POLITICAL RISK IN ASSET PRICING – EVIDENCE FROM LATIN AMERICA

AN EMPIRICAL STUDY OF BRAZIL, CHILE, COLUMBIA, MEXICO, AND PERU

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Master Thesis

Stockholm School of Economics

2021

Political Risk in Asset Pricing – Evidence from Latin America: An Empirical Study of Brazil, Chile, Columbia, Mexico, and Peru

Abstract:

Project valuation in emerging markets is an important issue in international business. Practitioners and academics usually suggest adjusting the discount rate with the sovereign yield spread to capture political risk in the valuation. Due to the issue of double-counting of risks, Bekaert, Harvey, Lundblad, & Siegel (2016) instead propose using political risk spreads determined by a multi-factor regression onto the EMBI+ sovereign spread. We test if the multi-factor regression provides significant results in Latin American markets, finding supporting evidence that the regression indeed provides adequate results in this region. We further test if the Fama-French five-factor model shows an improvement when adding such an additional political risk factor in Brazil, Chile, Columbia, Mexico, and Peru, finding evidence that the quality of the model improves for the post global financial crisis era. We are the first ones to document this evidence as far as we know.

Keywords:

Country risk, Political risk, Sovereign yield spread, Political risk spread, Emerging markets, International valuation, International cost of capital, Fama-French factor model

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Master Thesis
Master Program in Finance
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List of Abbreviations

Abbreviation	Definition
CAPM	Capital Asset Pricing Model
CMA	Conservative Minus Aggressive
EMBI	Emerging Markets Bond Index
GRS	Statistic developed by Gibbons Ross Shanken (1989)
HML	High Minus Low
ICRG	International Country Risk Guide
LATAM	Latin America; In the context of this work this refers to the country set consisting of Brazil, Chile, Colombia, Mexico, and Peru
LHS	Left-hand-side
MRP	Market risk premium
NPRSS	Narrow Political Risk Spread
OLS	Ordinary Least Squares
PRS	Political risk spread
RHS	Right-hand-side
RMW	Robust Minus Weak
SMB	Small Minus Big
USD	United States Dollar
WPRSS	Wide Political Risk Spread
$BVOL_{i,t}$	Realized bond market volatility factor for country i and month t
$Global_t$	Global factor that is equal for all countries
$Local_{i,t}$	Local factor for country i and month t
$PR_{i,t}$	Political risk factor for country i and month t
$SS_{i,t}$	Sovereign spread for country i and month t
$ZR_{i,t}$	Illiquidity factor for country i and month t

1. Introduction

1.1. Overview of the thesis

Equity valuation and asset pricing are central parts of corporate finance and economics literature. In recent decades, the world has seen accelerated globalization, leading to greater importance of equity valuation and asset pricing in emerging markets. This is further emphasized by the often high economic growth and rising prosperity of emerging markets, attracting investors on a global basis to a greater extent than before (Damodaran, 2009). However, the risk of investing in emerging markets is often greater, as emerging markets typically have more uncertain economic, financial, and political environments than developed markets (Pereiro, 2006). These conditions are commonly referred to as *country risk* (Sun, Feng, & Li, 2021). Current literature mostly agrees that country risk reflects both systematic and unsystematic risk, implying that only parts of country risk, more specifically political risk, should be viewed as a premium in the valuation of projects in emerging markets (Bekaert, Erb, Harvey, & Viskanta, 1998; Bekaert, Harvey, Lundblad, & Siegel, 2014; Bekaert et al., 2016; Damodaran, 2003; Erb, Harvey, & Viskanta, 1996; Pagliardi, Poncet, & Zenios, 2019).

In the words of Financial Times editor Michael Stott (2021): *"Political risk is nothing new in Latin America"*. Perhaps this is now more relevant than ever, as Latin America is becoming increasingly more important in a global context. Among the 27 countries comprising Morgan Stanley Capital International's (MSCI) Emerging Markets Index for October 2021, Latin America accounted for six, namely: Argentina, Brazil, Colombia, Chile, Mexico, and Peru. In 2018, Brazil, Colombia, Chile, Mexico, and Peru totaled a market capitalization of more than USD 1.7 trillion (Carvalho, Amaral, Pinheiro, & Correia, 2021). Moreover, the region's GDP grew at a yearly average of 3.2% between 1980 and 2019, compared to USA's 2.6%, which further shows the importance of these markets (The World Bank, 2021). Most recently a number of events such as the first-round election victory of José Antonio Kast of the far-right in Chile's presidential election, unexpected mine closures by Peru's new hard-left government, or the proposed electricity reform by Mexico's president Andrés Manuel López Obrador which would favor state enterprises at the expense of private enterprises (Stott, 2021), once again show the importance of considering political risk when evaluating investment decisions.

Given this importance, this thesis aims to investigate the determination of political risk factors and the performance of asset pricing models with such political risk factors in Latin America. To this end, we first seek to determine if political risk spreads provided by a multi-factor regression onto the EMBI+ sovereign spread proposed by Bekaert et al. (2016) are significant in Brazil, Chile, Colombia, Mexico, and Peru, thus testing if the proposed methodology by Bekaert et al. (2016) on a global level also functions on a regional or local level. We then attempt to construct an asset pricing model that

adequately explains cross-sectional variations in returns in Latin America by adding a political risk factor using the previously mentioned political risk spreads to the Fama-French five-factor model. To test if the addition of the political risk factor improves the quality of the model, we examine tendencies in portfolios sorted by size and the political risk factor, as well as conduct GRS tests with developed market, emerging market, and regional five-factors.

