How underlying dimensions of political risk affect excess return in emerging and developed markets

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Abstract

Political risk is expected to increase due to emerging markets' increasing influence on the world economy. We identify *Legal, Tension, Conflict*, and *Policy* as underlying dimensions through Principal Component Analysis, using a disaggregated political risk index. Using a two-way error correction model *Ethnic and Religious Tension* is identified as a new and distinct dimension of political risk. Consequently, global investors are likely to benefit from understanding which dimension implies a reward. Investors in particular should direct their attention towards *Tension,* which seems to command a risk premium regardless of both market and time

Keywords: Political risk, Developed and emerging markets, Principal Component Analysis, Ethnic tensions, Religious tensions

JEL**:** C33, F30, F50, G15

1. Introduction

Foreign direct investments have grown over the past few decades (Jakobsen, 2012a). The rate of growth in emerging markets has proven to be even more pronounced, although the majority of foreign direct investments still flow to developed countries (Bilson et al., 2001). The world's economic growth as such is increasingly driven by emerging markets (Bremmer and Keat, 2010), where political risk is considered to be of increased importance (Diamonte et al., 1996; Bilson et al., 2002; Bremmer & Keat, 2010). Political risk is further expected to increase due to emerging markets' increasing influence on the world economy (Bremmer, 2012). One particular theme of interest to investors is the increasing magnitude of social upheaval and unrest that is also expected to increase going forward (ILO, 2017). Hence, increasing globalisation in conjunction with political risk is of great importance to global investors and a challenge worth studying in considerable detail.

Political risk is broadly defined by Jakobsen (2012b, p. 13) as 'those events, actions, processes or characteristics of a socio-political nature that have the potential to - directly or indirectly - significantly and negatively affect the goals of foreign direct investors'. According to standard portfolio theory, increased risk should lead to greater returns. Political risk is likely to violate this classical risk-return relation, as countries considered to be politically more at risk have been shown to receive lower returns than politically safer countries (Erb et al.,1996a; Diamonte et al., 1996). Recent studies confirm these findings. On the other hand, Erb et al. (1996a) and Bilson et al. (2002) suggest that political risk does have a positive effect on stock market returns. Lehkonen and Heimonen (2015) refer to this ongoing dispute as a *political risk sign paradox*. This inconclusiveness also applies to the empirical literature investigating the impact of political risk on foreign direct investments. Jakobsen (2010, 2012a) suggests that this emanates from an under-prioritisation of the increasingly multidimensional phenomenon of political risk.

Despite its importance, the multidimensional nature political risk is somewhat understudied. Two notable exceptions are Lehkonen and Heimonen (2015) and Dimic et al. (2015) who provide some insight into the underlying dimensions of political risk and their impact on stock market returns. However, as far as we know, no one has estimated the underlying dimensions of political risk using an econometric approach to investigate the effect on stock market returns. Being aware of the multidimensional nature of political risk, this study aims to identify whether underlying dimensions of political risk affect stock market excess returns differently and to contribute to an understanding of the *political risk sign paradox*. We suggest that an aggregated political risk measure sweeps away the potentially conflicting effects of underlying dimensions of political risk (Harvey, 2004; Jakobsen, 2012a; Berggren et al., 2012; Lam & Zhang, 2014) since it is unlikely that all political risk components are equally linked to stock market returns (Berggren et al., 2015). Hence, knowledge concerning compensation for bearing different types of political risk is of great importance for global investors.

The main research question is: *How are stock market excess returns affected by underlying dimensions of political risk?*

Our econometric analysis identifies *Legal, Tension, Conflict*, and *Policy* as the underlying dimensions of political risk and demonstrate the increasing importance of *Ethnic and Religious Tension (Tension)* as a distinct risk dimension likely to influence financial markets going forward.

We contribute to existing research in two distinct ways. First, by means of Principal Component Analysis we disentangle the underlying dimensions of political risk in order to gain a more nuanced understanding of how they differ in their impact on stock market returns

thus identifying a novel and distinct dimension stemming from religious and ethnic tension. Second, we analyse the extent to which the political risk dimensions affect excess returns differently under different market types (e.g. developed vs emerging markets) and over time, in order to determine which political risk is rewarded, with a particular emphasis on religious and ethnic tensions.

The paper is organised as follows. Section 2 summarises previous research. Section 3 provides information regarding the data and methodology, while section 4 presents our analysis and findings. Section 5 offers some concluding remarks.

2. Literature

Political instability has proven to be an important determinant of stock market performance. Previous research suggests that higher political risk is associated with higher expected returns (Erb et al., 1996a; Erb et al., 1996b; Bilson et al., 2002; Harvey, 2004). However, in some cases political risk has proven to violate this classical risk-return relation (Erb et al., 1996a; Diamonte, 1996; Perotti & van Oijen, 2001; Lehkonen & Heimonen, 2015; Dimic et al., 2015). Lehkonen & Heimonen (2015) refer to this ongoing dispute as a *political risk sign paradox*.

The existing literature is inconclusive with respect to the direction of the effect of political risk on financial markets. On the one hand, empirical evidence suggests a negative political risk premium, implying that investors are likely to accept reduced returns to hedge against political uncertainty (Brogaard & Detzel, 2015). On the other hand, others suggest a positive premium in support of the classical risk-return relation (Lam & Zhang, 2014). However, high political risk along one dimension could outperform low political risk in another, and vice versa (Jakobsen, 2012a). Such complexity calls for a consideration of the

underlying dimensions of political risk and their impact on stock market excess returns because previous research has primarily considered an aggregated and highly multidimensional Political Risk Index. In other words, different dimensions of political risk could be seen as orthogonal to each other, hence representing vastly different effects on market return.

