Country Stress Events: Does Governance Matter?[G]

(Preliminary version, please do not cite or circulate,

we are currently updating the data to the most recent year)

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Abstruct

This paper analyzes the linkages between governance quality and country stress events. It focuses on two types of events: fiscal and political stress events, for which two innovative stress indicators are introduced. The results suggest that weaker governance quality is associated with a higher incidence of both fiscal and political stress events. In particular, *internal* accountability, which measures the responsiveness of governments to improving the quality of the bureaucracy, public service provision, and respect for the institutional framework in place, is highly related to fiscal stress events. *External* accountability which captures government accountability before the public in general, through elections and the democratic process, seems to be more important for political stress events. These results hold when using balanced country samples where region, oil-exporter status, income level, and time are taken into account.

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1. Introduction

Good governance plays an important role in implementing successful economic policies and sustaining inclusive growth. It provides transparency and predictability in policymaking, efficiency and equity in access to government services and resources, as well as equity in civil and political rights. Governance weaknesses, in turn, can involve onerous, ineffective and predatory regulatory procedures, and corruption that discourages entrepreneurial talent and undermines economic performance. They can also be reflected in poor public financial management, and, in the extreme, macroeconomic instability. Other associated concerns are weak tax policy or tax and custom administration, and excessive, wasteful, or poorly targeted public spending. Along with its inefficient policies and regulations, bad governance tends to restrict civil rights and freedoms, which may lead eventually to political instability and crises.

Recent events in different parts of the world provide examples of possible interrelations between governance quality and instability. The sovereign debt crisis in Greece in 2010-2011 has dramatically destabilized the European Union and affected many other countries. The Arab Spring events of 2011 occurred in a region characterized by relatively weak governance and unequal access to the benefits from economic growth recorded in those countries.

Country stress events – fiscal, financial, balance of payments or even those that are political in nature – can develop into full-blown crises, with important adverse consequences for macroeconomic stability, such as a severe and permanent loss in output. There is a vast literature that analyzes the negative impact of such crises on the economy. Reinhart and Rogoff (2010) and Kumar and Woo (2010) study the relationship between public debt and economic growth. Alesina et al. (1996) find that during periods of political instability, economic growth is significantly lower than at other times.[1]

This paper shows that the quality of governance matters for the incidence of fiscal and political stress events. We focus on these two types of stress events because they may be seen as occurring in areas generally under the control of the public sector or directly related to actions taken by policymakers. In this way, fiscal and political stress events differ from, for instance, financial crises, which tend to originate in actions and decisions made by private-sector agents. We expect that countries with weaker governance are more likely to be subject to fiscal and political stress events. Another important contribution of this study is the identification of these stress events. We suggest a new methodology that helps to endogenously determine stress events; the events so determined seem to be less restrictive (or less arbitrary) than those usually used in the literature.

There are studies that consider a "fiscal stress event" to be characterized by instances of outright default or debt restructuring. For instance, Detragiache and Spilimbergo (2001) define public debt crises as events of outright default or rescheduling. Manasse et al. (2003) add the provision of a large-scale official financing support to the definition of a fiscal crisis. Yet a country might experience severe fiscal stress, which could be reflected in significant constraints in their market access and increases in the cost of funding,

[1] See also Arellano (2008), Kaminsky and Reinhart (1996), Kaminsky et al. (1998) among others.

long before default or restructuring occurs. Even if such stress does not ultimately result in debt default or restructuring, it may still have significant macroeconomic consequences. For example, a sharp increase in sovereign yields can significantly raise funding costs, debt-servicing costs, and roll-over risk, but may also lead to a widespread increase in long-term interest rates in the rest of the economy, affecting both investment and consumption decisions.[2] In other words, a more realistic measure of fiscal stress does not necessarily need to be characterized by outright public debt default and restructuring, but should include near-default events.

Similarly, other studies confine the definition of "political stress events" to cases of government collapse or regime change (say, from dictatorship to democracy). For example, Alesina et al. (1996) define "political instability" as the propensity of a government to collapse. Dutt and Mitra (2008) define instances of political instability using movements between democratic and dictatorial regimes. A country, however, may experience instances of increased "political stress," which can be characterized, for example, by an increase in the number of protests, anti-government demonstrations, riots, or street violence that could destabilize the effectiveness of the government and even the overall macroeconomic ambit, without necessarily leading to collapse of the government or a change of regime. These distinctions are captured in the stress measures that we develop.

Empirical research typically uses a "signaling" approach to attempt to identify the main variables that help to predict stress events. The seminal papers by Kaminsky and Reinhart (1996) and Kaminsky et al. (1998) use the "noise-to-signal" ratio to determine which variables help to predict currency and banking crises.[3] Although this method is transparent and easy to implement, it also seems to have important drawbacks. In particular, it ignores the possible interactions between the different explanatory variables, and does not allow standard inference and testing to assess the statistical validity of inclusion of variables in the model. There are also studies that use limited dependent variable estimation methodologies to quantify the link between a stress indicator and its determinants. Manasse et al. (2003), for example, use logit and binary recursive tree analysis to identify macroeconomic variables that help to predict a debt-crisis episode one year in advance.

In this study, we start with a simple comparison of average governance measures (and other relevant variables) between countries that undergo a stress event and those that do not, and test their statistical difference. Then we proceed with the same comparison but on a balanced sample, meaning that countries are combined into groups that share similar observed characteristics such as geographical region, income level, or hydrocarbon exporter status. We repeat this last step also grouping the data from a given year. After a comparison of averages, we estimate parsimonious conditional logistic regressions on the balanced sample to

[2] This can be illustrated by the current situation in the euro area. Indeed, several countries in the euro area periphery have been experiencing significant impairments to their access to funding during the past few years – with potential consequences for their macroeconomic stability. Yet, none of these countries have defaulted or restructured their debt during this period.

[3] Baldacci et al. (2011) use the same approach to assess the determinant of episodes of fiscal stress.

see whether governance measures have any predictive power, while controlling for other macroeconomic variables.[4]

The results of the analysis suggest that countries with weaker governance tend to be more prone to political stress events. It is notable that statistically, the averages of all governance measures are different for the two groups of countries on a balanced sample (when region, oil, income level, and year are taken into account), while the averages of most of the other socio-economic variables are not significantly different, except for real GDP growth, inflation, and trade openness. All governance measures remain significant in conditional logistic models when our political stress indicator is the dependent variable. In the case of fiscal stress events, however, only "governance effectiveness" and "control of corruption" seem to be associated with the incidence of such events.

Overall, this study confirms the importance of governance quality for the incidence of both political and fiscal stress events, although we do not infer a causal relationship between them. Policy-makers, thus, should pay greater attention to improving governance in order to minimize the probability of stress events that can have severe consequences, damaging economic welfare and society as a whole.

This paper is organized as follows. Section 2 introduces the dataset and focuses on the construction of the governance, business environment, fiscal stress, and political stress measures. Section 3 presents the estimation methodology and empirical results, while Section 4 assesses the main findings. Section 5 concludes the paper.

2. Data and Variables

2.1 Governance Measures

To analyze the relationship between governance quality and stress events, and to determine which aspects of governance are more important, we use governance measures obtained from the World Bank's Worldwide Governance Indicators (WGI).[5] The WGI database includes six broad measures of governance and the business environment: "control of corruption," "government effectiveness," "rule of law," "regulatory quality," "political stability and absence of violence," and "voice and accountability". Using a model of unobserved components, these indicators are constructed from perceptions-based cross-country surveys and expert opinions that come from more than 30 data sources. The indicators cover the period from 1996 to 2009, for about 200 countries.

[4] Our logistic models, however, should not be perceived as Early Warning Systems (due to their high persistence, governance measures embed relatively little information regarding the precise timing of a potential stress event taking place), but they are, rather, used as robustness checks vis-à-vis the comparison of the means on the balanced sample mentioned above.

[5] These indicators are produced by the World Bank Institute, and were developed by Kaufmann et al. (1999). Kaufmann et al. (2010), for example, describe the data sources and the methodology for the construction of the indices.

The indicator for voice and accountability measures the degree to which citizens can participate in the selection of the government and hold it accountable through various aspects of political processes, civil liberties, and political rights. The political stability indicator relates to the probability of disposing of or destabilizing the government in a lawless or violent way, such that citizens are not able to select or remove it peacefully. These two indicators, in effect, describe the ability to hold the government accountable before the public through elections and voting processes, and broadly may be considered as a measure of "external accountability".

The government effectiveness indicator captures the quality and credibility of the bureaucracy and the provision of public services, and the competence of public officials to implement good policies and to deliver public goods. The indicator for regulatory quality relates directly to the quality of public policies such as tendency to control prices, bank and business supervision, and other regulations. Government effectiveness and regulatory quality, therefore, are linked to the government's ability to create and implement good and fair policies.

The last two indicators measure the respect of both the public and the government for institutions that control interactions between them. Rule of law captures the incidence of crime, effectiveness of the judiciary, and enforcement of contracts. Finally, control of corruption measures perceptions of various aspects of corruption, from petty to grand corruption. These four indicators may be regarded as a measure of "internal accountability," in the sense that the government establishes various institutions and incentives to govern the behavior of agencies and agents within the state.[6]

All six governance indicators are highly correlated with each other as well as with income levels, measured by GDP per capita in PPP terms (Table 1, Annex I). The high correlation is not surprising, because governance aspects tend to be interrelated. For example, poor government efficiency and burdensome regulations may induce higher corruption. Richer and more developed countries historically tend to have better institutions (Acemoglu, 2001). Further, by construction some indicators share common data sources but with different weights, which naturally leads to higher correlation among indicators. To account for these features and to assess the broader aspects of governance quality, we also consider two aggregate indicators, reflecting external accountability and internal accountability (we refer them to External Accountability (WGI) and External Accountability (WGI), respectively) as described above. These two indicators we construct using principal component analysis (PCA).

The PCA procedure consists of searching for orthogonal linear combinations (principal components) of potentially correlated variables. The combination that produces the highest possible variation in the available data (in other words, absorbs the most information from the underlying variables) is called the first principal component. The principal component is extracted as the eigenvector associated with the largest eigenvalue of the correlation matrix of the underlying variables. Effectively, there can be as many principal components as the total number of variables. However, the practical idea behind PCA is to have one or a few

[6] See also World Bank (2003) for a discussion of external versus internal accountability.

components explaining a large portion of the total variance in the data. This renders the interpretation of the results relatively easy in any practical application.[7] Since governance measures that constitute external and internal accountability share similar characteristics, construction of the first principal component is the best way to preserve the highest variation in the data, which is essential for estimation purposes.