Our thesis makes several contributions to the literature. In contrast to Bekaert et al. (2016), we use regional and local regressions to determine the political risk factor. In contrast to previous literature on multi-factor asset pricing models in Latin America, we add such a political risk factor as an explanatory variable to the Fama-French five-factor model. We are the first ones to test this political risk-adjusted Fama-French five-factor model in emerging markets as far as we know.

We find evidence that the multi-factor regression proposed by Bekaert et al. (2016) provides significant results in Latin American markets. Examining tendencies in portfolios ordered by size and political risk, we observe a relation between average political risk spread and average returns in large and mid-cap LHS portfolios. Based on the GRS statistic results, we also find evidence that adding the political risk factor to the Fama-French five-factor model improves the quality of the model in Latin America during the post global financial crisis era.

1.2. Development of research questions

The following section outlines the development of this thesis' two research questions concerning international valuation projects and asset pricing in emerging markets.

1.2.1. Test of Bekaert et al. (2016) multi-factor regression in Latin America

In regard to valuation of international investment projects, practitioners typically use the sovereign yield spread to adjust the discount rate for the valuation project to reflect the undiversifiable risk that is specific to emerging markets (Abuaf, 2015). However, Bekaert et al. (2016) find that this method is flawed and leads to double-counting of risk. This has great economic implications, as political risk spreads are often smaller than sovereign spreads, implying that the standard approaches currently used in international valuation overstate discount rates, which may lead to underinvestment in emerging markets (Bekaert et al., 2016). Instead, Bekaert et al. (2016) propose using political risk spreads determined by a multi-factor regression onto the EMBI+ sovereign spread. In their studies, the multi-factor regression is conducted on a baseline sample of 20 countries identified as emerging markets.

Given that the regression has not been tested on specific regional samples and the previously outlined importance of Latin American emerging markets, we develop this thesis' first research question as the following:

> *Is the multi-factor regression of Bekaert et al. (2016) significant in Latin America, more specifically Brazil, Chile, Colombia, Mexico, and Peru?*

The reasons for excluding Argentina are further elaborated in Section 4.1.

1.2.2. Adding political risk factor to Fama-French five-factor model in Latin America

In the last decade several studies on asset pricing model in emerging markets have been conducted (e.g. Cakici, Fabozzi, & Tan, 2013; Carvalho et al., 2021; Foye, 2018; Hanauer & Linhart, 2015; Leite, Klotzle, Pinto, & da Silva, 2018; Lin, 2017; Mosoeu & Kodongo, 2020; Zaremba & Czapkiewicz, 2017), of which many either had a specific focus or a subfocus on the Latin American market. However, González-Sánchez (2021) point out that *"from the empirical evidences, there is no consensus on what factors influence emerging stock markets and, in general these studies find anomalies"*.

We intend to explore if some of these anomalies are determined by political risk factors. By using the political risk spread determined through the multi-factor regression of Bekaert et al. (2016) as an additional factor to the Fama-French five-factor model, this thesis aims to investigate if the model improves in Latin America. This leads us to our second research question:

> *Does the Fama-French five-factor model improve in Latin America when adding a political risk factor?*

2. Literature review

The following literature review begins with assessing equity valuation internationally, and more specifically in emerging markets, to understand the practical context of this thesis. The literature review is then followed by an assessment of country risk and political risk, as well as the existing sovereign yield spread model variants suggested by current literature, due to their importance in international equity valuation. A short summary of current literature on country credit ratings as an alternative to sovereign yield spreads is then presented. The literature review is then followed by an assessment of asset pricing models in emerging markets. The literature review ends with a presentation of this thesis' contribution to the literature.

2.1. International equity valuation in practice

Investment decisions are largely made through first assessing the value of the asset, in order to determine if the investment is financially sound or not (Berk & DeMarzo, 2017). Generally, the valuation estimate is derived from projecting the firm's future financial performance, which is challenging even in stable, developed markets (Baker, H. K., 2011). In emerging markets, the exercise is typically made further difficult by the more volatile and uncertain economic and political environments (Pereiro, 2006). These conditions are commonly referred to as *country risk* (Sun et al., 2021).

Whether or not country risk should be included in the valuation of equities in emerging markets depends on if country risk is non-diversifiable, in which case there should be a country risk premium, as stated by current asset pricing models. Although all aspects of country risk are likely not non-diversifiable, practitioners often take on a more pragmatic approach when incorporating country risk in valuation of international equities (Abuaf, 2015). Practitioners typically use two methods when it comes to incorporating country risk in the valuation of equities in emerging markets – the unconditional cash flow method and country risk adjusted discount rate method (Damodaran, 2003).

Unconditional cash flows are defined as *"cash flows that are expected under each future scenario weighted by the probability of that scenario"* (Lessard, 1996). When using the unconditional cash flow method, the practitioner projects cash flows of the business to reflect the financial impact of future scenarios stemming from country risk.

The country risk adjusted discount rate method involves estimating the cost of equity in emerging markets, typically by adjusting existing cost of equity estimation models, e.g. standard CAPM, to reflect country risk (Roggi, Giannozzi, & Baglioni, 2017). Sovereign spreads, the difference between a foreign country's issued bond's yield in USD and a U.S. Treasury bond of corresponding maturity, are many times used to

adjust discount rates for country risk, as sovereign spreads are forward looking and market-determined (Bekaert et al., 2016). In practice, this means that one forecasts a project's cash flows in the absence of country risk, which are then incorporated through an upward adjustment of the discount rate often based on a country's sovereign spread. Practitioners typically adjust discount rates and not cash flows, likely due to the country risk adjusted discount rate method being more pragmatic (Abuaf, 2015). Maquieira, Preve, & Sarria-Allende (2012) conduct surveys and find that approximately 25% of Latin American firms always or almost always determine cost of capital using the CAPM but including additional "risk factors".