Our study builds on previous work emphasizing the importance of different underlying dimensions of political risk. In several analyses, Lam and Zhang (2014) identify the political risk components 'Bureaucracy Quality' and 'Government Stability' as distinct dimensions of political risk. The former (latter) dimension commands a risk premium in the emerging (developed) markets. Harvey (2004) includes several components of political risk, implicitly treating each as a distinct dimension. In contrast to the aggregated Political Risk Index (PRI), several of the components imply positive hedge returns in the emerging markets, especially in cases of 'Government Stability', 'Investment Profile', and 'Internal Conflict'. When investigating sub-groups of political risk, as defined by Bekaert et al. (2005, 2014), in addition to political risk components, both are suggested as being unique to specific markets (Dimic et al., 2015). However, tensions are associated with lower stock market returns in less developed markets. Hence, the sub-group 'Tensions and Conflicts' seems to violate the classical risk-return relation when the level of democracy is not taken into account (Lehkonen & Heimonen, 2015), supporting Pástor and Veronesi (2013), who suggest that the political risk premium is *economic state dependent*. Berggren et al. (2012) detect a negative relationship between the 'Social Congruence' dimension of political risk and growth in rich countries. Furthermore, improvements in 'Legal' and 'Policy' are suggested to be positively related to growth in rich countries, whereas instability hampers growth in poor countries. The positive relation in terms of 'Policy' further turns out to correlate positively with the instability of policies (Berggren et al., 2015). In summary, the social aspect of political risk

seems to be an important underlying dimension that affects the stock market differently dependent upon the country's macroeconomic state, leading to the following hypothesis:

H1: *Underlying dimensions of political risk affect stock market excess returns differently between markets*

In addition to the cross-sectional effect from the state dependent nature of political risk, another branch of literature considers the *time-variation* in the same relationship. Arguably, the emerging market is becoming politically more secure, whereas the developed market is becoming politically riskier (Erb et al., 1996a; Harvey, 2004; Dimic et al., 2015). This phenomenon is referred to by Diamonte et al. (1996) as a *global convergence.* Consequently, the effect of political risk on financial markets are expected to vary over time. In association with a *global convergence*, and the fact that the classical risk-return relation in terms of political risk is considered a relatively recent phenomenon (Bilson et al., 2002; Lam & Zhang, 2014), we propose a further hypothesis:

H2: *The underlying dimensions of political risk affect stock market excess return differently over time.*

3. Data and methods

Our particular research question calls for a two-step research process; first we carve out four principal components from the political risk data from International Country Risk Guide (ICRG). We then analyse these factors in a two-way error component model.

3.1. Data and variable description

The final sample size comprises 28 countries covering June 2001 to May 2015. Fifteen of the 28 countries are considered developed, and 13 are considered emerging (table 4 in Appendix 1), according to well established classification (MSCI, 2016). To isolate the global financial crisis of 2008/2009, the sub-periods can be interpreted as *pre-crisis* (06/01-12/06), *during-crisis* (01/07-12/10), and *post-crisis* (01/11-05/15), including monthly observations.

Dependent Variable – excess return

Broad market indices are chosen to capture the movement of the country's entire market. Returns are derived from monthly observations. The indices are measured in USD according to availability and comparability, reflecting the perspective of global investors. In line with the capital asset pricing model (CAPM) we use *market-specific excess return* as our dependent variable. This is constructed by subtracting the risk-free rate (proxied by the 10 year US Treasury Bond Rate) from the return of the Morgan Stanley index for the focal market.[i]

Independent variable - Political Risk

This study makes use of the disaggregated PRI included in ICRG, published by the PRS Group. The guide provides a monthly rating covering 141 countries including three sub-categories of country-specific risk: political, financial, and economic. The ratings are estimated based on subjective staff analyses and are thus considered to be a forward-looking measure making it predictive by nature (Bilson et al., 2002) and further, suitable for stock market analysis. The components are aggregated into the PRI. The maximum rating on the PRI is 100. In each case, a lower (higher) risk rating reflects a higher (lower) risk.

Control variables

Table 4 in Appendix 1 presents a detailed description of the sources of our control variables. The growth rate of *Industrial Production* (*IP*) is obtained by monthly observations, computing the first difference in the logarithm, and include seasonally adjusted data (index 2010 = 100). The variable is lagged by two months as suggested by Chen et al. (1986) and Bilson et al. (2001).

Inflation (*CPI*) is estimated as the lagged first difference in the logarithm of the consumer price index and include seasonal adjustments (index 2010 = 100). The lagged variable represents short-term inflation expectations rather than the actual inflation.

Risk Premium (RP) is estimated so as to capture the effect of changes in risk aversion and is estimated by subtracting the 10-year US Treasury Bond Rate from the MSCI All Country World Index (ACWI) as a proxy for the global market portfolio. To estimate the unanticipated movement, the moving 12-month average risk premium is subtracted each month.

To capture the influence of the shape of the *Term Structure* (*TS*), we subtract the previous month's short-term interest rate from the current month's long-term interest rate. The interest rates are converted from annual to monthly rates

3.2. Approach Step One: Principal Component Analysis

We perform PCA on standardised data rather than mean-corrected data because we do not assume that a component's variance indicates its importance when forming the PRI. The analysis is performed on the pooled sample because our prime interest is the overall grouping of components. We extract four principal components according to the "eigenvalue-greater-than-one" rule and a logical interpretation, resulting in a total variance explanation of

approximately 73%. They will henceforth be referred to as 'underlying dimensions of political risk'. When interpreting the principal components, we consider the rotated component matrix in Table 1, rotated by varimax[ii] with Kaiser normalisation, in line with Toft (2008) and Berggren et al. (2012).

Table 1: Principal Component Analysis

Political Risk Components	**Principal Components**				
	LEGAL	*TENSION*	*CONFLICT*	*POLICY*	*Uniqueness*
Bureaucracy Quality	**.859**	.133	.094	.218	.188
Corruption	**.829**	.133	.186	.200	.221
Democratic Accountability	**.723**	.063	.040	-.305	.378
Ethnic Tensions	.113	**.805**	-.104	.009	.328
External Conflict	.005	-.162	**.860**	.015	.233
Government Stability	-.037	-.042	.004	**.870**	.239
Internal Conflict	.328	.384	**.606**	.414	.206
Investment Profile	.404	.303	.237	**.539**	.399
Law and Order	**.789**	.322	.205	.096	.223
Military in Politics	.426	.353	**.665**	.006	.252
Religious Tensions	.249	**.785**	.203	.111	.268
Socioeconomic Conditions	**.568**	.326	.062	.471	.345

Notes: Loadings and uniqueness. The rotated component matrix, using varimax with Kaiser Normalization, is estimated out of the disaggregated Political Risk Index (International Country Risk Guide). Loadings in boldface are referred to as 'heavy loadings' in the text, using 0.5 as cut-off.