As a robustness check, we also employ several governance measures from the International Country Risk Guide (ICRG) rating agency.[8] These measures are based on perceptions, and are constructed using opinions of experts only. The data cover a longer time period, from 1985 to 2011, but include a smaller number of countries. In our sample, ICRG indices cover about 30 fewer countries than WGI. We choose seven components out of twelve that comprise the ICRG political risk rating, group them into external and internal accountability as we have done with the WGI indicators, and combine them using PCA. Governance quality related to "external accountability (ICRG)" includes "democratic accountability," "internal conflict," and "military in politics"; and governance quality related to "internal accountability (ICRG)" involves "bureaucracy quality," "investment profile," "law and order," and "corruption". These components are similar to the WGI indicators, and are briefly described in Annex II. Correlations between these components and levels of income are high, but somewhat lower than in WGI (Table 1, Annex I).

Finally, and again for robustness check, we use the Cross-National Time Series (CNTS) data archives[9] to construct a measure that relates to external accountability. In our sample the data range from 1970 to 2006 and cover only eight fewer countries than the WGI data. From CNTS we use five measures:[10] "type of regime," "effective executive (type)," "effective executive (selection)," "legislative effectiveness," and "legislative selection" (see Annex II for more details), and combine them into a single indicator, "external accountability (CNTS)," using principal component analysis. In comparison with WGI and ICRG indicators, this measure is objective.

To make our governance measures more comparable with each other, we standardize them to z-score, that is, we transform them into zero mean variables and unit standard deviation. Higher values indicate better governance quality. The descriptive statistics of these variables are presented in Table 2 (Annex I). The largest part of the variation in these governance measures is explained by cross-country (between standard deviation) variation. Figure 1 in Annex I shows the average values of the external and internal accountability indicators grouped by regions, income level, and oil-exporting status. Oil-exporting countries tend to have lower governance quality. Similarly, poorer countries have worse governance. The Middle East and North Africa and Sub-Saharan African regions also tend to have weaker governance quality than other

[7] See Jollifee (2002) for a detailed discussion on the PCA methodology, and Behar (2009) and Caceres and Piperno Beer (2009) for practical applications of this methodology.
[8] A description of the data can be found at: http://www.prsgroup.com/ICRG_Methodology.aspx#PolRiskRating.
[9] Banks (2010) describes the CNTS data in detail.
[10] Original values of these measures have been slightly modified to satisfy the purposes of the paper. For example, all values have been rearranged so that higher value indicates better external accountability; "President" and "Premier" are combined together in "effective executive (type)"; "direct and indirect election" are also combined together in "effective executive (selection)".

regions; advanced countries significantly outperform all other regions (Annex IV describes the division of countries by region and oil-exporting status).

2.2 Fiscal Stress Indicator (FSI)

To identify episodes of "fiscal stress," we construct a Fiscal Stress Indicator (FSI), which is equal 1 when a country is under stress in a given year and zero otherwise.

The literature usually defines a fiscal stress event as an episode in which the sovereign defaults on its debt obligations – that is, default or restructuring of the debt. This definition seems restrictive because there are several instances in which countries experience stress for a prolonged period of time (i.e., years) before default occurs, or, in some cases, without ever defaulting on its debt obligations. Fiscal stress can be visible when a country encounters difficulty in gaining normal access to funding. To broaden the definition, Manasse et al. (2003) add the provision of large-scale official financing support, measured as access to non-concessional IMF financing in exceeding 100 percent of quota. Baldacci et al. (2011) further develop the definition of fiscal stress by including the concept of severe market-based financing constraint, or sovereign yield pressure, as indicated when sovereign spreads exceed 1000 basis points or two standard deviations from the country average. Although the inclusion of these innovations into the definition of stress events is welcome, the thresholds used in those studies may be seen as arbitrary, and are exogenous to the underlying characteristics of the data. In order to overcome this important shortcoming, we present a methodology in which the thresholds for the IMF financing and sovereign spreads are determined endogenously. Our measure of fiscal stress is constructed based on the following three steps:

(i) We take non-concessional IMF financing being accessed as a share of countries' quotas (referred to here as "IMF-financing") and sovereign spreads. Due to the lack of available consistent data for all countries, we employ three types of sovereign spreads. First, we use five-year sovereign swap-spreads, which are available mainly for advanced countries and cover a maximum of 25 years. Second, we use EMBI blended spreads, which exist for about 30 emerging markets and cover a maximum of 18 years. Third, for other developing and low-income countries (around 15 countries in our sample) we use the spread of a country's 10-year sovereign bond yield relative to the 10-year US Treasury bond. For the remaining countries (mostly low-income), there are no spreads available or liquid enough to be used. As a result, we have four sets of countries that do not overlap each other according to availability of sovereign spread data.

(ii) For the three sets of countries with available sovereign spreads, we extract the first principal component from the IMF-financing and sovereign spreads using PCA. For those countries that do not have sovereign spreads, we use only IMF-financing, and transform them into a zero mean and unit standard deviation variable. This step results in four continuous variables, labeled PCF_i , for the four country groups i = 1, 2, 3, 4.

(iii) We use PCF_i to compute a dichotomous Fiscal Stress Indicator. For this purpose we define thresholds τ_i such that when PCF_i exceeds it ($PCF_i \geq \tau_i$) we treat this situation as a fiscal stress event.

Using each of the four PCF_i separately, we try to predict the actual episodes of debt default or restructuring (based on the S&P definition).[11] The thresholds τ_i are defined as the level of PCF_i at which the number of type I and type II errors of the prediction are equalized. A type I error (false positive) occurs when a statistical test rejects a true null hypothesis (an actual stress event occurring); while a type II error (false negative) occurs when the test fails to reject a false null hypothesis (an actual stress event is not occurring).

This procedure yields a FSI that is endogenously determined and based on sovereign spreads and IMF-financing data. While constructing the threshold, we use actual default and restructuring episodes, since market interest rates tend to increase sharply before these events. Using the information on IMF-financing and/or spreads increase, we estimate the stress threshold, which is afterwards applied to countries not in default. The FSI, therefore, does not necessarily coincide perfectly with actual instances of default; rather, it captures stress reflected in the increase in IMF-financing and/or spread variables.

FSI has captured a total number of 583 fiscal stress events (16 percent of the sample), 10 of which took place in advanced counties and the rest in developing countries over the period 1970-2011 (Table 1 in Annex III). The results can be compared, for example, with 41 and 135 fiscal stress events found in Baldacci et al. (2011) for advanced and emerging economies, respectively, over the period 1970–2010, and with 54 instances found in Manasse et al. (2003) which used a panel of market access countries over the period 1970–2002.[12]

Figure 2 in Annex I shows the distribution of FSI by oil-exporting status, income quartiles, and region for two time periods, 1985–2011 and 1996–2011, since our governance measures from ICRG and WGI start from 1985 and 1996 respectively. Countries that are not oil exporters, and/or with lower income levels, tend to experience fiscal stress events more frequently. Countries from Sub-Saharan Africa are more often under fiscal stress than other regions.

2.3 Political Stress Indicator (PSI)

To characterize "political stress" events, the literature generally uses episodes of government collapse or transitions between non-democratic and democratic regimes. However, a country might also experience significant political stress marked, for example, by anti-government demonstrations, violence, riots, etc. – without necessarily implying an outright collapse of the government or a change in regime. This political stress, meanwhile, may reflect a general dissatisfaction of the public with, for example, inadequate

[11] There is one caveat concerning defining the threshold for PCF in the case of advanced countries. Advanced countries have never defaulted, according to S&P definition, within our sample period, in spite of some of them having had significant problems with sovereign debt. Therefore, we posited that Iceland experienced a "stress event" in 2008 and 2009 and Ireland, Portugal, and Greece in 2010 and 2011. Note, however, that the exclusion of these countries from the sample virtually does not change the results of our analysis. (These results are available from the authors upon request).

[12] Under the S&P definition a country can be in "default" for several consecutive years until the country repays or reaches a settlement on its debt obligations, even if the country is no longer experiencing fiscal stress. In fact, this is one of the reasons why the FSI does not coincide with actual episodes of default or debt restructuring (as per the S&P definition) for 65 percent of the cases.

governance, and may lead to socioeconomic dislocations, hindering macroeconomic stability and growth. In order to capture these notions of political stress, we construct an endogenous dichotomous measure, a Political Stress Indicator (PSI), which equals to 1 when a country is in a situation of "political stress" in a given year, and zero otherwise. Using a similar methodology to that employed for the computation of the FSI, we construct the PSI based on the following three steps:

(i) From the CNTS database we take four variables: "major government crises," "purges," "revolutions," and "anti-government demonstrations". These variables include the number of named events actually taking place (see Annex II for the detail definitions) and can potentially describe periods of political instability. The data cover about 175 countries over a century until 2008.

(ii) We extract the first principal component from these four variables using PCA, and refer it to PCP.

(iii) We use PCP to compute a dichotomous Political Stress Indicator. For this purpose we define a threshold τ such that when PCP exceeds it ($PCP \geq \tau$) we treat this situation as a political stress event. Using PCP we try to predict actual episodes of regime change – transition from autocracy to democracy. These actual events come from the "Democracy Dictatorship" database developed by Cheibub el al. (2009). The threshold τ is estimated as the level of PCP which equalizes the number of type I and type II prediction errors.

By analogy with the case of fiscal stress events, we expect that the incidence of government crises, purges, revolutions, and anti-government demonstrations increases significantly around periods of actual regime change. Episodes of political stress captured by the PSI and actual regime changes constitute only 2% of the whole sample as rare events. Figure 3 in Annex I shows the distribution of the PSI by oil-exporting status, income quartiles, and region for the periods 1985-2008 and 1996-2008, as our governance measures from ICRG and WGI are defined over these two periods. Countries that are not oil exporters, and/or with income levels from the second and third quartiles (this suggests a nonlinearity with respect to development level), tend to experience political stress events more frequently. The same is true for countries from Latin America and, to a lesser extent, the Asia-Pacific region. During 1985-2008 Central and Eastern European countries experienced a relatively high number of political stress events, connected with the collapse of the Soviet Union and the socialist bloc.

2.4 Other Variables

In addition to the various governance indicators, we employ other socioeconomic and demographic measures that can potentially be related to fiscal and political stress events. Nonetheless, it is important to emphasize that we are not trying to identify all possible relevant variables that can be associated with these stress events, but rather we use them to observe whether they are as important as the governance indicators in relation to

stress events. In addition, we use some of these other variables as controls when estimating logistic models with the stress event indicators as dependent variable.