2.2. Country risk and political risk

Studies of country risk started with sovereign debt defaults. In the beginning of country risk research, country risk was typically defined as the possibility that a sovereign state is unable to produce sufficient foreign exchange to repay its external debt (Nagy, 1978; Sargen, 1977). Today, the definition of country risk is more nuanced, as global development following major events such as the Asian Financial Crisis in 1997 and 1998, or the global financial crisis following the U.S. subprime mortgage crisis in 2007 and 2008, has resulted in new forms of country risk (Sun et al., 2021).

> As a consensus, country risk analysis and assessment not only measures the willingness and ability of the state to service its relevant debt but also other factors (i.e. political, social, economic, financial, etc.) that cause economic losses through transnational behaviour, such as overseas investment and trade cooperation. (Sun et al., 2021)

The question if country risk is diversifiable or not has been discussed extensively in existing literature, as emerging markets have expanded dramatically during recent decades, playing an increasingly significant role in the global financial system. As previously stated, whether country risk should be included in the valuation of equities in emerging markets depends on if country risk is non-diversifiable, in which case there should be country risk premium, as stated by current asset pricing models. Furthermore, sovereign spreads are often used as a proxy for country risk due to sovereign spreads' forward looking and market-determined nature. Current literature finds that only some factors that constitute country risk are non-diversifiable, specifically political risk, and should be included in the valuation analysis (Bekaert et al., 1998; Bekaert et al., 2014; Bekaert et al., 2016; Damodaran, 2003; Erb et al., 1996; Pagliardi et al., 2019). Fitzpatrick (1983) finds that there exist multiple definitions of political risk, but they all focus on the sudden changes in the political environment, for example unexpected changes in government leadership.

Bekaert et al. (2016) find that the popular method of using the sovereign yield spread to adjust the discount rate is flawed, as the sovereign spread is influenced by not only

political risk, but other risks that are likely already included in the valuation analysis, implying that risks are double counted. This has great economic implications, as political risk spreads are often smaller than sovereign spreads, the standard approaches currently used in international valuation overstate discount rates, which may lead to underinvestment in emerging markets (Bekaert et al., 2016). Instead, Bekaert et al. (2016) propose a regression with sovereign spread for country i and month t ($SS_{i,t}$) as the dependent variable, and a global factor ($Global_t$) that is equal for all countries; an illiquidity factor ($ZR_{i,t}$); a local factor ($Local_{i,t}$) that accounts for a country-specific macroeconomic factor, e.g. economic and financial risk; a volatility factor ($BVOL_{i,t}$); and a political risk factor ($PR_{i,t}$) as independent variables.

$$SS_{i,t} = c_o + c_1 Global_t + c_2 ZR_{i,t} + c_3 Local_{i,t} + c_4 BVOL_{i,t} + c_5 PR_{i,t} + \varepsilon_{i,t} \quad (1)$$

Bekaert et al. (2014; 2016) then suggest using the regression to compute a Narrow Political Risk Sovereign Spread ($NPRSS$) and Wide Political Risk Sovereign Spread ($WPRSS$) to augment the discount rate to reflect political risk in a valuation project.

$$NPRSS_{i,t} = \frac{\widehat{c_5} PR_{i,t}}{\hat{S}S_{i,t}} SS_{i,t} \quad (2)$$

Where $\hat{S}S_{i,t}$ is the fitted value of the sovereign spread at time t, $\widehat{c_5} PR_{i,t}$ is the estimated coefficient multiplied by the political risk factor, and $SS_{i,t}$ is the actual observed sovereign spread at time t.

The calculation of Wide Political Risk Sovereign Spread is explained in Section 4.2. Other sovereign yield spread model variants are further discussed in the following section.

Bekaert et al. (2016) find that political risk accounts for 17-31% of the variation in observed spreads during non-default periods.

2.3. Sovereign yield spread model variants

The different variants of the sovereign yield spread models summarize in Table 1 can be represented as:

$$r_{i,t} = r_{f,t} + g\left(r_{w,t}\right) + f\left(SS_{j,t}\right) \quad (3)$$

where $g(\cdot)$ is a function of the world market risk premium and $f(\cdot)$ is a function of the sovereign spread (Bekaert et al., 2016).

The first four model variants in Table 1 focus on beta modifications, leaving the sovereign spread unchanged. Mariscal & Lee (1993) introduce the sovereign spread adjustment for practitioners and suggest modifying the world market risk premium with a beta. Mariscal & Dutra (1996) propose using the standard deviation of country j's equity return (σ_j) divided by the standard deviation of the world market return (σ_w) to

replace the beta, due to betas otherwise often being too low. Godfrey & Espinosa (1996) down-weight the beta adjustment through multiplying the volatility ratio by 0.6, to reduce the likelihood of double counting political risk. Finally, Mariscal & Hargis (1999) suggest replacing the fixed 0.6 adjustment by one minus the observed correlation ($\rho_{e,b}$) between the returns for the equity and bond market in the country where the project is based.