The twelve political risk components split nicely into four underlying dimensions of political risk. The components have a considerable amount in common with their respective dimensions as all of their uniqueness is below 0.4. Hence, the multidimensional phenomenon of political risk seems to prove applicable for the PRI of ICRG.

The dimensions are supported by both theoretical and empirical research. Moreover, the dimensions are comparable with the dimensions obtained in Berggren et al. (2012, 2015), implicitly suggesting that the correlations between the components are relatively constant over time because our sample includes more recent data. However, unlike this earlier work (2015), we include a fourth dimension with heavy loadings from *Ethnic and Religious*

Tensions. When we interpret the principal components restricted to three dimensions, the additional dimension, normally observed as separate from the others and independent of the rotation technique and sample specifications, is lost. Hence, four dimensions are preferable because the additional dimension is distinct and highly robust. This implies that *Ethnic* and *Religious Tensions* have become more important in recent years, which may be a result of increased globalisation, leading to the increased effects of political risk evolving from tensions. Furthermore, terror-related incidents have increased in the 21st century, driven by ethnic and, especially, religious tensions. Hence, adding a fourth component is a contribution to the understanding of political risk.

The political risk components with heavy loadings on the first dimension are *Bureaucracy Quality, Corruption, Democratic Accountability, Law and Order,* and *Socioeconomic Conditions*, all of which measure the quality of a country's legal system and its consequences (Howell, 2011). This dimension is highly correlated with Rule of Law from other (The World Justice Project, 2016), and bears similarities to the 'Political Institutions' dimension included in Jakobsen (2012a) and both 'Quality and Institutions' and 'Democratic Tendencies', suggested by Bekaert et al. (2005, 2014). Moreover, the dimension is similar to the 'Legal' dimension of Berggren et al. (2012) and the 'Legal-administrative' dimension of Berggren et al. (2015). Hence, the dimension is interpreted as *Legal*.

The middle dimensions obtain heavy loadings from *Ethnic and Religious Tensions in addition to Military in Politics, External Conflict,* and *Internal Conflict,* all of which reflect unrest. They are comparable to the 'Social Congruence' dimension suggested in Berggren et al. (2012), the 'Social Harmony' dimension in Berggren et al. (2015), and the sub-group of 'Conflicts' suggested in Bekaert et al. (2005, 2014). The second dimension is interpreted as *Tension*, and the third is interpreted as *Conflict*. *Tension* is observed to correlate relatively highly with the fractionalisation data in terms of 'Ethnic' and 'Language' (Alesina et al.

2003). Hence, *Tension* could be interpreted as an important determinant of political economy, reflecting instability, social unrest, and political violence (Alesina & Perotti, 1996). *Conflict* is seen to correlate weakly with the data. The finding as such provides support whereby the middle dimensions indeed reflect two distinct dimensions, unlike previous research which highlights the social aspect of political risk *in general*. Both *Tension* and *Conflict* are considered sources of risk because they are indicators of 'future trouble' (Jakobsen, 2012a), indicating a lagged effect with respect to the influence on stock market returns. However, Jakobsen (2012b) recommends looking into both contemporary and recent history. Hence, both *Tension* and *Conflict* are lagged by only one month.

The fourth dimension obtains considerable loadings from Government Stability and Investment Profile, similar to the sub-group 'Government Actions' of Bekaert et al. (2005, 2014). The former component reflects the government's ability to declare its programme and to stay in office (Howell, 2011). The latter component is a measure of contract viability, profit repatriation, and payment delays (Howell, 2011). The component influences the 'Economic Governance' dimension used in Jakobsen (2012a). The dimension correlates relatively highly with the categories 'Rule of Law', 'Regulatory Efficiency', and 'Open Markets' from Index of Economic Freedom (The Heritage Foundation, 2016). This dimension is further identical with the 'Policy' dimension in Berggren et al. (2012) and is thus interpreted as *Policy*.

Summary statistics from the pooled sample, including the twelve political risk components, are presented in Table 5 in Appendix 2.

3.3. Approach step two: Two-way Error Component Model

We specify a linear model, assuming both factors (entity in terms of market or country and time) and covariates (the independent variables) are linearly related to the dependent variable. Additionally, we cannot ignore the presence of entity-specific or time-specific fixed effects.

Hence, we operate with a two-way error component model that allows both entity-fixed and time-fixed effects within the same model using maximum likelihood (Brooks, 2008). Including interaction terms between factors and covariates allows us to investigate whether the linear relation between an underlying dimension of political risk and the dependent variable varies by entity or over time. The market type (e.g. developed market) fixed effect is used to test the first hypothesis. Hence, the absence of fixed effects within countries included in each market are implicitly assumed, which could lead to a country bias. We therefore also test for country-fixed effects[iii].