The first set of variables is related to fiscal stress events and includes standard budgetary aggregates, such as the overall fiscal balance, the public-debt-to-GDP ratio, and the share of total gross debt denominated in foreign currency. These variables are directly related to countries' fiscal pressure, and are commonly used in the literature on fiscal stress events (e.g., Baldacci et al., 2011 and Manasse et al., 2003). We also include demographic variables such as the old-age dependency ratio and the fertility rate, which can be associated with long-term fiscal pressures.

The second set of variables that can be related to political stress events includes the following: unemployment rate and youth unemployment rate, education level, infant mortality rate,[13] poverty rate, young-age dependency ratio, and inequality measures. These variables describe country demographic structure, poverty, and economic environments that seem to be important for life satisfaction and welfare. For example, high youth unemployment, inequality, and poverty together with a high share of youth in the population, may lead to higher levels of dissatisfaction among the general public and increase the possibility of political stress or instability. For some of these variables data are available only for certain non-consecutive years. In those cases we interpolate the data to fill missing yearly observations.

Finally, consumer price inflation, real GDP growth, and GDP per capita in PPP terms are included in both sets of variables to capture general macroeconomic conditions, as well as the level of economic development. All the variables employed, together with the governance measures, are considered at time *(t – 1),* while the stress (fiscal or political) variables are considered at time *t*, since we expect that the former should signal the incidence of a stress event before the event takes place. The definitions and data sources for these variables are presented in Annex II. Descriptive statistics and correlations among different variables are in Tables 3–5 in Annex I.

3. Empirical methodology

To study the relationship between governance and stress events we proceed in two steps. First, we combine all countries into groups that share similar important characteristics.[14] Within each group there are countries that are under "stress" and countries that are "stable" (i.e. not under stress). If a country that is under stress does not have a stable pair(s), it has zero weight in the analysis. Each country under stress receives a unit weight, and its stable matches receive weights uniformly distributed within a group. This procedure results in

[13] Using a case-control methodology, Goldstone et al. (2010) find that infant mortality has a statistically significant effect on the incidence of episodes of adverse regime change and civil war.

[14] For this purpose we use the STATA command "cem," developed for the Coarsened Exact Matching (CEM) technique, see Iacus et al. (2009) and Iacus et al. (2011) for details. Although CEM and other matching techniques can be used for policy evaluation analysis and other purposes, we use it only for combining countries into groups and obtaining particular weights for observations to form a balanced sample. In general, classic matching techniques are somewhat limited for macroeconomic analysis because of the relatively small number of available country-year observations.

a balanced sample – countries are grouped in strata, and each observation has a weight. Then we test on the balanced sample whether the average value of our governance indicators and other relevant variables significantly differ for countries that have experienced a stress event and those that have not.

Second, for completeness, we extend our analysis by estimating logistic regressions on the balanced samples to assess whether governance indicators have any predictive power for political and fiscal stress events conditional on other variables. These models should not be seen as an Early Warning System (EWS), because governance indicators – our main variables of interest – exhibit a high degree of persistence and explain mainly cross-country variation rather than variation over time.

The comparison of the means of variables for the stressed and stable countries on a balanced sample can be contrasted to a standard fixed-effect regression analysis with a number of fixed effects (region, income, oil, and year). Our approach has several advantages. First, fixed effect regressions require the inclusion of dummy variables and, more importantly, interactions among them to control for all fixed effects.[15] These dummies consume a lot of degrees of freedom, which can lead to inefficient standard errors, and thus need to be adjusted. Second, in a balanced sample, more weight is assigned to groups with higher probability of having stress (higher share of "stressed" countries) and zero weight if such probability is zero, while linear regression gives more weight to cells where portions of "stressed" and "stable" countries are the same, which can create a bias (see, e.g., Angrist, 1998). Therefore, although the results from comparing the means on a balanced sample and using fixed-effect regression can be, in certain cases, relatively similar, our approach is more robust. Finally, estimation of regressions with country fixed effects may be inappropriate for governance measures, because the variation of these variables is explained mostly by cross-country differences.

We start with a simple comparison of the means of the variables of interest for the two groups of countries: the countries that have experienced a stress event and those that have not. Then, we sequentially combine countries in groups that share such characteristics as region, hydrocarbon exporter status, income level, and year, and compare the means of the variables for the two groups of countries on the balanced samples. Annex III shows the division of all countries by region and hydrocarbon-exporting status.[16] To divide countries by their income level, we create four categorical variables, each of which contains 25 percent of the observations sorted by GDP per capita in PPP terms (four quartiles). These categories can move for a country over time. As an example, if we consider grouping by region, oil-exporting status and income, then we may have a maximum of 48 (6*2*4) strata. The number of strata reduces if some of them do not contain countries that are under stress. In one of these strata, we compare, for example, stress years in Djibouti, Jordan, Pakistan, and Mauritania with stable years in other countries from the MENAP region,

[15] Simple fixed effects without interaction terms remove only average values that are associated with, for example, region and income level, but not those that are associated with region-income groups.

[16] As an exception, and given their relatively low number, we consider all the advanced countries in our sample as belonging to the same "region".

which are non-oil exporters, and with an income from the second quartile. If we add the year dimension into the grouping, then we can only compare observations belonging to the same year.

Grouping by region allows us to control for regional characteristics, and implicitly, at least partially, for important idiosyncratic characteristics (e.g., shared culture, common colonial history, similar population traits, or geographic dynamics) that tend to be persistent and generally associated with a given region. Similarly, we might expect that resource-rich countries within a given region would differ significantly from their non-hydrocarbon-exporting neighbors located in the same region. Resource-rich countries might be better able to finance government expenditures that reduce the probability of fiscal or political stress, in spite of relatively weak governance (see Figures in Annex I). level, measured by GDP per capita in PPP terms, is highly correlated with governance quality Income; richer countries tend to have better governance and business environments. The grouping of the countries along these factors strips out the effect of characteristics that could otherwise bias the results. Therefore, we expect that this selection of characteristics is able to capture the major macroeconomic differences between groups of countries, while maintaining a sufficient number of observations for the analysis.

After comparing the means of the governance indicators and other variables, we estimate the following logistic model on the balanced data, separately for the two types of stress events:

$$P(stress_{i,t} = 1) = \Lambda(\beta' X_{i,t}) = \frac{e^{\beta' X_{i,t}}}{1 + e^{\beta' X_{i,t}}}$$

where $stress_i$ is either fiscal or political stress event in a country i, $\Lambda(\cdot)$ denotes the logistic distribution function, X is a vector containing the variables of interest and controls, and β is a vector of parameters to be estimated. We use a logistic regression because it usually performs better if the limited dependent variable is not equally distributed, that is, if the number of 'zeros' differs greatly from (and far exceeds) the number of "ones". In the case of political stress events, for example, the number of "ones" only represents 10 percent of all observations, even on balanced samples. The maximum likelihood estimation of a logistic regression is sensitive to the presence of heteroskedasticity. Therefore, we estimate the logistic regression with robust standard errors clustered on the level by which we group countries.

4. Results and discussion

Tables 1 and 2 in Annex V offer the results of the comparison of the means of the variables for the countries that have experienced a stress event and those that have not for the case of fiscal stress events and political stress events, respectively. The comparison is repeated for the different groupings of countries. These are based on income, region, hydrocarbon-exporter status, and year (each column in the tables represents a particular type of grouping). Hence, we can observe how each type of grouping affects the statistical significance of differences in the means.

Tables 3 and 4 in Annex V present the results of the conditional logistic regression estimations (on the balanced sample), using the fiscal and political stress event measures as dependent variables. These regressions include only those variables that, statistically, appear to be significantly different for countries that undergo a stress event and those that do not. We expect that only these variables could stay significant in the regressions (once several variables are simultaneously included); moreover, such parsimonious models allow us to preserve as many observations as possible.[17]

4.1 Fiscal stress

The simple comparison of the means (before grouping of countries) of the different governance measures shows that, on average, countries that have experienced a fiscal stress event tend to have worse governance than countries which have not experienced such an event (Table 1, Annex V). These results are statistically significant at the 1 percent level, and are relevant for all governance measures, except for our measure of "external accountability" from the CNTS database. The statistically significant difference in the means has also been found for other variables, such as income, real output growth, inflation, trade openness, and fiscal fundamentals. Essentially, countries that have experienced a fiscal stress event tend to have lower income per capita and higher inflation, and tend to be less open. As expected, they have a larger budget deficit, a higher debt-to-GDP ratio and a higher share of debt denominated in foreign currency. The signs of the differences in the means seem to be correct according to economic rationale.

A large part of the high statistical significance of these differences could be attributed to cross-country heterogeneity explained by, e.g., regional or income characteristics. For instance, richer countries, which exhibit better macroeconomic performance, tend to be less prone to stress events. Thus, comparing the average governance levels on the unbalanced sample does not allow us to determine whether the observed difference between stressed and stable countries is due to differences in governance quality or simply reflects income disparities, as both variables are highly correlated. In order to disentangle the effect of governance quality from that of income level (or that of geographical location and oil-exporting status), we repeat this analysis using the balanced sample instead.

Columns II and III in Table 1 shows the results of comparing the means when countries are grouped by region and oil-exporting status, and also by year. The averages of most variables are still statistically different for the two types of countries (i.e. "stressed" and "stable"), but the magnitude of the difference is smaller. Grouping the different observations by year seems to be a more important factor for the macroeconomic variables than for the governance indicators, because the latter tend to be much more persistent over time.

The inclusion of income level among the grouping characteristics changes the results dramatically (Table 1, columns IV and V). In column V only "government efficiency" is significantly different at the 5

[17] The full set of regressions on different balanced samples, with all set of governance measures among controls, are available from the authors upon request.

percent significance level for "stressed" and "stable" countries.[18] When controlling for the year, the significance level in the differences of the governance measures from the ICRG database is reduced, probably because these variables cover a larger time period and present a higher variability. The differences in the means of the macroeconomic variables remain significant only for variables directly related to fiscal stance: budget balance, public-debt-to-GDP ratio, and the share of debt denominated in foreign currency.

These results indicate that income level (often referred to economic development level), in particular, explains a large part of the differences between the countries that have experienced a fiscal stress event and those that have not. As noted, governance indicators are highly correlated with income level. Demographic indicators as well as inflation and openness can also be associated with income level. Richer countries, for example, tend to have older populations and a lower fertility rate, lower inflation rates and higher trade openness and have lower incidence to fiscal stress events. It is notable, however, that while average values of continuous GDP per capita and other socio-economic variables become insignificantly different once we control for income level quartiles, average values of "government effectiveness" (and, marginally, "control of corruption," bureaucracy quality and investment profile) are still statistically different for "stressed" and "stable" countries. This means that countries with weaker credibility and less efficient bureaucracy and public services provision together with higher corruption levels are more likely to experience fiscal stress events. The statistically significant difference in the means of fiscal variables for the two types of countries is not surprising, and it confirms the fact that fiscal fundamentals are indeed associated with the incidence of fiscal stress events.