The last five model variants in Table 1 focus on sovereign spread term modifications and consider a project specific beta like Mariscal & Lee (1993). Damodaran (1999) argues that the bond premia should be adjusted to make them more 'like equity', as the sovereign spread includes both equity and bond premia. Due to equity return volatility being greater than bond return volatility, Damodaran (1999) uses the ratio of the two ($\left[\frac{\sigma_j^e}{\sigma_j^b}\right]$) in order to modify the sovereign spread of the bond upward, where σ_j^e is country j's equity returns' standard deviation and σ_j^b is country j's bond returns' standard deviation. Abuaf (2015) suggests replacing the sovereign spread with a multiple of the credit default spread (α), where the multiple can take on values of 0.35, 0.70, or 1.00. The multiple α depends on the industry in which the respective company is operating, where the categorization of the industries to the exposure has been determined by the analysis of individual multi-factor regressions of the returns of American Depository Receipts of emerging market companies onto the returns of the S&P index and the credit default spread of the respective emerging market economy.

The modifications proposed by Zenner & Akaydin (2002) and Damodaran (2003) consider the extent to which projects or firms in a specific country differ in their exposures to the perceived political risk of that country. Zenner & Akaydin (2002) propose using three γ-factors that are project-specific to modify the sovereign spread: γ_1 measures a company's access to capital markets; γ_2 represents the investment's susceptibility to political risk; and γ_3 is a measure of how financially important the project is to the company. Each of the three γ-factors are then scored 0 to 10, with 10 being the most challenging. The sum is then divided by 30, so the adjustment to the sovereign spread will vary between 0 and 1. Damodaran (2003) first proposes the "β approach", where a company's exposure to political risk is assumed to be proportional to its exposure to world market risk ($\beta_{i,w}$). However, a company's exposure to political risk may be quite different from its overall exposure to world market risk. Damodaran (2003) further proposes the "λ approach" (also preferred by Damodaran), where each firm/project have its own quantified exposure to political risk (γ_i), which is different from its exposure to world market risk. λ_i can, for example, be determined by measuring the extent to which the project's revenues are generated from domestic activities. Other measures such as, for example, operating profits or location of production facilities can also be used to determine λ_i. Considering companies' differing exposures to political risk is appealing, however, the proposed adjustments require subjective data analysis, which is an issue (Bekaert et al., 2016).

The proposed cost of capital adjustments do not lack critique in the existing literature. First, the actual adjustments to the cost of capital lack theoretical motivation (Kruschwitz, Löffler, & Mandl, 2012). Second, applying the different proposed adjustments to the cost of capital result in highly different implications for the cost of capital, further implying that different models provide differing implications for international valuations (Estrada, 2007).

Table 1. Sovereign yield spread model variants.

Variant	$f(\cdot)$	$g(\cdot)$
Mariscal and Lee (1993)	$SS_{j,t}$	$\beta_{i,w} \cdot r_{w,t}$
Mariscal and Dutra (1996)	$SS_{j,t}$	$\left[\frac{\sigma_j}{\sigma_w}\right] \cdot r_{w,t}$
Godfrey and Espinosa (1996)	$SS_{j,t}$	$0.6 \cdot \left[\frac{\sigma_j}{\sigma_w}\right] \cdot r_{w,t}$
Mariscal and Hargis (1999)	$SS_{j,t}$	$(1-\rho_{e,b}) \cdot \left[\frac{\sigma_j}{\sigma_w}\right] \cdot r_{w,t}$
Damodaran (1999)	$\left[\frac{\sigma_j^e}{\sigma_j^b}\right] \cdot SS_{j,t}$	$\beta_{i,w} \cdot r_{w,t}$
Zenner and Akaydin (2002)	$[(\gamma_1+\gamma_2+\gamma_3)/30] \cdot SS_{j,t}$	$\beta_{i,w} \cdot r_{w,t}$
Damodaran (2003) (β approach)	$\beta_{i,w} \cdot \left[\frac{\sigma_j^e}{\sigma_j^b}\right] \cdot SS_{j,t}$	$\beta_{i,w} \cdot r_{w,t}$
Damodaran (2003) (λ approach)	$\lambda_i \cdot \left[\frac{\sigma_j^e}{\sigma_j^b}\right] \cdot SS_{j,t}$	$\beta_{i,w} \cdot r_{w,t}$
Abuaf (2015)	$\alpha \cdot SS_{j,t}$	$\beta_{i,w} \cdot r_{w,t}$

Notes: This table shows discount rate modifications (for project i and time t) proposed by existing literature that can be represented as $r_{i,t} = r_{f,t} + g(r_{w,t}) + f(SS_{j,t})$; $r_{f,t}$ is the risk-free rate; $SS_{j,t}$ is the sovereign spread for country j where the project is located; $\beta_{i,w}$ is the project's beta in relation to the world market return; $r_{w,t}$ is the world market risk premium; σ_j and σ_w are the equity market returns' standard deviation in country j and the world respectively; $\rho_{e,b}$ is the observed correlation between the returns for the equity and bond market in the country where the project is based; σ_j^e is country j's equity returns' standard deviation and σ_j^b is country j's bond returns' standard deviation; γ_1 is a measure of a company's access to capital markets; γ_2 is a measure of the investment's susceptibility to political risk; γ_3 is a measure of how financially important the project is to the company; λ_i is project i's quantified exposure to political risk, which is different from its exposure to world market risk; in Abuaf (2015) α is a multiple of the credit default spread ($SS_{j,t}$ in this case) that can take on values of 0.35, 0.70 or 1.00 by assumption.
Source: Bekaert et al. (2016)

2.4. Country credit ratings

Instead of using sovereign yield spread variants to adjust the discount rate to reflect political risk in a valuation project, some practitioners and academics propose using country credit ratings as an alternative. Typically, future equity market returns on a country-level are regressed on the logarithm of current country credit ratings provided by Institutional Investor, and the resulting fitted values are then used as the expected returns (Erb et al., 1996).