To investigate how underlying dimensions of political risk affect stock market excess returns, we expand the multifactor model of Chen et al. (1986) with principal components extracted through a PCA. The factors included in the model of Chen et al. (1986) are sources of systematic asset risk, defined as economic state variables, consistent with the arbitrage pricing theory introduced by Ross (1976). We suggest underlying dimensions of political risk as economic state variables, systematically affecting stock market returns. Only the factor-specific loadings are considered and not the factor prices following Fama and MacBeth (1973), as in Chen et al. (1986). We estimate an equation of the form

$$ER_{it} = \alpha + \sum_{k} \beta_k X_{kit} + \sum_{j} \gamma_j P_{jit} + \delta_{jit} + \rho_{jit} + \mu_i + \lambda_t + v_{it}$$

where α is the overall constant term, and β_k are factor-specific loadings on the state variables of Chen et al. (1986); X_{kit}, and γ_j are underlying dimensions of political risk; P_{jit}. *k* denotes the presence of certain macroeconomic variables (e.g. CPI), while *j* refers to the four principal components (e.g. *tension*). δ_{ijt} (ρ_{ijt}) denotes an interaction term creating entity-specific (time-specific) betas, μ_i (λ_t) denotes a dummy for entity (time), and v_{it} denotes the remainder error term after subtracting both entity- and time-fixed effects; *i* and *t* denote country and months, respectively, and are operationalized by introducing a dummy for each country and

year less one. Regarding the interaction terms, *M* and *P* denote markets (i.e. developed or emerging) and sub-periods (i.e. pre-crisis, during-crisis, and post-crisis), respectively, whereas *j* again refers to the four dimensions of political risk (e.g. *tension*). The interaction terms are constructed using dummies for developed market and the during-crisis and post-crisis periods (M and P), multiplied with each of the political risk factors. The estimated coefficients of the *market-specific interaction term* (δ_{ijt}) captures the difference in the effect of the political risk factors on excess returns in different market types (i.e. developed or emerging). In other words, these show whether the political risk – excess return relationship – is moderated by the market type to which the country belongs.

$$\delta_{jit,M} = Legal_{it} \cdot D_{DM} + Tension_{it} \cdot D_{DM} + Conflict_{it} \cdot D_{DM} + Policy_{it} \cdot D_{DM}$$

Similarly, the *time-specific interaction term* (ρ_{ijt}) captures the moderating effect of the different sub-periods (i.e. pre-crisis, during-crisis and post-crisis).

$$\rho_{jit,P} = Legal_{it} \cdot D_{DC} + Tension_{it} \cdot D_{DC} + Conflict_{it} \cdot D_{DC} + Policy_{it} \cdot D_{DC} + Legal_{it} \cdot D_{PC} + Tension_{it} \cdot D_{PC} + Conflict_{it} \cdot D_{PC} + Policy_{it} \cdot D_{PC}$$

Note that these parameters are essential in our investigation into the differing effects of political risk between markets and over time. Figure 1 sums up the empirical model for this paper.

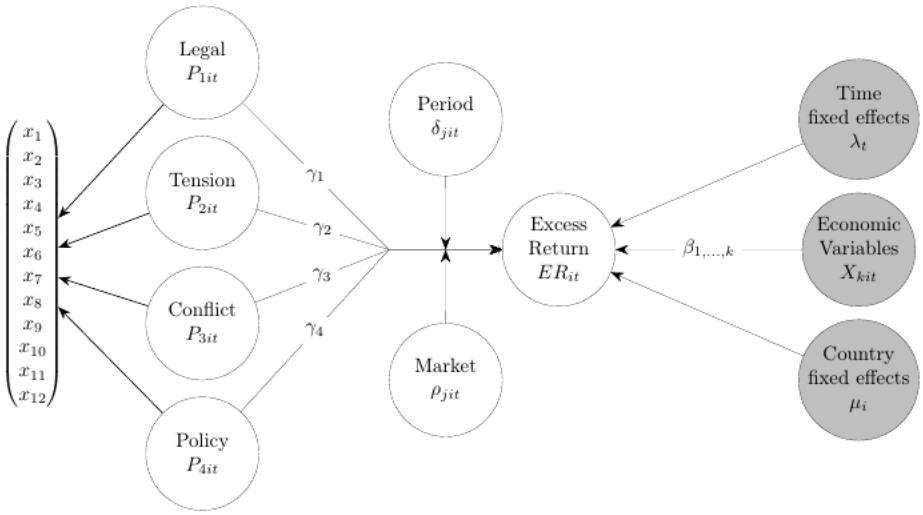

Figure 1: Empirical model with PCA (P1-P4), controls (grey circles) and moderating effects (period and market)

4. Analysis and findings

4.1. Analysis step one: Analysis of the components

We perform two distinct preliminary analyses in line with Harvey (2004).[iv] First, we perform an ex-ante analysis of the relation between the average return and the average disaggregated PRI. Two portfolios are constructed based on the risk level, low- and high-risk portfolios, using the cut-off points suggested by the PRS Group; low risk (high rating): 80-100% and high-risk (low rating): 0-70% (Howell, 2011). The hedge portfolio reflects a long position in the high-risk portfolio and a short position in the low-risk portfolio. Hence, a positive return in the hedge portfolio indicates a reward of political risk.

Our findings suggest that different components of political risk command varying political risk premiums and that hedge returns in the emerging markets are higher; both findings are in line with Harvey (2004). Government Stability produces a negative hedge return in the all-country sample, whereas Socioeconomic Conditions produce the highest positive hedge return in the all-country sample. Ethnic Tensions contribute with a positive

hedge return of 5.606% p.a., of which 6.734% p.a. is related to the emerging markets. A similar trend is detected for Religious Tensions.

Moreover, the cross-sectional relations between the country's total equity risk premiums,[v] estimated by Damodaran (2016), and underlying dimensions of political risk are examined. In the case of the emerging markets,[vi] there does not seem to be any relation at all except with *Tension*, which shows a negative correlation. This suggests that increased political risk is associated with an increased risk premium, in line with Harvey (2004). In the case of the developed markets, both *Legal* and *Policy* correlate negatively with the country's total equity risk premium. The opposite trend is observed for *Tension*, further in line with Harvey (2004).

These preliminary analyses confirm our assumption that the aggregated PRI is too coarse because there seems to be differences between both components and dimensions. *Tension* (ethnic and religious) is noted as an important and distinct dimension, which is the political risk aspect that is rewarded. This conflicts with previous research which highlights the social aspect of political risk *in general*.