The estimation of logistic regressions on a balanced sample, where countries are grouped according to their region, oil-exporting status, income level, and year, are presented in the Table 3 in Annex V. We include only "government effectiveness" and "control of corruption," as well as external and internal accountability measures computed using the WGI, ICRG, and CNTS databases. We use the budget balance and public debt-ratio as control variables. We do not consider the share of debt denominated in foreign currency in these regressions given that it has limited number of observations.

The results confirm that better "government effectiveness" and "control of corruption" are associated with a lower probability of experiencing a fiscal stress event. The same conclusion is relevant for the "internal accountability (WGI)" and "external and internal accountability (ICRG)" measures. The results show that both aspects of governance (internal and external accountability) matter in the incidence of fiscal stress events.[19] As expected, variables related to fiscal stance are significant in almost all specifications. Pseudo R2, however, are low for all specifications and do not exceed 4 percent, indicating low predictive power of the models.

[18] "Control of corruption," "bureaucracy quality," "investment profile" and "external accountability (CNTS)," are marginally significant at the 15 percent level.

[19] In fact, when the two measures of internal and external accountability from the ICRG database are included together in the regression, they appear to be jointly significant.

4.2 Political stress

In the case of political stress events, the results concerning governance measures are different from those obtained in the case of fiscal stress events. Regardless of grouping criteria for balancing the sample, average values of almost all governance indicators are significantly different in countries that have experienced a political stress event from those that have not. Countries with worse governance seem to be more prone to experience political stress events. Only the "democratic accountability" and "bureaucracy quality" measures from the ICRG database are insignificantly different for the two types of countries. These results show that within a group sharing the same region, oil-exporting status, income quartile, and year, there is still enough variation between "stressed" and "stable" countries, which can be largely attributed to differences in governance quality among these countries (Table 2, Annex V). It is thus notable that in spite of the high correlation between per capita income and governance measures, the latter still contain enough information (other than that embedded in per capita income) that can be associated with the incidence of political stress events.

Most of the socio-economic variables potentially relevant for political instability are not significantly different between "stressed" and "stable" countries, column V in Table 2. Unemployment and youth unemployment as well as poverty and inequality variables seem not to be associated with political stress events at all. Correlations between level of education, infant mortality, age dependence, population growth and incidence of political instability seem to be well explained by time differences.

Macroeconomic variables such as GDP growth, inflation, and trade openness are significantly different between countries that have experienced a political stress event and those that have not. Countries with lower economic growth, higher inflation, and smaller trade openness tend to be more prone to these events. Therefore, poor macroeconomic performance may lead to a sharp increase in the discontent of the public, followed by unrest and, thus, a higher probability of political stress, which is consistent with the findings from the existing research.[20]

Table 4 in Annex V presents the estimation results from the logistic regressions on a balanced sample, where countries are grouped according to their region, oil-exporting status, income level, and year. We include all the governance indicators from the WGI database as well as the external and internal accountability measures from the WGI, ICRG, and CNTS databases. As control variables we use real GDP growth, inflation, and trade openness.[21] The results confirm that better quality of governance is associated with a lower probability of experiencing a political stress event. Regarding the other controls, only real GDP growth and, in a few cases, inflation, are significantly associated with political stress events.

[20] For instance, Arezki and Bruckner (2011) find that, in low-income countries, increases in food prices lead to a significant deterioration of democratic institutions and a significant increase in political instability. See also Alesina et al. (1996) and Collier and Hoeffler (2004).

[21] In comparison with Table 3 we observe a large drop in number of observations used for estimations. This is due to fewer years in the sample (till 2006, while for the fiscal stress exercise we have till 2010). In addition, political stress events occur in a smaller number of countries.

5. Conclusion

The main objective of this study is to analyze whether governance can be associated with fiscal and political stress events. For this purpose, we first construct two innovative indicators to capture fiscal and political stress, which have a less arbitrary nature than those usually used in the literature. Using our indicators to classify countries into those that experienced a stress event and those that have not, we test whether governance quality – measured by governance indicators – in these two groups of countries is significantly different from a statistical point of view. We test these differences, grouping countries by important country characteristics, such as income, geographical region, the possession of hydrocarbon resources, and the year from which the observations are drawn.

The results suggest that income levels play an important role in explaining the differences in governance quality between countries that have undergone a fiscal stress event and those that have not. Particularly, once income level is taken into account, only "governance effectiveness" and (marginally) "control of corruption" are significantly different for the two types of countries. Countries with higher corruption, inefficient bureaucracy, and burdensome public services provision, consequently, are more prone to fiscal stress events.

Nevertheless, governance quality seems to be better associated with political stress than with fiscal stress events – almost all governance indicators are significantly different for two groups of countries on the balanced samples where region, oil-exporting status, income and year are taken into account. In particular, "external accountability," that is the ability to hold the government accountable before the public through election and voting processes, seems to be strongly associated with the incidence of political stress events. In fact, a country with a good macroeconomic performance (exhibiting, say, a strong and low inflation rate) is likely to be politically stable. However, if economic wellbeing does not benefit all segments of the population, nor address the general public's grievances and concerns regarding equality of opportunity or the fair application of the law (both of which can be linked to governance and political accountability), tensions may appear, and over time, lead to a political crisis.

The results from parsimonious conditional logistic regressions to assess the likelihood of a stress event taking place in a given country at every point in time for both types of stress events also confirm that weaker governance quality is associated with a higher probability of experiencing stress events.

In summary, this study underscores the importance for policymakers to strengthen the quality of governance, and to improve the institutional and business environment that seem to be associated with an incidence of both political and fiscal stress events.

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ANNEX I: DATA AND DESCRIPTIVE STATISTICS

Table 1: Pairwise correlations between governance indicators

		1	2	3	4	5	6	7	8	9	10	11
1	Voice & Accountability											
2	Political Stability	0.71*										
3	Government Effectiveness	0.80*	0.75*									
4	Regulatory Quality	0.81*	0.70*	0.92*								
5	Rule of Law	0.81*	0.81*	0.95*	0.89*							
6	Control of Corruption	0.78*	0.76*	0.94*	0.87*	0.94*						
7	External Accountability (WGI)	0.93*	0.93*	0.84*	0.82*	0.88*	0.83*					
8	Internal Accountability (WGI)	0.83*	0.78*	0.98*	0.95*	0.98*	0.97*	0.87*				
9	External Accountability (ICRG)	0.86*	0.81*	0.78*	0.77*	0.79*	0.74*	0.90*	0.79*			
10	Internal Accountability (ICRG)	0.77*	0.77*	0.92*	0.87*	0.93*	0.92*	0.83*	0.94*	0.81*		
11	External Accountability (CNTS)	0.59*	0.34*	0.35*	0.42*	0.34*	0.31*	0.51*	0.36*	0.51*	0.36*	
12	GDP per capita	0.63*	0.65*	0.81*	0.76*	0.78*	0.76*	0.70*	0.80*	0.66*	0.74*	0.29*

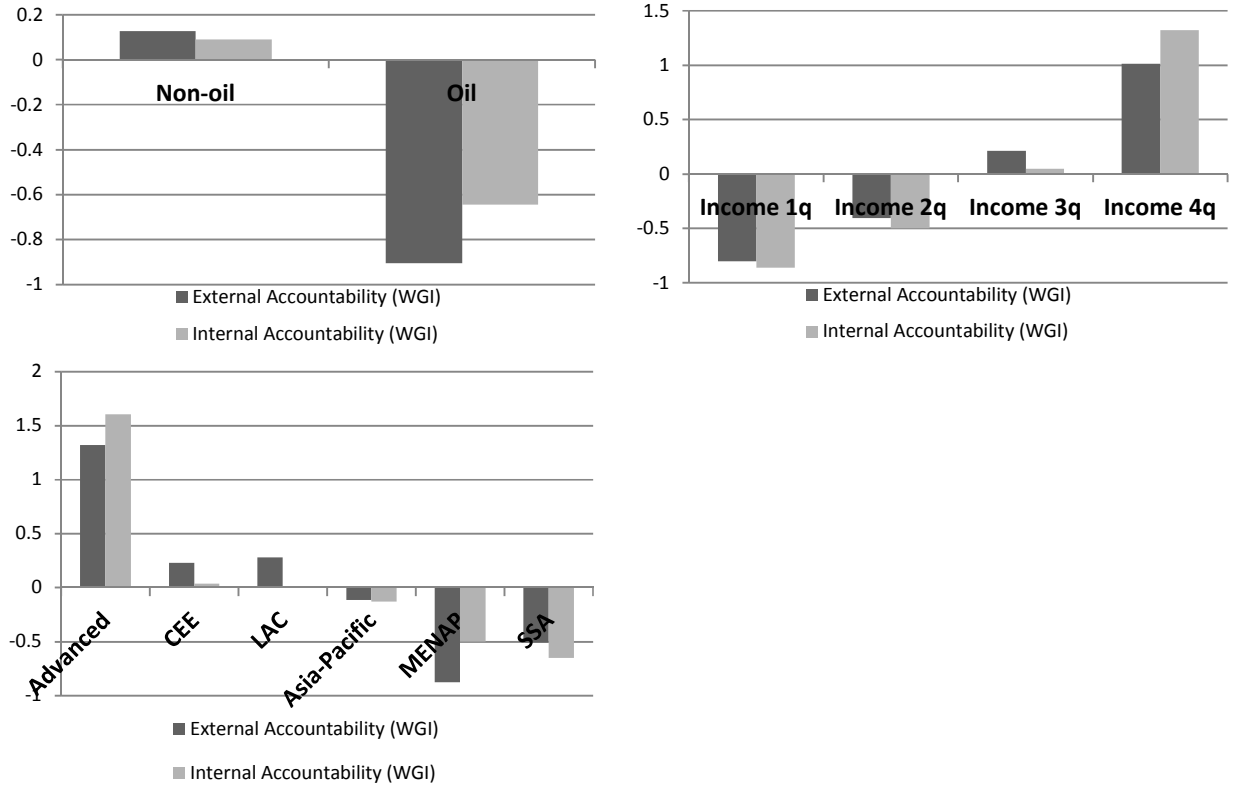
Note: * stands for significance at the 1 percent level.