Brewer & Rivoli (1990) and Roy & Cosset (1991) find that the Institutional Investor credit ratings on a country-level are to a large and significant extent determined by political risk factors. Brewer & Rivoli (1990) conduct their studies using political regime instability that is measured by heads of government changes, and Roy & Cosset (1991) focus on indicators of political unrest. This implies that country credit ratings are highly correlated with sovereign yield spreads.

2.5. Development of factor models in asset pricing until the Fama-French five-factor model

One of the most renowned and widely used asset pricing models the last decades is the Capital Asset Pricing Model (CAPM) based on the works of Sharpe (1964), Lintner (1965) and Mossin (1966). Although still widely used in practice, CAPM has unremittingly been criticized for its simplifying assumptions and failure to explain numerous anomalies (for a detailed review of the discussion and findings see Fama & French (2004)). Based on previous findings of authors such as Banz (1981), who showed initial evidence of a size premium, as well as Stattman (1980) and Rosenberg, Reid, & Lanstein (1985), who found that average stock returns are positively correlated to the Book-to-Market ratio, Fama & French (1993) introduced their seminal three-factor model for expected stock returns, which takes the form:

$$R_{it} = R_{ft} + \beta_i \left(R_{mt} - R_{ft}\right) + s_i SMB_t + h_i HML_t + \varepsilon_{it} \qquad (4)$$

This model extends the CAPM, which only considers a market-risk factor, by a size factor (SMB – 'Small Minus Big') and a value factor (HML – 'High Minus Low'). The size factor is formed by taking the difference in returns of a portfolio formed of small-cap stocks and a portfolio formed of large-cap stocks. The value factor is formed by taking the difference in returns of a portfolio formed of stocks with high Book-to-Market ratios and a portfolio formed of stocks with low Book-to-Market ratios. The addition of a momentum factor to the three-factor model consisting of the difference between a portfolio formed of winner stocks, based on the stocks with the highest returns over the previous twelve months, and a portfolio formed of loser stocks, based on the stocks with the lowest returns over the previous twelve months was then introduced by Carhart (1997), who proposed this model based on the previous observation of a one year momentum effect by Jegadeesh & Titman (1993). Based on further research from Novy-Marx (2013), who identified gross profits-to-assets as a proxy for expected profitability related to average return, as well the works of, among others, Aharoni, Grundy, & Zeng (2013) and Titman, Wei, & Xie (2004), who study the relationship between capital investments and stock returns, Fama & French (2015) extended the three-factor by adding profitability and investment factors.

The five-factor model then takes the form:

$$R_{it} = R_{ft} + \beta_i \left(R_{mt} - R_{ft}\right) + s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + \varepsilon_{it} \quad (5)$$

In this model RMW ('Robust Minus Weak') is a factor based on the difference of a portfolio formed from high, or robust, profitability firms and a portfolio formed from low/weak profitability firms. The CMA ('Conservative Minus Aggressive') factor is the difference between a portfolio consisting of firms with low, or conservative, investment rates and a portfolio consisting of firms with high, or aggressive, investment rates. One further key finding of Fama & French (2015) is that the value factor appears to become redundant as the profitability and investment factors are added. In a follow-up study with a shorter time sample this result could, however, not be reaffirmed (Fama & French, 2017).

Since its introduction in 2015 the Fama-French five-factor model has become one of the preeminent asset pricing models in academic literature, which many studies examined for different markets and time periods, as well as with and without the momentum factor. The results of these studies have been mixed. Overall, there does not appear to be a consensus of the explanatory power of the various factors, which suggests that more research is necessary in regard to relevant factors in asset pricing models.

2.6. Asset pricing factor models in emerging markets and Latin America

Early studies examining stock returns in emerging markets include the works of Harvey (1995) as well as Bekaert and Harvey (1997). A central finding of Harvey (1995) is that global asset pricing models such as the CAPM fail to explain the cross section of returns in emerging markets. Harvey (1995) further finds that local information variables play a relevant role in predicting stock returns in the corresponding economies. Both Harvey (1995) and Bekaert and Harvey (1997) conclude that some emerging economies appear to be more segmented from world capital markets within the sample periods of their respective studies, which violates the assumption of integrated capital markets in global asset pricing models such as the CAPM. Early research in regard to extended factor models in emerging markets was conducted by Fama & French (1998) and Rouwenhorst (1998). Fama & French (1998) and Rouwenhorst (1998) find evidence of a value premium in emerging markets. Rouwenhorst (1998) further finds evidence for size and momentum premia. Barry, Goldreyer, Lockwood, & Rodriguez (2002) also find strong evidence of a value premium, but weaker evidence of a size premium. Griffin (2002) find that country specific (domestic) factors in the three-factor model perform better than world factors, which corroborates the findings of Harvey (1995) and was later confirmed by further studies on factor models in emerging markets (e.g. Cakici et al., 2013; Hanauer & Linhart, 2015; Leite et al., 2018).