4.2. Analysis step two: Two-way Error Component Model

We extend the multifactor model of Chen et al. (1986) in various ways. First, we identify the incremental effect of each underlying dimension of political risk resulting in five different model specifications. Second, the hypotheses are addressed by introducing interaction terms between the political risk dimensions and both market and time separately, resulting in two different model specifications (no. 6 and 7). Finally, the main model (no. 8) seeks to address the main question by including the interaction terms of both market and time simultaneously. Significantly negative coefficients for the underlying dimensions of political risk reflect a positive risk-return relation according to the construction of the rating system where a low

(high) rating indicates high (low) risk. Significantly positive coefficients will violate the classical risk-return relation.

We present the results of introducing one underlying dimension of political risk at a time in Table 2. *Legal* is significantly positive in models 2, 3 and-4. In model 5, *Legal* is insignificant, whereas *Policy* is significantly negative. Two of twelve political risk components load moderately on the dimensions ad illustrated in section 3.2. Both dimensions are considered positively related to economic growth in Berggren et al. (2012). As such, *Legal* and *Policy* are likely to reflect partially similar dimensions of political risk. However, the markets seem more differentiated with respect to *Legal,* as the significance level of the market-fixed effect[vii] deteriorates in model 5. The time-fixed effect is highly significant during all model specifications.

Table 2. The two-way error component model

Estimates of Fixed Effects Including Type III Tests of Fixed Effects					
Model	*1*	*2*	*3*	*4*	*5*
Variables	*Estimates*				
Estimates of Intercept					
Intercept	.0024	.0043	.0039	0,0038	0,0012
	(.0018)	(.0020)	(.0020)	(.0020)	(.0023)
μ	-.0033**	-.0072***	-.0064***	-.0063**	-.0043*
	(.0016)	(.0024)	(.0024)	(.0025)	(.0026)
λ_1	.0104***	.0052***	.0061***	.0062***	.0090***
	(.0023)	(.0019)	(.0019)	(.0019)	(.0022)
λ_2	-.0040*	-.0064***	-.0064***	-.0063**	-.0049**
	(.0022)	(.0021)	(.0021)	(.0021)	(.0021)
Estimates of Independent Variables					
RP	1.0400***	1.0404***	1.0560***	1.0560***	1.0556***
	(.0149)	(.0150)	(.0150)	(.0150)	(.0150)
TS	-.0007***	-.0007***	-.0007***	-.0007***	-.0007***
	(.0002)	(.0002)	(.0002)	(.0002)	(.0002)
CPI	.5683**	.5424**	.5282**	.5268**	.5166**
	(.2478)	(.2480)	(.2490)	(.2491)	(.2490)
IP	.1692***	.1680***	.1675***	.1675***	.1688***
	(.0293)	(.0293)	(.0291)	(.0292)	(.0290)
Legal		.0027**	.0022**	.0021*	.0015
		(.0012)	(.0012)	(.0012)	(.0012)
Tension			-.0011	-.0011	-.0013

			(.0008)	(.0008)	(.0008)
Conflict				-.0001	-.0003
				(.0008)	(.0008)
Policy					-.0023**
					(.0010)
Significance Level of Fixed Effects					
Market	.041**	.002***	.000***	.009***	.096*
Time	.000***	.000***	.000***	.000***	.000***
Information Criteria					
AIC	-14076	-14079	-14059	-14057	-14061
BIC	-14018	-14015	-13988	-13980	-13977
N	4732	4732	4704	4704	4704

*Notes: Includes the extended multifactor model of Chen et al. (1986), introducing one underlying dimension of political risk at a time, using maximum likelihood. The standard error is reported beneath each estimate. The emerging market and the latter time-period are set as redundant variables. ***, **, and * denote statistical significance at 1%, 5%, and 10%, respectively. μ (λ) denotes dummy for market (time). Dependent variable: Excess return. The sample period spans from June 2001 to May 2015.*

We investigate the impact of the market in interaction with underlying dimensions of political risk to identify whether the dimensions affect excess returns differently between markets. The results are presented as model 6 in Table 3. The market-fixed effect is significant whereas the time-fixed effect is highly significant. *Policy* seems to be derived from the market effect, given the highly significant interaction term, as *Legal* turns significant. The effect of *Policy* is positive (negative) in the emerging (developed) markets. Hence, *Policy* affects excess return differently across markets and provides empirical support for the first hypothesis.

Table 3. The two-way error component

Estimates of Fixed Effects Including Type III Tests of Fixed Effects			
Model	*6*	*7*	*8*
Variables	*Estimates*		
Estimates of Intercept			
Intercept	.0008	.0023	.0015
	(.0027)	(.0023)	(.0028)
μ	-.0058**	-.0017	-0,0022
	(.0027)	(.0027)	(.0029)
λ_1	.0104***	.0098***	.0109***
	(.0023)	(.0023)	(.0024)
λ_2	-.0040*	-.0068***	-.0061***
	(.0022)	(.0023)	(.0023)
Estimates of Independent Variables			

RP	1.0552***	1.0571***	1.0568***
	(.0150)	(.0150)	(.0149)
TS	-.0007***	-.0007***	-.0007***
	(.0002)	(.0002)	(.0002)
CPI	.5271**	.4685*	.4824*
	(.2494)	(.2484)	(.2489)
IP	.1665***	.1674***	.1657***
	(.0291)	(.0290)	(.0290)
Legal	.0011**	.0035	.0011
	(.0019)	(.0019)	(.0024)
Tension	-.0013	-.0013*	-.0016*
	(.0010)	(.0014)	(.0016)
Conflict	.0007	0,0000	.0008*
	(.0011)	(.0015)	(.0016)
Policy	.0006**	0,0016	.0042
	(.0015)	(.0016)	(.0020)
Estimates of Market-specific Interaction Terms			
$\delta_{DM,Legal}$	.0031		.0035
	(.0026)		(.0026)
$\delta_{DM,Tension}$	.0003		.0001
	(.0018)		(.0018)
$\delta_{DM,Conflict}$	-.0025		-.0030*
	(.0020)		(.0017)
$\delta_{DM,Policy}$	-.0062***		-.0052***
	(.0018)		(.0019)
Significance Level of Time-specific Interaction Terms			
$\rho_{T,Legal}$		.0250**	.1690
$\rho_{T,Tension}$		.7590	.5930
$\rho_{T,Conflict}$		.0560*	.0520*
$\rho_{T,Policy}$		.0000***	.0000***
Estimates of Time-specific Interaction Terms			
$\rho_{T1,Legal}$		-.0047**	-.0023
		(.0019)	(.0021)
$\rho_{T2,Legal}$		-.0052**	-.0043*
		(.0023)	(.0023)
$\rho_{T1,Tension}$		.0005	.0011
		(.0019)	(.0020)
$\rho_{T2,Tension}$		-.0009	-.0008
		(.0020)	(.0020)
$\rho_{T1,Conflict}$		.0005	.0012
		(.0019)	(.0020)
$\rho_{T2,Conflict}$		-.0041*	-.0035
		(.0022)	(.0022)
$\rho_{T1,Policy}$		-.0105***	-.0107***
		(.0022)	(.0022)
$\rho_{T2,Policy}$		.0015	.0008
		(.0026)	(.0026)
Significance Level of Fixed Effects			
Market	.035**	.539	.438
Time	.000***	.000***	.000***
Information Criteria			
AIC	-14073	-14091	-14098
BIC	-13963	-13955	-13937