Table 2: Descriptive statistics of governance indicators (mean=0, overall std. dev.=1)

Variable	Obs	SD		Min	Max
		Between	Within		
Voice & Accountability	2496	0.98	0.19	-2.17	1.97
Political Stability	2465	0.95	0.31	-3.07	1.73
Government Effectiveness	2426	0.98	0.20	-2.41	2.35
Regulatory Quality	2454	0.97	0.25	-2.90	3.48
Rule of Law	2467	0.98	0.20	-2.28	2.09
Control of Corruption	2429	0.97	0.22	-2.45	2.51
External Accountability (WGI)	2465	0.97	0.23	-2.66	1.94
Internal Accountability (WGI)	2424	0.98	0.17	-2.26	2.27
Democratic Accountability	3490	0.85	0.54	-2.32	1.36
Internal Conflict	3491	0.73	0.68	-3.55	1.25
Military in Politics	3492	0.89	0.44	-2.09	1.24
Bureaucracy Quality	3493	0.90	0.43	-1.85	1.58
Investment Profile	3494	0.63	0.78	-2.90	1.84
Law & Order	3495	0.85	0.52	-2.52	1.58
Corruption	3496	0.83	0.55	-2.26	2.24
External Accountability (ICRG)	3497	0.87	0.49	-3.12	1.52
Internal Accountability (ICRG)	3498	0.91	0.39	-2.73	2.22
External Accountability (CNTS)	5716	0.72	0.68	-3.43	0.77

Note: This statistics are reported for the entire available sample. When analyzing fiscal and political stress events we use two different and somewhat smaller samples. However, the main descriptive statistics for these samples are similar.

Figure 1: Average values of External and Internal Accountability (WGI), by categories



Note: 1q is the lowest income quartile and 4q is the highest income quartile.

Table 3: Descriptive statistics of employed variables

Variable	Observations	Mean	Standard Deviation			Minimum	Maximum
			Overall	Between	Within		
GDP per capita	6368	8.45	1.28	1.23	0.32	5.46	11.82
Real GDP growth	6432	3.58	5.55	1.77	5.29	-37.51	36.80
Inflation	6271	12.86	28.97	14.69	25.96	-19.41	353.61
Openness	6062	4.20	0.70	0.59	0.36	-1.65	7.13
Balance	3496	-0.02	0.07	0.04	0.06	-1.51	0.58
Debt-ratio	2771	0.65	0.73	0.54	0.51	0.00	13.19
Share of FCD debt	972	0.62	0.27	0.24	0.11	0.00	1.12
Age dependency (old)	6667	10.15	6.02	5.84	1.55	1.25	33.92
Fertility rate	6608	4.00	1.98	1.75	0.91	0.90	8.73
Unemployment	3218	8.60	6.38	7.80	3.03	0.00	59.50
Youth Unemployment	2038	16.60	9.61	11.14	4.43	0.70	69.22
Schooling	4729	6.95	3.02	2.85	1.19	0.12	13.27
Infant Mortality	2735	38.93	40.58	37.93	17.39	1.80	214.10
Age dependency (young)	6667	62.41	23.95	21.88	9.85	15.95	112.38
Population growth	6905	1.77	1.65	1.20	1.13	-44.41	17.74
Poverty gap	1743	9.69	12.17	12.12	3.84	0.00	63.34
High income share	1677	32.86	7.21	7.63	2.68	15.44	65.00
GINI	1677	41.77	9.55	9.73	3.21	19.40	74.33

Table 4: Pairwise correlations between FSI, governance indicators, and other variables

	FSI	Default (S&P)	External Accountability (WGI)	Internal Accountability (WGI)
Default (S&P)	0.22*			
External Accountability (WGI)	-0.18*	-0.23*		
Internal Accountability (WGI)	-0.25*	-0.29*	0.87*	
External Accountability (ICRG)	-0.23*	-0.45*	0.90*	0.80*
Internal Accountability (ICRG)	-0.27*	-0.42*	0.85*	0.95*
External Accountability (CNTS)	-0.02	-0.07*	0.56*	0.45*
GDP per capita	-0.26*	-0.28*	0.75*	0.87*
Real GDP growth	-0.03	-0.14*	-0.12*	-0.12*
Inflation	0.07*	0.23*	-0.31*	-0.31*
Openness	-0.10*	-0.21*	0.29*	0.26*
Balance	-0.11*	-0.08*	0.12*	0.14*
Debt-ratio	0.17*	0.33*	-0.23*	-0.23*
Share of FCD debt	0.21*	0.32*	-0.20*	-0.37*
Age dependency (old)	-0.16*	-0.22*	0.70*	0.75*
Fertility rate	0.12*	0.23*	-0.59*	-0.66*

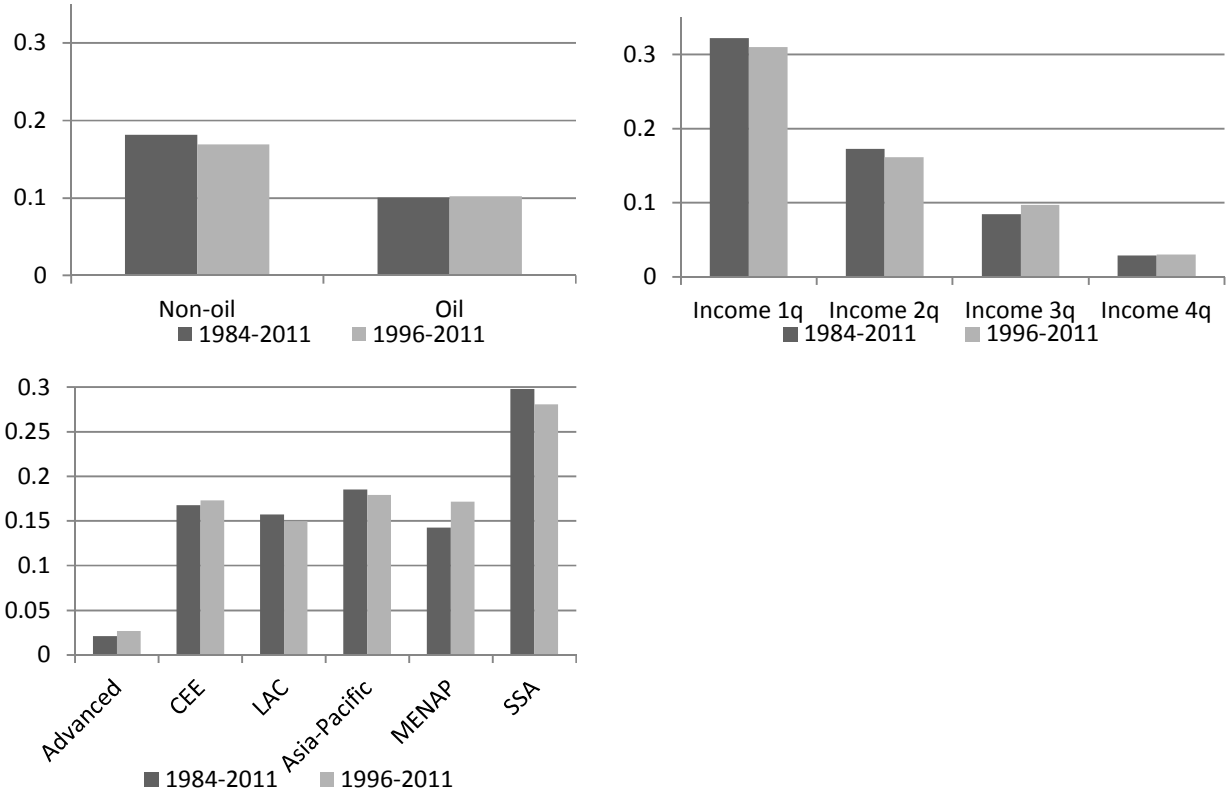
Note * stands for significance at the 1 percent level.

Table 5: Pairwise correlations between PSI, governance indicators, and other variables

	PSI	Regime change	External Accountability (WGI)	Internal Accountability (WGI)
Regime change	0.07*			
External Accountability (WGI)	-0.10*	-0.12*		
Internal Accountability (WGI)	-0.07*	-0.10*	0.87*	
External Accountability (ICRG)	-0.08*	-0.14*	0.90*	0.79*
Internal Accountability (ICRG)	-0.08*	-0.11*	0.83*	0.94*
External Accountability (CNTS)	-0.07*	-0.09*	0.51*	0.36*
GDP per capita	-0.02	-0.08*	0.70*	0.80*
Real GDP growth	-0.07*	-0.03*	-0.10*	-0.10*
Inflation	0.04*	0.02	-0.27*	-0.28*
Openness	-0.10*	-0.04*	0.26*	0.21*
Unemployment	-0.01	-0.01	-0.18*	-0.24*
Youth Unemployment	0.01	-0.01	-0.14*	-0.22*
Schooling	-0.04*	-0.06*	0.57*	0.62*
Infant Mortality	0.03	0.05*	-0.67*	-0.71*
Age dependency (young)	0.02	0.06*	-0.60*	-0.68*
Population growth	0.01	0.02	-0.38*	-0.31*
Poverty gap	-0.01	0.09*	-0.37*	-0.43*
High income share	0.03	-0.02	-0.11*	-0.10*
GINI	0.03	-0.02	-0.06	-0.07*