In the last decade several new studies for emerging regions (most notably Latin America, Eastern Europe, and Asia) and specific emerging economies such as China, India or Brazil have been conducted. As González-Sánchez (2021) points out, most empirical work focuses on factor models, specifically the Fama-French factor models, with and without the momentum factor. Within this realm of more recent studies, Cakici et al. (2013) find strong evidence of a value premium in all observed markets (Latin America, Eastern Europe and Asia) as well as a momentum premium in Latin America and Asia. The size premium is less robust in their study, which overall resembles the results of Barry et al. (2002). In a follow up study, Cakici, Tang, & Yan (2016), which examined the size, value and momentum factors for individual emerging markets, find no size effect in any observed market with the exception of China, which is in line with their previous study. In the same study the value effect is confirmed for all markets except Brazil. The momentum effect is described as *"surprisingly weak in most emerging markets"* (Cakici et al., 2016).

Key studies examining the Fama-French five-factor model in emerging markets include the works of Foye (2018), Leite et al. (2018), and Hanauer & Lauterbach (2019). Central findings of Foye (2018) suggest a value premium in all three observed regions (Latin America, Eastern Europe and Asia), and a profitability premium in Eastern Europe and Latin America. The newly introduced investment factor and the size effect appear to be redundant in all three regions (Foye, 2018). In contrast to this, the findings of Leite et al. (2018) suggest, in line with Fama & French (2015), that the value premium becomes redundant after the introduction of the profitability and investment factors. Leite et al. (2018) further find a clear size effect in their examination of the same regions as tested in Foye (2018). In their study of 28 emerging market countries, Hanauer & Lauterbach (2019) confirm the results of Fama & French (2015; 2017), which suggest that value, profitability and investment factors are priced for emerging markets.

Studies of factor models which focus explicitly on Latin America include the works of Grandes, Panigo, & Pasquini (2010) and most recently Carvalho et al. (2021). Grandes et al. (2010) find no significant evidence that there are size or value premia in Latin American markets. However, they find that systematic risk measured by the market risk premium, accounts for a substantially higher share of the variability of the regions' equity returns than in the U.S., Canadian, U.K. or Japanese markets. Carvalho et al. (2021) conduct an empirical test of the Fama-French five-factor in the Latin American markets of Brazil, Chile, Colombia, Mexico, and Peru and find that the five-factor model appears to perform better than the three or four-factor models. However, none of the models could explain the excess returns on the constructed portfolios. Carvalho et al. (2021) therefore highlight the need to conduct further studies with the inclusion of additional factors in the model.

In line with the previously reviewed literature González-Sánchez (2021) states the following in his wider assessment of the most recent studies of factor models in emerging economies:

> "In short, from the empirical evidence, there is no consensus on what factors influence emerging stock markets and, in general these studies find anomalies." (González-Sánchez, 2021)

2.7. Thesis contribution towards the literature

Within the realm of the reviewed literature, this thesis builds centrally on the works of Bekaert et al. (2016) in regard to country and political risk in emerging markets, and Cakici et al. (2016), Foye (2018), Leite et al. (2018), and Carvalho et al. (2021) in particular regarding multi-factor asset pricing models in Latin America.

Bekaert et al. (2016) conduct some preliminary testing if their proposed political risk spread is priced in emerging market equity returns and state the following:

> "The evidence is therefore mixed. We do not find strong statistical evidence that political risk exposure leads to higher expected returns, and in fact, it appears that the exposure of high political risk portfolios to global risk factors is smaller than that of low political risk portfolios. Yet, this topic deserves a lot more attention as it may simply be that our test lack power. We defer such analysis to future work and for now, proceed under the assumption that political risk constitutes a cash flow risk to be taken into account in capital budgeting analysis" (Bekaert et al., 2016)

Our thesis intends to conduct such a further analysis and contribute to their preliminary research in two ways. First, in contrast to their methodology, we run the pooled OLS regressions on a regional, specifically Latin American basis, as well as on a country level basis, instead of a pooled OLS regression on a sample of wider global selection of emerging market economies. This is further outlined in Section 4. Second, we also use a different testing methodology to explore if the political risk is priced in Latin American equity market returns. This is also further elaborated in Section 4.

As stated by Carvalho et al. (2021), there is a need to conduct further studies in Latin America with the inclusion of additional factors in the model, which we intend to do in this thesis. In comparison to Cakici et al. (2016), Foye (2018), Leite et al. (2018), and Carvalho et al. (2021) in particular, we do not intend to assess the quality of the Fama-French five-factor model in emerging market economies over similar factor models, but rather if the Fama-French five-factor model improves if a political risk factor is added. Current theoretical country and political risk literature suggest such an adjustment of asset pricing models in emerging markets, and we intend to examine this empirically.

3. Historical context of assessed countries' economies

The following section provides a brief historical context of the assessed countries' economies. Overall, Brazil and Colombia have experienced greater economic turmoil than Chile, Mexico, and Peru, during the observed period for this thesis.

3.1. Brazil

The Brasil, Bolsa, Balcão Stock Exchange (B3 S.A.) is the largest in Latin America and the 19th largest in the world in terms of market capitalization (WFE & WorldAtlas, 2021). Brazil's macroeconomic potential is often regarded as tremendous, but has been repeatedly affected by macroeconomic problems such as high inflation and interest rates, double deficits in current account and budget, high volatility in share prices and exchange rates, and also subpar growth in recent years (Abuaf, 2015).