N	4704	4704	4732

*Notes: This model includes the extended multifactor model of Chen et al. (1986), using maximum likelihood. Model 6 reports the model including interaction terms between the underlying dimensions of political risk and market. Model 7 reports the model including interaction terms between the underlying dimensions of political risk and time. Model 8 combines both interaction terms. The standard error is reported beneath each estimate. The emerging market and the latter time-period are set as redundant variables. ***, **, and * denote statistical significance at 1, 5, and 10%, respectively. δ (ρ) denotes market-specific (time-specific) interaction terms. μ (λ) denotes dummy for market (time). The sample period spans from June 2001 to May 2015.*

We investigate the impact of time in interaction with underlying dimensions of political risk to identify whether the dimensions affect excess returns differently over time. The results are presented as model 7 in Table 3. In cases where the interaction term with respect to time becomes significant in the Type III tests of fixed effects, it is not necessarily possible to reveal which period is significant compared to another. This applies especially in cases where the significance level is close to 0.05. The highly significant time-fixed effect overrules the market-fixed effect, possibly as a result of severe changes in the country's politics during and after the global financial crisis (Hoshi, 2011). Furthermore, the global convergence finally seems present, indicating a correlation across markets with respect to the underlying dimensions of political risk. Only the main effect of *Tension* is (weakly) significant. However, the effects are significant in interaction with time in the case of *Policy*, *Legal*, and *Conflict* (0.01, 0.05, and 0.10, respectively), i.e. they affect excess returns differently over time, ultimately leading to negative coefficients in the first sub-periods. This provides strong empirical support for the second hypothesis.

The main model is specified by equation (1), and the results are presented in model 8 in Table 3. The underlying dimensions of political risk, except from *Legal*,[viii] are significant in one way or another. The control variables are highly significant, except for *CPI*, which is weakly significant. The time-fixed effect is highly significant, whereas the market-fixed effect is not. The main effects of *Tension* and *Conflict* are weakly significant in addition to both

interaction terms with respect to *Conflict. Policy* is highly significant in interaction with both time and market, indicating that the interaction terms overrule the main effect.

4.3. Discussion

Tension is the only variable that becomes significantly negative across markets and over time, indicating that this is an economic state variable that systematically contributes with a positive correlation to stock market excess returns. Excess return is expected to decrease 0.156% in month *t* given a unit increase in month *t-1* (i.e., decreased risk), ceteris paribus.

Conflict correlates negatively with stock market excess returns in the emerging market. Excess returns are expected to decrease 0.22% (note that the interaction term must be included) in month *t* given a unit increase in month *t-1* (i.e. decreased risk), ceteris paribus, in the case of the developed market in the latter sub-period. The developed market differs significantly from the emerging market and contributes with a 0.30% decrease in excess returns. The results are in line with Harvey (2004), who suggests 'External Conflict' and 'Internal Conflict' are drivers of positive hedge returns in the developed market, whereas the impacts in the emerging market are conflicting. The social aspect of political risk (in the meaning of both *Tension* and *Conflict*) contribute consistently to increased excess returns in developed markets. In emerging markets, *Tension* has a larger impact on excess returns than *Conflict*. The two coefficients further contribute with opposite signs, ultimately suggesting distinct underlying dimensions of political risk. This is in contrast to Toft (2008), Berggren et al. (2012, 2015) and Lehkonen and Heimonen (2015). The social aspect of political risk is suggested to be negatively related to both growth and return (Berggren et al., 2012; Lehkonen and Heimonen, 2015). Hence, the effect of *Conflict* could possibly outperform the effect of *Tension* and thus result in an overall negative relation, contributing to an understanding of the *political risk sign paradox*. Finally, our findings support the social aspect of political risk as

an important dimension. However, the impact of *Tension* and *Conflict* differ, making the dimensions highly important to consider separately.

Concerning *Policy*, we see that excess returns are expected to decrease 1.178% in month *t*, given a unit increase in month *t* (i.e. decreased risk), ceteris paribus, in the case of the developed market in the first sub-period. The positive correlation contradicts the findings of Dimic et al. (2015). Furthermore, the pre-crisis period differs significantly from the post-crisis period, leading to a significant decrease in the impact of *Policy*. This is consistent with the shift in the declining trend of *Policy*. This trend is somewhat more prominent in the developed market, possibly explaining why the market differs significantly from the emerging market, contributing with a 0.519% decrease in excess returns. The negative correlation in the emerging market during the latter periods is in line with Berggren et al. (2012), who suggest a negative relation between 'Policy' and economic growth in poor countries.

Finally, *Legal* turns insignificant, in line with Dimic et al. (2015). Nevertheless, *Legal* varies significantly during the global financial crisis compared to the other periods, implying that a certain risk level is necessary to obtain a risk premium. *Legal* is also significantly positive during several model specifications as illustrated in Table 2. Hence, *Legal* is apparently an important political risk factor.