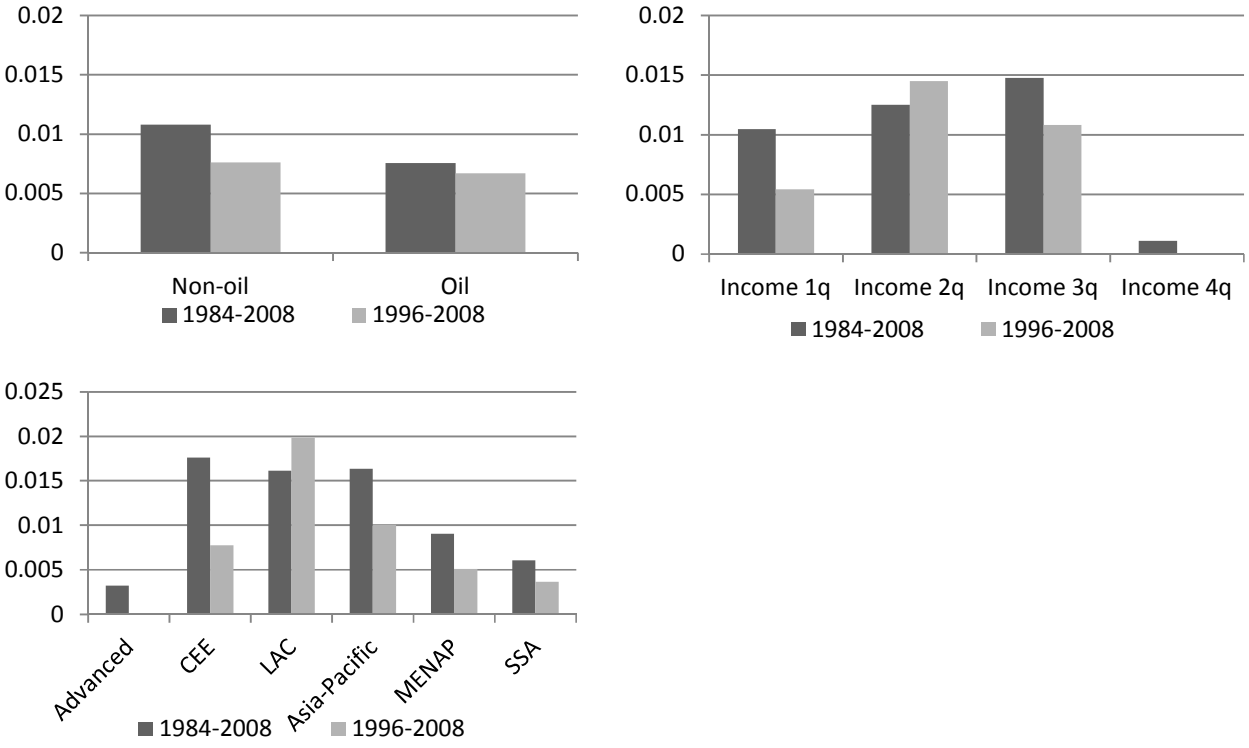
Note: * stands for significance at the 1 percent level.

Figure 2: Frequencies of Fiscal Stress Index, by categories



Note: 1q is the lowest income quartile and 4q is the highest income quartile

Figure 3: Frequencies of Political Stress Index, by categories



Note: 1q is the lowest income quartile and 4q is the highest income quartile

ANNEX II: DATA SOURCES

Variable	Definition	Source
GDP per capita	Log of GDP per capita in PPP terms, in constant prices 2005	WEO
Real GDP growth	Annual growth rate of real GDP	WEO
Inflation	Consumer price inflation	WEO
Openness	Log of Exports plus Imports to GDP ratio	WEO
Unemployment	Unemployment rate	WEO
Youth Unemployment	Unemployment rate for those under 25 years of age	WDI
Schooling	IIASA/VID Projection: Mean years of schooling, age 25+, male	WDI
Infant Mortality	Mortality rate, infant (per 1,000 live births)	WDI
Age dependency (young)	Age dependency ratio, young (% of working-age population)	WDI
Age dependency (old)	Age dependency ratio, old (% of working-age population)	WDI
Fertility rate	Fertility rate, total (births per woman)	WDI
Pop. growth	Population growth (annual %)	WDI
Poverty gap	Poverty gap at $1.25 a day (PPP) (%)	WDI
High income share	Income share held by highest 10%	WDI
GINI	GINI coefficient	WDI
Budget Balance	Overall fiscal balance (general government revenues minus general government expenditures) to GDP ratio	WEO
Debt-ratio	General government gross debt-to-GDP ratio	WEO
Share of FCD debt	Share of public debt denominated in foreign currency (in percent of total public debt)	WEO
Voice & Accountability	Perception of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media	
Political Stability	Perception of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism	WGI
Government Efficiency	Perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies	WGI
Regulatory Quality	Perception of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development	WGI
Rule of Law	Perception of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence	WGI
Control of Corruption	Perception of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests	WGI
Internal Accountability (WGI)*	First principal component of Voice & Accountability and Political Stability	WGI
External Accountability (WGI)*	First principal component of Government Efficiency, Regulatory Quality, and Political Stability, Rule of Law, Control of Corruption	WGI
Democratic Accountability	A measure of how responsive government is to its people	ICRG
Internal Conflict	Assessment of political violence in the country and its actual or potential impact on governance	ICRG
Military in Politics	Assessment of military's involvement in politics, even at a peripheral level, treated as a diminution of democratic accountability	ICRG
Bureaucracy Quality	The institutional strength and quality of the bureaucracy, expertise to govern without drastic changes in policy or interruptions in government services	ICRG
Investment Profile	Assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components	ICRG
Law & Order	Assessment of the strength and impartiality of the legal system, and of popular observance of the law	ICRG
Corruption	Assessment of corruption within the political system	ICRG
External Accountability (ICRG)*	First principal component of Democratic Accountability, Military in Politics and Internal Conflict	ICRG
Internal Accountability (ICRG)*	First principal component of Bureaucracy Quality, Investment Profile, Law and Order, and Corruption	ICRG
Type of Regime	4-Civilian, 3-Military Civilian, 2-Military, 1-Other	CNTS
Effective Executive (type)	2- President or Premier, 1-Monarch or Military	CNTS
Effective Executive (selection)	2-Direct or Indirect election, 1-Nonelective	CNTS
Legislative Effectiveness	3-Effective, 2-Partially Effective, 1-Ineffective, 0-none	CNTS
Legislative Selection	2-Elective, 1-Nonelective, 0-none	CNTS
External Accountability (CNTS)*	First principal component of all components from CNTS	CNTS
Swap spread	Spread between the bond yield and the interest rate on the swap of the same maturity	Bloomberg
EMBI spread	Emerging Markets Bond Index spread developed by JPMorgan	Bloomberg
Bond spread	Government bond spreads (relative to 10-year US Treasury bond)	WEO
IMF-financing	IMF program-supported non-concessional financing (in percent of quota)	IMF

Major Government Crises	Any rapidly developing situation that threatens to bring the downfall of the present regime - excluding situations of revolt aimed at such overthrow	CNTS
Purges	Any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition	CNTS
Revolutions	Any illegal or forced change in the top government elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government	CNTS
Anti-government Demonstrations	Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature	CNTS

WDI = World Development Indicators; WEO = World Economic Outlook; WGI = World Governance Indicators; CNTS = Cross-National Time Series data archives. * = IMF staff calculations.

ANNEX III: FISCAL AND POLITICAL STRESS EVENTS

Table 1: Fiscal stress events

Country	FSI, years	Default*, years
Albania	1992-1993	1991-1995
	1998-2001	
Argentina	2002-2005	2001-2005
Armenia	2000-2010	
Bangladesh	1980	
	1986-1987	
	1990	
	2003-2007	
Benin	1989-1995	
	2010	
Bolivia	1973-1973	
	1980-1981	1980-1997
	1986-1988	
	1994	
	1998	
Bosnia & Herzegovina	2009-2011	1992-1997
Brazil	1999-2001	1994
Burkina Faso	1991-1993	
	1996	1987-1996
	1999	
	2010	
Burundi	1986-1988	
	1991-1994	
	2004-2007	
Cambodia	1994-1997	
	1999-2003	
Cameroon		1985-1992
Cape Verde	2002-2005	1981-1996
Central African Rep.	1983	1981-2006
	1987	
	1998-2002	
	2006-2010	
Chad	1987-1990	
	1995	
	2000-2004	
Colombia	2009-2010	
Comoros	1991-1994	
	2009-2011	
Congo Dem. Rep	1979-1981	1977-2006
	1983-1984	
	1986-1987	
	2002-2006	
	2009	
Republic of Congo		1985-1992
Costa Rica	1980-1982	1981-1990
	1985-1986	
	2009-2010	
Djibouti	1999	
	2008-2011	
Dominica	1981-1983	2003-2005
	1986-1989	
	2003-2005	
Dominican Republic		2005
Ecuador	2000	1995
	2009	1999-2000
		2005
		2009
Estonia	1998	
	2000-2001	
Ethiopia	1993-1997	1991-1997
Gambia	1982-1988	1986-1990
	1998-2005	
Greece	2010-2011	
Grenada	1981-1984	2004-2005
	2006-2010	
Guatemala		1986
		1989
Guinea	1987	1986-1998
	1991-2000	
Guinea-Bissau	1987-1990	1983-1996
	1995-1998	
	2000-2003	
	2010-2011	
Guyana	1979-1980	1970
	1990-1991	1982-2006
	1994-1998	
Haiti	1978	
	1982-1983	
	1986-1988	
	1996	
	2006-2010	
Honduras	1992	1983-2006
	1994-2005	
Hungary	2008-2010	
Iceland	2008-2011	
India	1981-1984	1972-1976
Ireland	2010-2011	
Jordan	1989-1991	1989-1993
	1994	
	1996	
	1999	
Kenya	1975-1977	1994-1998
	1979-1980	2000
	1982-1983	
	1988-1989	
	1994-2000	
	2003	
Kyrgyz Republic	1994	
	1998	
	2001	
	2008	
Lao People's Dem.Rep	1980-1981	
	1989-1997	
	2001-2005	

Country	FSI, years	Default*, years
Latvia	2008-2010	
Lesotho	1988-1991	
	2001-2004	
	2010-2011	
Liberia	1980-1983	1981-2006
	2008	
Macedonia	1997-1999	1992-1997
	2005-2008	
Madagascar	1980-1982	1981-2002
	1987	
	1989	
	1996-2005	
Malawi	1983	1982
	1988-1989	1988
	1993-1997	
Maldives	2009-2011	
Mali	1982-1983	
	1988-1990	
	1992-1996	
Mauritania	1980-1981	1992-1996
	1986	
	1989	
	1992-1996	
	1999-2002	
	2010-2011	
Mexico	2009-2010	
Moldova	1995-1996	1998
	2000	2002
	2006-2011	
Mongolia	1991-2000	1997-2000
	2009-2010	
Mozambique	1987-1990	1980
	1996-2010	1983-1992
Myanmar	1996-1998	1997-2006
	2006-2010	
Nepal	1986-1987	
	1992	
	1994	
Nicaragua	1970	1979-2006
	1979	
	1994-2002	
Niger	1983	1983-1991
	1986	
	1988	
	1996-2004	
Nigeria	1987-1988	1982-2005
Pakistan	2009	
Papua New Guinea	2009-2010	