Following the Asian Financial Crisis in 1997, President Fernando Enrique Cardoso's government adopted numerous deficit reduction measures at the end of 1998 (Holz, 2000). However, markets reacted with little enthusiasm. In 1999, Governor Itamar Franco decided to request a 90-day moratorium on all of the state's payments. This led to the infamous 'Samba Effect' which saw an immense devaluation of the Brazilian real, and subsequently led to the Brazilian government receiving a USD 41.5 billion aid package from the International Monetary Fund, among others.

By the end of 1999, the impact of the Samba Effect was starting to diminish. However, the Brazilian economy was still to a certain extent also affected by the Argentine Great Depression that occurred between 1998 and 2002. Brazil showed strong performance through the global financial crisis, highlighting its recently established stability (Carrasco & Williams, 2012).

The historical background provided above can also be observed in a time series of Brazil's sovereign spread. Brazil's EMBI spread (see Appendix 1) is significantly higher during the first years of this thesis' sampled period and peaked around 2003. Brazil's EMBI spread experienced relatively less volatility during the global financial crisis, further showcasing its recent stability.

3.2. Chile

The Chilean stock exchange is the third largest in Latin America in terms of market capitalization (WFE & WorldAtlas, 2021). Chile is frequently considered to be one of South America's most economically and socially stable, as well as prosperous nations. In May 2010, Chile became the first country in South America to join the OECD.

Chile's high degree of economic freedom and income per capita among Latin American countries, relatively low level of corruption, and overall competitiveness are often attributed to the advice from University of Chicago economists. Due to these accomplishments, the economy of Chile has been resilient during both the South American financial turmoil of the early 2000s and the global financial crisis of 2007-2009. However, Chile still suffers from high income and wealth inequality, contributing to political risk (Abuaf, 2015). This has resulted in increasing public dissatisfaction over the last decade, culminating most notably in the 2011–2013 Chilean student protests (BBC, 2013; Long, 2011) , and the recent 2019–2021 protests (BBC, 2019; Dominguez & Silva Fernandez, 2019; Malinowski, 2021; Newman, 2019) as well as an increasing shift to more political extremes (Elliott, 2021).

Chile's EMBI spread is the least volatile among the assessed countries for this thesis' observed time period (see Appendix 1), further demonstrating the economic and social stability of the Chilean economy within the full sample period.

3.3. Colombia

Colombia is the 45th largest economy in the world by nominal GDP (International Monetary Fund, 2021). The Columbian stock exchange is the fourth largest in Latin America in terms of market capitalization (WFE & WorldAtlas, 2021). Colombia experienced steady economic growth during the end of the 20th century, with GDP increasing at an average of 4% per year between 1970 and 1998 (The World Bank, 2021). Despite this, the global perception of Colombia is often tainted by its drug crime business.

In connection to the Asian Financial Crisis of the late 1990s, Colombia experienced its first recession in more than 60 years. The recession stemmed from devaluation of the Columbian peso, leading to a sudden stop in international lending, increasing both international and internal interest rates. This also resulted in the bursting of a real-estate bubble, causing a major banking crisis. Similar to the Samba Effect situation in Brazil, by early 2000 the effects of the Columbian recession were starting to wane. However, Colombia was still affected by the ongoing Argentine Great Depression.

Colombia's EMBI spread was the second most volatile among the assessed countries during the beginning of this thesis' sampled period (see Appendix 1), demonstrating the Colombian economy's sensitivity to the development of other Latin American countries, as well as the recovery from the Columbian recession of 1999. Colombia's EMBI spread during the global financial crisis was also among the most volatile of the assessed countries.

3.4. Mexico

Mexico is the 15th largest economy in the world in terms of nominal GDP and the 11th largest in terms of purchasing power parity (International Monetary Fund, 2021). The Mexican stock exchange is the second largest in Latin America by market capitalization (WFE & WorldAtlas, 2021).

Following the Mexican peso crisis in 1994, also known as the 'Tequila Crisis', the country's macroeconomic fundamentals have been steadily improving. The Mexican economy came out of the South American financial turmoil in the early 21st century relatively unscathed due to its greater sensitivity to the U.S. economy rather than South America. Due to Mexico's sensitivity to the development in the U.S., Mexico was heavily affected by the global financial crisis during the years of 2007-2009.

Mexico's EMBI spread was the second least volatile among the assessed countries during the beginning of this thesis' sampled period (see Appendix 1), further showing Mexico's relative insensitivity to the South American economies. During the global financial crisis, Mexico's EMBI spread was among the most volatile among the assessed countries.

3.5. Peru

Peru is the 51st largest economy in the world by nominal GDP (International Monetary Fund, 2021). The Peruvian stock exchange is the fifth largest in Latin America in terms of market capitalization (WFE & WorldAtlas, 2021). The Peruvian economy almost doubled in size between 2002 and 2012, mainly as a result of the commodity boom during this period (Lust, 2014). Historically a commodity export-dependent country, Peru's economy has begun to diversify over recent decades, leading to increased economic stability in regard to the price volatility of commodities.

In the late 1990s, Peru's growth stagnated due to El Niño's impact on agriculture, the Asian Financial Crisis, and the instability of the Brazilian and Argentinian markets. The Peruvian economy started to recover in the beginning of the 2000s, similar to the other Latin American countries that are assessed in this thesis. Peru experienced a slowdown in economic activity during the global financial crisis, and GDP growth dropped from 9.1% in 2008 to 1.1% in 2009 (The World Bank, 2021).

Peru's EMBI spread was relatively volatile both during the beginning of this thesis' sampled period and during the global financial crisis (see Appendix 1). However, not to the same extent as Brazil or Colombia during the observed period of this thesis.