In sum, our analysis indicates underlying dimensions of political risk are economic state variables *Tension*, *Conflict*, and *Policy*, systematically affecting stock market excess returns. *Tension* affects excess returns positively both across markets and over time, in line with the classical risk-return relation. Both *Conflict* and *Policy* vary across markets and over time, leading to a positive (negative) risk-return relation with excess return in the case of developed (emerging) markets. Hence, underlying dimensions of political risk affect stock market excess returns differently, which is in line with the expectations in Hypothesis 1. Furthermore, we observe that political risk has additionally increased in general during the

21st century, something which could be explained by emerging markets' increasing influence on the world economy. This trend is especially prominent in terms of *Policy* in the developed market, where investors seem to be rewarded in terms of both *Policy* and *Conflict*. These dimensions vary both across markets and over time, confirming both hypotheses. However, when assessing the interaction terms separately, only *Policy* varies between markets. All dimensions, except *Tension*, vary over time. This provides partial support for Hypothesis 2.

4.4 Limitations

A word of caution is, however, warranted. First, the results may be biased resulting from the omission of countries with extreme values of political risk due the availability of the macroeconomic factors. Choosing control variables from the criterion of availability could have led to an even larger sample size, as in Lehkonen and Heimonen (2015). A larger sample size would further allow computing factor prices in addition to factor-specific loadings, following the two-step regression of Fama and MacBeth (1973). Second, a linear model may not be appropriate because of non-symmetric data and weak relations between the underlying dimensions of political risk and excess return. Using quantile regression would offer a richer insight into the entire distribution of the dependent variable. Information lags are furthermore likely to vary across both countries and markets (Bilson, 2001). Specifying a model for each market could thus be more appropriate. However, if we had done so, we would have lost the ability to test for significant differences between markets. Third, because it may be challenging to distinguish political risk from country-specific risk (Jakobsen, 2012b), including both the economic and financial aspects from ICRG, this could have led to an even richer insight into the dimensions of political risk.

Finally, we acknowledge that using the US Treasury bond as a risk-free rate results in some problems as excess equity returns in each particular country entail currency risk which

the US Treasury bond yield does not have. Foreign exchange (FX) risk could affect stock market returns, especially in cases of large and sudden exchange rate changes. Our model is not able to capture the FX exposure for equity premium.

5. Concluding Remarks

Our study acknowledges the multidimensional nature of political risk and contributes to an understanding of the *political risk sign paradox.* We managed to operationalize political risk into four distinct dimensions which we show to be a contribution in itself. Moreover, we identify *Tension,* representing Ethnic and Religious Tensions, which improves the understanding of political risk reward compared to previous research, highlighting the social aspect of political risk *in general*. We clearly show how aggregated political risk measures are too coarse for both analytical and investment purposes.

Political risk has increased in general throughout the 21st century and recent developments in the international political arena have actualised this topic more than ever. However, stock market excess returns are highly context-sensitive as underlying dimensions of political risk affect stock market excess returns differently, thereby answering the main question of the study and posing great challenges for global investors. Although the total risk is what matters, an implication of this study is that internationally oriented investors are likely to benefit from knowledge regarding which of the dimensions implies a reward. Investors in particular should direct their attention towards *Tension,* which seems to command a risk premium regardless of both market and time.

Future research should pursue the findings of this study by constructing portfolios that implement this knowledge in order to be more normative in explaining how to achieve excess returns.

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Appendix 1

Table 4. Countries included in the sample

	Index/class.	IP	Long-term Interest Rate	Short-term Interest Rate
Developed Market				
Belgium	MSCI	IFS	IFS	IFS
Canada	MSCI	IFS	IFS	IFS
Finland	MSCI	IFS	IFS	OECD
France	MSCI	IFS	IFS	OECD
Germany	MSCI	IFS	IFS	IFS
Ireland	MSCI	IFS	IFS	OECD
Italy	MSCI	IFS	IFS	IFS
Japan	MSCI	IFS	IFS	IFS
Netherlands	MSCI	IFS	IFS	OECD
Norway	MSCI	IFS	IFS	OECD
Portugal	MSCI	IFS	IFS	IFS
Spain	MSCI	IFS	IFS	IFS
Sweden	MSCI	IFS	IFS	OECD
United Kingdom	MSCI	IFS	IFS	OECD
United States	MSCI	IFS	IFS	IFS
Emerging Market				
Czech Republic	MSCI	IFS	IFS	IFS
Greece	MSCI	IFS	IFS	OECD
Hungary	MSCI	IFS	IFS	OECD
India	MSCI	WB	DS*	DS*
Korea, South	MSCI	IFS	IFS	OECD
Latvia	S&P	WB	IFS	OECD
Malaysia	MSCI	WB	IFS	OECD
Mexico	MSCI	IFS	DS*	IFS
Philippines	MSCI	WB	DS*	DS*
Poland	MSCI	IFS	IFS	IFS
Slovakia	S&P	IFS	IFS	IFS
South Africa	MSCI	WB	IFS	IFS
Thailand	MSCI	WB	IFS	DS*

Notes: All countries included in the sample, classified by market. Latvia and Slovakia are the only countries classified as frontier by Morgan Stanley Capital International (MSCI) and are thereby reclassified as emerging, following the criteria of MSCI (2015), in order to obtain similar sized groups. The MSCI classifications are collected from MSCI (2016), while the Standard & Poor's classifications are collected from S&P Dow Jones Indices (2013). Both Risk Premia (MSCI All Country World Index) and Inflation (The World Bank) are collected from the same source for all countries. Explanations of abbreviations: Industrial Production (IP), The World Bank (WB), Datastream (DS), International Financial Statistics (IFS), and the Organisation for Economic Co-

operation and Development (OECD). The long-term rates account for at least five years, while the short-term rates account for one year or less.

* Sources: Reserve Bank of India (long-term interest rate of India), Kanji Pitamber & Co (short-term interest rate of India), OECD (long-term interest rate of Mexico), Banko sentral ng philipinas (long-term interest rate of Philippines), bureau of the treasury - republic of the Philippines (short-term interest rate of Philippines), Bank of Thailand (short-term interest rate of Thailand).