Country	FSI, years	Default*, years
Peru		1997
Poland	2009-2010	
Portugal	2010-2011	
Romania	2009-2010	
Russian Federation	1999	1998-2000
Samoa	1984	
	1986	
	1992-1999	
	2002-2006	
Senegal	1980-1983	1981-1985
	1985-1988	1990
	1994	1992-1996
	1998	
Sierra Leone	1981-1987	1983-1984
	1994-1995	1986-1998
	2001-2005	
Slovenia	1991-1994	1992-1994
Solomon Islands	1993	1996-2006
	1995	
	1998-1999	
Sudan	1979-1983	1979-2006
Tajikistan	1998-2006	
	2009-2011	
Tanzania	1980-1982	1984-2004
	1987-1988	
	1991-1994	
	1996-2000	
	2009	
Thailand	1981	
	1985-1986	
	1997-2000	
Togo	1979-1983	1979-1980
	1988-1989	1982-1988
	1994-1998	1991-1997
	2008-2011	
Turkey	2002	
Uganda	1982-1983	1981-1992
	1985-1992	2000
Ukraine	2008-2010	2000
Uruguay		2003
Venezuela		1995-1998
		2004-2005
Yemen	1996-1997	1985-2001
	2010-2011	
Zambia	1976-1984	1983-1994
	1986	
	1995-1996	
Zimbabwe	1983-1992	1970-1980

** These are actual events of sovereign debt default or restructuring as defined by S&P*

Table 2: Political stress events

Country	PSI, years	Regime change^, years
Afghanistan	1979	2004
	1992	
Albania	1997	1990
Algeria		1996
Argentina	1970	1972
	1976	1982
	1982	
	1989	
	2001	
	2001	
Bangladesh	1987	1985
		1987
Benin		1990
Bhutan		2006
Bolivia	1970-1971	1978
	1973-1974	1981
	2003	
	2005	
Brazil	1970-1971	1984
Bulgaria	1989	1989
Burkina Faso		1977
		1991
Burundi	1993	1992
	1996	2004
Burundi		2004
Cambodia	1970-1971	1997
	1995	
Cameroon		1991
Canada	1970	
Cape Verde		1990
Central African Rep.		1992
		2004
Chad	1979	1996
Chile	1971-1973	1989
China	1976	
Colombia	1970	
	2003	
Comoros	1995	1991
		2003
Congo Dem. Rep	1992	2005
	1997	
Republic of Congo		1991
		2002
Cyprus		1982
Czech Republic	1970	1988
	1972	
	1989	
Ecuador	2005	1978
		2001
Egypt		1978
El Salvador	1980	1976
		1983
Equatorial Guinea		1992
Ethiopia	1974	
	1978	
Fiji		1991
		2000
Gabon		1989
Gambia		1996
Georgia	1992	2003
Ghana		1978
		1992
Greece	1973	1973
Grenada		1983
		2000
Guatemala	1970	1985
	1993	
Guinea-Bissau		1993
		1999
		2004
Haiti		2006
Honduras		1970
		1981
Hungary		1989
India	1993	
Indonesia	1998	1998
	2001	
Iran	1978-1979	
Iraq	1991	
	2005-2006	
Ireland	1970	
Israel	1976	2002
Italy	1970	
	1992	
Jordan	1970	
Kenya		1991
Korea	1974	1972
	1979-1980	
	1987	
Kyrgyz Republic		1994
Lebanon	1970	
	1984	
Lesotho		2001
Liberia	1980-1981	1984
		1996
		2005
Madagascar		1992
Malawi		1993
Malaysia		1970
Maldives		2007
Mali		1991
Mauritania		1991
		2006
Mexico	1995	
Moldova		1993

Country	PSI, years	Regime change^, years
Mongolia		1989
Mozambique		1993
Myanmar	1988	
Nepal	2001	1990
		2007
Nicaragua		1973
		1983
Niger		1992
		1999
Nigeria		1978
		1998
Pakistan	1971	1971
	1977	1987
		2007
Panama		1989
Peru	2000	1979
		2000
Philippines	1972	1980
	1986-1987	
Poland	1982	1988
Portugal	1974-1975	1974
Romania		1989
Russian Federation	1994	1990
Rwanda		2002
Senegal		1977
Serbia	1972	1990
	1991	2005
	1999	
Seychelles		1992
Sierra Leone		1995
		2001
Singapore		1983
South Africa	1985	
Spain	1970	1976
	1975-1976	
St. Vincent & Grenadines		1993
Sudan	1979	1985
Suriname		1987
		1990
Syrian Arab Republic	1970	
Tajikistan	1992	1994
Tanzania		1994
Thailand	1976	1974
		1978
		1991
		2007
Togo		1993
Tunisia		1993
Turkey	1977	1982
	1995	
Uganda	1972	1979
		2005
United States	1970	
Uruguay		1984
Venezuela	1992	
	2002	
Yemen		1992
Zambia		1990
Zimbabwe		2007

^ *These are actual episodes of regime change based on the 'Democracy Dictatorship" database from Cheibub el al, 2009.*

ANNEX IV: GROUPING OF COUNTRIES BY REGION AND HYDROCARBON EXPORT

	Asia-Pacific	CCE	LAC	MENAP	SSA	Advanced*
Not hydrocarbon exporting countries	Bangladesh Bhutan Cambodia China Fiji Hong Kong India Indonesia Kiribati Laos Malaysia Maldives Mongolia Myanmar Nepal P.N.G. Philippines Samoa Singapore Solomon Is. Sri Lanka Taiwan Thailand Tonga Vanuatu Vietnam	Albania Armenia Belarus Bosnia-H. Bulgaria Croatia Czech Rep. Estonia Georgia Hungary Kosovo Latvia Lithuania Macedonia Moldova Montenegro Poland Romania Serbia Slovakia Slovenia Turkey Ukraine	Antigua Argentina Bahamas Barbados Belize Bolivia Brazil Chile Colombia Costa Rica Dom. Rep. Dominica Ecuador^ El Salvador Grenada Guatemala Guyana Haiti Honduras Jamaica Mexico Nicaragua Panama Paraguay Peru St. Kitts & N. St. Lucia St. Vincent Suriname Uruguay Venezuela^	Afghanistan Djibouti Egypt Jordan Kyrgyzstan Lebanon Mauritania Morocco Pakistan Syria Tajikistan Tunisia Uzbekistan	Benin Botswana Burkina Faso Burundi Cape Verde C.A.R. Comoros Congo, D.R. Cote d'Ivoire Eritrea Ethiopia Gambia Ghana Guinea Guinea-Bissau Kenya Lesotho Liberia Madagascar Malawi Mali Mauritius Mozambique Namibia Niger Rwanda Sao Tome P. Senegal Seychelles Sierra Leone South Africa Swaziland Tanzania Togo Uganda Zambia Zimbabwe	Australia Austria Belgium Canada Cyprus Denmark Finland France Germany Greece Iceland Ireland Israel Italy Japan Korea, South Luxembourg Malta Netherlands New Zealand Norway^ Portugal Spain Sweden Switzerland United Kingdom United States
Hydrocarbon exporting countries				Algeria Azerbaijan Bahrain Iran Iraq Kazakhstan Kuwait Libya Oman Qatar Saudi Arabia Sudan Turkmenistan UAE Yemen	Angola Cameroon Chad Congo-Brazza. Eq. Guinea Gabon Nigeria	

Note: CCE = Central and Eastern Europe; LAC = Latin-America and the Caribbean; MENAP = Middle-East, North Africa and Pakistan; SSA = Sub-Saharan Africa. * All the advanced countries were aggregated in a single group. ^ Ecuador and Venezuela are hydrocarbon-exporting countries, but cannot be placed in a separate group (LAC oil exporters) with only two elements, so instead of dropping them, they were lumped together with the other Latin-American countries. By the same logic we keep oil-exporter Norway with all advanced countries. Similarly, we also exclude Russia, which, as the only oil exporter among CEE countries, cannot be matched. The results did not differ in any meaningful way when these three countries were dropped, or when Russia was included

.ANNEX V: ESTIMATION RESULTS

Table 1: Difference of means between countries that have fiscal stress events and those that have not

	I			II			III			IV			V		
	D	t-stat		D	t-stat		D	t-stat		D	t-stat		D	t-stat	
Voice & Accountability	-0.50	-7.70	***	-0.19	-3.54	***	-0.17	-2.99	***	-0.01	-0.19		-0.02	-0.36	
Political Stability	-0.43	-6.47	***	-0.19	-3.07	***	-0.16	-2.48	**	0.00	0.00		-0.02	-0.37	
Government Effectiveness	-0.77	-11.19	***	-0.31	-5.95	***	-0.31	-5.78	***	-0.09	-1.81	*	-0.11	-2.15	**
Regulatory Quality	-0.60	-9.20	***	-0.22	-3.97	***	-0.21	-3.70	***	-0.01	-0.11		-0.03	-0.42	
Rule of Law	-0.68	-10.06	***	-0.26	-5.09	***	-0.25	-4.72	***	-0.05	-1.11		-0.07	-1.30	
Control of Corruption	-0.72	-10.41	***	-0.29	-5.82	***	-0.27	-5.38	***	-0.08	-1.84	*	-0.08	-1.57	^
External Accountability (WGI)	-0.50	-7.48	***	-0.20	-3.47	***	-0.17	-2.82	***	0.00	-0.05		-0.02	-0.37	
Internal Accountability (WGI)	-0.72	-10.58	***	-0.28	-5.49	***	-0.27	-5.19	***	-0.06	-1.27		-0.08	-1.41	
Democratic Accountability	-0.58	-9.25	***	-0.21	-3.77	***	-0.13	-2.15	**	-0.17	-3.11	***	-0.07	-1.09	
Internal Conflict	-0.40	-6.86	***	-0.12	-2.20	**	-0.06	-0.89		-0.02	-0.30		0.09	1.35	
Military in Politics	-0.65	-10.49	***	-0.25	-4.48	***	-0.21	-3.36	***	-0.15	-2.59	***	-0.05	-0.79	
Bureaucracy Quality	-0.85	-13.28	***	-0.31	-5.87	***	-0.31	-5.47	***	-0.13	-2.66	***	-0.09	-1.55	^
Investment Profile	-0.67	-10.83	***	-0.37	-6.57	***	-0.26	-4.08	***	-0.21	-4.00	***	-0.10	-1.59	^
Law & Order	-0.62	-10.04	***	-0.15	-3.07	***	-0.15	-2.70	***	-0.07	-1.32		-0.01	-0.13	
Corruption	-0.42	-6.48	***	-0.01	-0.11		-0.02	-0.29		0.05	0.96		0.06	0.94	
External Accountability (ICRG)	-0.65	-10.30	***	-0.23	-4.17	***	-0.16	-2.56	**	-0.13	-2.34	**	-0.01	-0.20	
Internal Accountability (ICRG)	-0.80	-12.41	***	-0.26	-5.23	***	-0.23	-4.13	***	-0.11	-2.38	**	-0.04	-0.77	
External Accountability (CNTS)	-0.05	-1.05		0.07	1.42		0.02	0.33		0.11	2.07	**	0.10	1.61	^
GDP per capita	-0.94	-15.20	***	-0.32	-6.08	***	-0.38	-6.85	***	-0.04	-0.95		-0.05	-0.87	
Real GDP growth	-0.39	-1.65	*	-0.30	-1.20		0.11	0.41		-0.17	-0.67		-0.10	-0.32	
Inflation	4.49	3.92	***	3.44	3.02	***	1.69	1.22		1.02	0.75		1.67	1.21	
Openness	-0.19	-5.82	***	-0.16	-4.85	***	-0.15	-4.32	***	-0.07	-2.10	**	-0.01	-0.30	
Budget Balance	-0.02	-4.84	***	-0.01	-3.50	***	-0.01	-2.43	**	-0.01	-3.04	***	-0.01	-2.48	**
Debt-to-GDP	0.24	7.07	***	0.22	6.13	***	0.22	5.71	***	0.18	4.68	***	0.18	4.10	***
Share of FCD debt	0.13	5.17	***	0.15	5.42	***	0.16	6.34	***	0.09	3.44	***	0.11	4.11	***
Age dependency (old)	-2.65	-9.25	***	-0.39	-1.97	**	-0.52	-2.40	**	-0.14	-0.69		-0.11	-0.47	
Fertility rate	0.66	6.71	***	-0.02	-0.27		0.15	1.65	*	-0.15	-1.72	*	-0.02	-0.20	

