position at the IADB.	N/A	No
Venezuela	2002	Nelson Merentes	Finance	President Chavez replaces his finance minister Merentes by an army General.	N/A	Yes
Venezuela	2002	Jorge Giordani / Jesus Bermudez	Planning and Development / Finance	Giordani and Bermudez are replaced in a cabinet reshuffle affecting the two top economic posts.	Partly anticipated	No
Venezuela	2003	Felipe Perez	Planning and Development	Perez is asked to resign by President Chavez for unknown reasons.	N/A	Yes
Venezuela	2004	Tobias Nobrega	Finance	Nobrega is dismissed by President Chavez after inopportune public comments.	Partly anticipated	No
Uruguay	2002	Alberto Bensión	Finance and Economics	Bensión's (forced) resignation due to pressure from the junior coalition partner.	Partly anticipated	Yes
Uruguay	2003	Alejandro Atchugarry	Finance and Economics	Atchugarry unexpectedly resigns, citing personal reasons.	Not anticipated	No

* For the period 1999-2004 the positions of the ministers are based on the Cambridge International Reference on Current Affairs (CIRCA) and corresponding news paper articles. The remaining positions are drawn from the financial press.
+ The exact dates are available upon request.