Appendix 2

Table 5. Summary statistics of the dependent and independent variables

	Mean	Med.	Std.dev.	Var.	Skew.	Kurt.	Min.	Max.	JB	ADF
Dependent Variable										
ER	.00	.01	.08	.01	-.74	3.75	-.56	.44	538	-47
Independent Variables										
Legal	.00	.01	1.00	1.00	-.48	-.40	-2.93	1.74	2463	
Tension	.00	.13	1.00	1.00	-.55	.26	-3.33	2.29	1723	
Conflict	.00	.30	1.00	1.00	-.87	.27	-4.21	1.78	2074	
Policy	.00	.04	1.00	1.00	-.21	.11	-3.15	3.03	1678	
RP	.00	.00	.05	.00	.25	2.35	-.19	0.20	134	-48
TS	.05	-.15	4.45	19.82	-.78	248.21	-120.44	120.04	1*10^7	-54
CPI	.00	.00	.00	.00	1.00	10.09	-.03	0.04	10699	-25
IP	.00	.00	.03	.00	-.69	13.79	-.31	0.22	23312	-60
Political Risk Components										
BQ	3.30	3.00	.64	.41	-.26	-.98	2.00	4.00	3175	
C	3.44	3.00	1.22	1.49	.37	-1.09	1.50	6.00	3402	
DA	5.61	6.00	.65	.43	-2.25	6.87	2.00	6.00	6928	
ET	4.30	4.00	1.10	1.21	-.03	-.87	2.00	6.00	2949	
EC	10.41	10.50	1.10	1.21	-1.34	2.58	4.50	12.00	1457	
GS	7.75	7.50	1.46	2.12	-.03	-.36	3.50	12.00	2223	
IC	9.93	10.00	1.28	1.64	-.84	.32	6.00	12.00	1979	
IP	10.51	11.00	1.53	2.35	-.86	-.38	6.00	12.00	2836	
LO	4.61	5.00	1.15	1.33	-.79	-.08	1.00	6.00	2370	
MP	5.28	6.00	0.92	.84	-1.20	.79	2.00	6.00	2092	
RT	4.94	5.00	1.07	1.15	-1.29	1.21	1.00	6.00	1944	
SC	7.75	8.00	1.74	3.03	-.41	-.43	3.50	11.00	2446	
PRI	77.81	78.00	8.73	76.17	-.45	-.21	51.50	96.50	2186	

Notes. Summary statistics of the dependent and independent variables including the twelve components of the Political Risk index (International Country Risk Guide). Dependent variable: Excess Return (ER). Independent variables: Risk Premia (RP), Term Structure (TS), Inflation (CPI), and Industrial Production (IP). Political risk components: Political Risk Index (PRI), Bureaucracy Quality (BQ), Corruption (C), Democratic Accountability (DA), Ethnic Tension (ET), External Conflict (ET), Government Stability (GS), Internal Conflict (IC), Investment Profile (IP), Law and Order (LO), Military in Politics (MP), Religious Tensions (RT), and Socioeconomic Conditions (SC). JB (ADF) denotes Jarque-Bera (Augmented Dickey Fuller). The sample period spans from May 2001 to May 2015. N = 4732.

Table 6: Correlation matrix of the dependent variable (ER) and independent variables. Explanations of abbreviations: Excess Return (ER), Risk Premia (RP), Term Structure (TS), Inflation (CPI), and Industrial Production (IP). The sample period spans from May 2001 to May 2015.

	RP	TS	CPI	IP	Legal	Tension	Conflict	Policy	ER
RP	1	.006	-.034	-.002	-.013	-.001	.007	.021	.709
TS	.006	1	-.060	-.039	-.004	.007	.007	.016	-.043
CPI	-.034	-.060	1	.030	-.141	-.150	-.049	-.017	.009
IP	-.002	-.039	.030	1	-.024	-.014	-.003	.013	.063
Legal	-.013	-.004	-.141	-.024	1	.000	.000	.000	-.019
Tension	-.001	.007	-.150	-.014	.000	1	.000	.000	-020

Conflict	.007	.007	-.049	-.003	.000	.000	1	.000	.000
Policy	.021	.016	-.017	.012	.000	.000	.000	1	.001
ER	.709	-.043	.009	.063	-.019	-.020	.000	.001	1

[i] The 10-year US Treasury Bond rate is converted from annual to monthly and serve as a proxy for a risk-free rate. Excess return is considered in terms of an investor with a long-term investment horizon. These assumptions and calculations also apply for *RP*. Using a long-term interest rate can lead to several possible pitfalls. First, a long-term interest rate holds a weaker correlation with the stock market compared to short-term interest rates. Second, it may hold more liquidity and default risk compared to short-term interest rates.

[ii] Further testing using two orthogonal (quartimax and equamax) and two oblique (promax and direct oblimin) rotations do not affect the loadings, therefore the dimensions turn out robust, and the principal components are not correlated. The underlying dimensions of political risk as such reflect distinct constructs.

[iii] The Hausman Test of the baseline model (excluding interaction terms), comparing fixed with random effects (country-fixed and time-fixed effects), gives $\chi^2 = 25.702$, corresponding to a p-value of 0.001 (df = 8). Consequently, the random effect is not consistent, and the fixed effect would be the most suitable model for the data. The statistical software in use does not allow testing for market-fixed effects.

[iv] The results of these preliminary analyses are available upon request.

[v] The data and further descriptions are available at http://pages.stern.nyu.edu/~adamodar/.

[vi] Greece is not included in the emerging market sample because of an extremely high total equity risk premium, disturbing the analysis.

[vii] When replacing the market-fixed effect with country-fixed effect, the latter effect is not significant when considering the simple multifactor model. The country-fixed effect is highly significant when introducing the first underlying dimension of political risk and remains so when further underlying dimensions are included.

[viii] However, the second sub-period differs significantly from the latter in the case of *Legal*.