Note: D stands for difference of means, t-stat is a t-statistic of the significance test, and stars denote the level of significance: *** p<0.01, ** p<0.05, * p<0.1, ^ p<0.15. In column I we present simple comparison of means without grouping; in column II – grouping by region and oil dummy; in column III - grouping by region, oil dummy, and year; in column IV, grouping by region, oil dummy, and income; in column V, grouping by region, oil dummy, income, and year. Definitions of the variables and their sources are in Annex II. All variables are measured at time *t–1*, while FSI is at time *t*.

Table 2: Difference of means between countries that have political stress events and those that have not

	I			II			III			IV			V		
	D	t-stat		D	t-stat		D	t-stat		D	t-stat		D	t-stat	
Voice & Accountability	-0.57	-2.33	**	-0.70	-3.10	***	-0.63	-3.03	***	-0.58	-2.63	***	-0.51	-2.21	**
Political Stability	-1.48	-6.10	***	-1.55	-7.01	***	-1.52	-7.24	***	-1.37	-6.24	***	-1.36	-6.07	***
Government Effectiveness	-0.77	-3.07	***	-0.85	-3.74	***	-0.66	-3.61	***	-0.67	-3.28	***	-0.45	-2.63	***
Regulatory Quality	-0.67	-2.76	***	-0.77	-3.53	***	-0.63	-3.21	***	-0.60	-2.83	***	-0.41	-1.90	*
Rule of Law	-0.95	-3.92	***	-1.02	-4.60	***	-0.84	-4.37	***	-0.82	-4.01	***	-0.61	-3.29	***
Control of Corruption	-0.86	-3.43	***	-0.92	-3.96	***	-0.76	-3.83	***	-0.74	-3.56	***	-0.53	-2.80	***
External Accountability (WGI)	-1.11	-4.51	***	-1.21	-5.40	***	-1.15	-5.67	***	-1.05	-4.74	***	-1.00	-4.51	***
Internal Accountability (WGI)	-0.84	-3.35	***	-0.92	-4.03	***	-0.74	-3.88	***	-0.73	-3.49	***	-0.51	-2.77	***
Democratic Accountability	-0.18	-1.05		-0.28	-1.79	*	-0.05	-0.36		-0.20	-1.34		-0.13	-0.74	
Internal Conflict	-0.94	-5.23	***	-1.00	-6.00	***	-0.89	-5.02	***	-0.84	-4.94	***	-0.80	-3.82	***
Military in Politics	-0.71	-4.04	***	-0.78	-4.92	***	-0.69	-4.22	***	-0.62	-4.02	***	-0.51	-2.70	***
Bureaucracy Quality	-0.38	-2.18	**	-0.41	-2.60	***	-0.21	-1.36		-0.30	-1.99	*	-0.11	-0.65	
Investment Profile	-0.75	-4.40	***	-0.77	-4.80	***	-0.46	-2.94	***	-0.63	-4.16	***	-0.42	-2.42	**
Law & Order	-0.75	-4.30	***	-0.78	-4.79	***	-0.55	-3.38	***	-0.59	-3.80	***	-0.44	-2.27	**
Corruption	-0.55	-3.10	***	-0.57	-3.49	***	-0.52	-3.23	***	-0.47	-3.12	***	-0.44	-2.34	**
External Accountability (ICRG)	-0.73	-4.14	***	-0.83	-5.08	***	-0.66	-4.11	***	-0.67	-4.17	***	-0.58	-3.07	***
Internal Accountability (ICRG)	-0.73	-4.20	***	-0.77	-4.75	***	-0.53	-3.52	***	-0.60	-4.01	***	-0.41	-2.58	**
External Accountability (CNTS)	-0.53	-4.99	***	-0.62	-6.51	***	-0.57	-4.76	***	-0.62	-6.35	***	-0.63	-4.19	***
GDP per capita	-0.18	-1.25		-0.34	-2.85	***	-0.24	-1.75	*	-0.20	-1.85	*	-0.11	-0.77	
Real GDP growth	-3.62	-5.32	***	-3.59	-5.90	***	-3.24	-4.34	***	-3.80	-5.94	***	-3.24	-3.19	***
Inflation	10.71	2.66	***	9.91	2.45	**	8.14	2.04	**	8.29	2.01	**	10.28	2.51	**
Openness	-0.59	-7.30	***	-0.60	-8.00	***	-0.49	-5.39	***	-0.52	-6.83	***	-0.49	-4.50	***
Unemployment	-0.58	-0.63		-0.75	-0.83		0.69	0.74		-0.82	-0.96		-0.11	-0.09	
Youth Unemployment	0.57	0.25		0.21	0.09		0.91	0.43		0.12	0.06		1.78	0.68	
Schooling	-0.89	-2.43	**	-1.22	-3.71	***	-0.46	-1.16		-1.00	-3.20	***	-0.44	-0.99	
Infant Mortality	11.76	1.68	*	17.70	3.01	***	4.30	0.47		12.69	2.07	**	6.61	0.66	
Age dependency (Young)	3.46	1.40		6.99	3.10	***	1.90	0.72		5.10	2.34	**	0.47	0.14	
Population growth	0.04	0.21		0.25	1.64	^	0.09	0.39		0.33	2.38	**	0.11	0.50	
Poverty gap	-0.64	-0.27		2.50	1.32		1.46	0.65		2.41	1.30		0.54	0.20	
High income share	1.45	1.00		1.50	1.01		0.99	0.58		0.90	0.64		0.92	0.48	
GINI	1.87	0.98		1.84	0.93		1.44	0.64		0.98	0.52		1.40	0.54	

Note: D stands for difference of means, t-stat is a t-statistic of the significance test, and stars denote the level of significance: *** p<0.01, ** p<0.05, * p<0.1, ^ p<0.15. In column I we present simple comparison of means without grouping; in column II, grouping by region and oil dummy; in column III,- grouping by region, oil dummy and year; in column IV, grouping by region, oil dummy, and income; in column V, grouping by region, oil dummy, income, and year. Definitions of the variables and their sources are in Annex II. All variables are measured at time *t – 1*, while PSI is at time *t*.

Table 3: Logit estimation, Fiscal Stress Indicator is dependent variable

	I	II	III	IV	V	VI	VII	VIII
		Government Effectiveness	Control of Corruption	External Accountability (WGI)	Internal Accountability (WGI)	External Accountability (ICRG)	Internal Accountability (ICRG)	External Accountability (CNTS)
		-0.28***	-0.19**	-0.06	-0.17*	-0.26**	-0.20*	0.10
		(0.09)	(0.08)	(0.08)	(0.09)	(0.11)	(0.11)	(0.14)
Budget Balance	0.42***	0.26	0.34**	0.36**	0.32*	0.27	0.31*	0.74***
	(0.16)	(0.17)	(0.17)	(0.17)	(0.18)	(0.18)	(0.18)	(0.27)
Debt-to-GDP	-3.70**	-3.67*	-3.66*	-3.73*	-3.52	-8.57**	-8.04**	-3.57
	(1.82)	(2.23)	(2.14)	(2.19)	(2.14)	(3.38)	(3.44)	(2.48)
Observations	842	729	729	733	729	603	603	483
pseudo LogL	-427.74	-356.84	-358.11	-360.81	-358.30	-275.61	-277.01	-251.65
pseudo R2	0.021	0.024	0.021	0.020	0.020	0.038	0.033	0.040

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Logit estimation, Political Stress Indicator is dependent variables

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
		Voice and Accountability	Political Stability	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption	External Accountability (WGI)	Internal Accountability (WGI)	External Accountability (ICRG)	Internal Accountability (ICRG)	External Accountability (CNTS)
Governance Indicator		-0.87***	-1.93***	-1.54***	-0.84*	-1.99***	-1.42**	-1.85***	-1.61***	-0.62**	-0.50*	-0.52***
		(0.28)	(0.39)	(0.58)	(0.46)	(0.60)	(0.67)	(0.40)	(0.60)	(0.24)	(0.30)	(0.16)
Real GDP growth	-0.12***	-0.18***	-0.15**	-0.15***	-0.17***	-0.18***	-0.15***	-0.17**	-0.16***	-0.13***	-0.14***	-0.12***
	(0.02)	(0.05)	(0.07)	(0.05)	(0.04)	(0.05)	(0.05)	(0.07)	(0.05)	(0.04)	(0.04)	(0.02)
Inflation	0.00**	0.00	-0.01	-0.00	-0.00	-0.01	-0.00	-0.01	-0.01	0.00	0.00*	0.01**
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Openness	0.01	-0.17	-0.02	-0.13	-0.20	-0.16	-0.18	0.05	-0.06	0.50*	0.37	0.12
	(0.24)	(0.27)	(0.32)	(0.35)	(0.33)	(0.31)	(0.37)	(0.30)	(0.36)	(0.27)	(0.28)	(0.19)
Observations	631	197	193	183	191	195	183	193	183	303	303	617
pseudo LogL	-159.71	-45.84	-35.88	-42.95	-45.96	-42.36	-43.50	-39.55	-42.64	-83.62	-85.22	-144.29
pseudo R2	0.165	0.262	0.420	0.271	0.257	0.317	0.262	0.360	0.276	0.175	0.160	0.195

*** p<0.01, ** p<0.05, * p<0.1.