4. Methodology

4.1. Outline of the overall methodology

The methodology of this thesis follows a two-step procedure.

In the first step political risk spreads are estimated following the proposed methodology of Bekaert et al. (2014; 2016). However, the proposed methodology has been adjusted to this specific work, given issues of data availability and quality. The specific methodology and the adjustments are further explained in Section 4.2.

In the second step the estimated political risk spreads are added to the Fama-French five-factors. The newly constructed asset pricing model for emerging markets is then tested against the basic Fama-French five-factor model without a political risk adjustment using the GRS statistic of Gibbons, Ross, & Shanken (1989), which mirrors the methodology used to test if the five-factor model represented an improvement over the three or four-factor model in works such as Fama & French (2015; 2017), Foye (2018), Leite et al. (2018) and most recently Carvalho et al. (2021). We further test for any redundant factors using factor spanning tests, as has been done by Fama & French (2015; 2017) as well as Foye (2018). The specificities of the second step are further explained in Section 4.3.

To test the political risk spread as an extension of the Fama-French five-factor model, we use data from the major Latin American economies Brazil, Colombia, Chile, Mexico, and Peru. Argentina has been excluded from this sample for two reasons. First, Argentina tends to be an outlier within the major Latin American economies, which might lead to a bias in the model. This is exemplified by its EMBI+ spread, which diverges substantially from that of the other five major economies (see Appendix 1). Second, we intend to use data provided by the authors of Carvalho et al. (2021) as regional five-factors, which have been constructed from data from Brazil, Colombia, Chile, Mexico, and Peru. An inclusion of Argentina in the sample would therefore incur a continuity error in the methodology.

We choose the sample period of October 2001 to June 2018 for our study. This period has mainly been determined on the basis of data availability. October 2001 is the first month which we were able to obtain data for global factor used in the regression to determine the political risk spread. The same is true for June 2018, as this is the last month for which we were able to obtain data for the local factor used in the regression to determine the political risk spread. In our analysis we use both the complete period and two subperiods. The first subperiod lasts from October 2001 to September 2009. The second subperiod lasts from January 2010 to June 2018. The cut-off points for the periods have been selected for two reasons. First, the two periods have roughly equal sample sizes (99 months for the first subperiod and 102 months for the second period),

which allows for robustness checks. Second, the first subperiod represents a time in Latin America with a more volatile economic and political environment (see Section 3) whereas the second subperiod represents a time of relative economic and political stability. The split therefore allows us to observe if the model quality differs across these states.

4.2. Estimation of political risk spreads

To estimate the political risk spreads we follow the methodology as proposed by Bekaert et al. (2014; 2016) with some adjustments for this thesis. The original multi-factor regression formula as presented in Section 2.2 is the following:

$$SS_{i,t} = c_o + c_1 Global_t + c_2 ZR_{i,t} + c_3 Local_{i,t} + c_4 BVOL_{i,t} + c_5 PR_{i,t} + \varepsilon_{i,t} \quad (1)$$

For the sovereign spread ($SS_{i,t}$) we use the monthly EMBI+ spreads from The World Bank (2020), mirroring the data used by Bekaert et al. (2014; 2016). For the global factor ($Global_t$) we do not use the Barclays (formerly Lehman Brothers) U.S. Corporate High Yield Spread over Treasuries, as used by Bekaert et al. (2014; 2016), due to limited data access. As a substitute, we use the ICE Bank of America U.S. Corporate High Yield Index over Treasuries for the respective country provided by Refinitiv. We exclude the illiquidity factor ($ZR_{i,t}$) given limited data availability as well as poor data quality. Bekaert et al. (2014; 2016) estimate the local factor ($Local_{i,t}$) by the difference between the natural logarithm of the sum of the economic and financial risk rating provided by the International Country Risk Guide (ICRG) for the United States and the equivalent score for the respective economy:

$$Local_{i,t} = \ln\left(Economic_{U.S,t} + Financial_{U.S,t}\right) - \ln\left(Economic_{i,t} + Financial_{i,t}\right) \quad (6)$$

We do not use the sum of the monthly economic and financial risk ratings, as we do not have access to the monthly data. As an alternative, we use the annual averages of the economic and financial risk ratings provided by ICRG (2019) and linearly interpolated the respective monthly values. We assumed that the annual average would be equal to the value in June of the respective year. For the realized bond market volatility factor ($BVOL_{i,t}$), Bekaert et al. (2014; 2016) construct *"a monthly scaled measure of realized bond market volatility by cumulating daily squared EMBI bond index returns and [divided] the sum by the average life of the bonds in each country index. [They] then take a 12-month moving average of the monthly bond volatility"* (Bekaert et al., 2016). Instead of using the EMBI bond index returns, as has been done by Bekaert et al. (2014;

2016), we use the respective returns of ICE Bank of America Government Bond indices, given limited access to the relevant daily EMBI bond index data. Additionally, we do not divide the cumulated daily squared bond index returns by the average life of the bonds in each country index, due to limited data access. For the political factor ($PR_{i,t}$), we use the same methodology and data source as Bekaert et al. (2014; 2016), namely the monthly political risk ratings provided by ICRG adjusted with the same method as used with the local factor (see Equation 6). Compared to Equation 1 the regression formula in our method therefore results in:

$$SS_{i,t} = c_o + c_1 Global_t^{BofA} + +c_3 Local_{i,t}^{Est.} + c_4 BVOL_{i,t}^{BofA,Adj.} + c_5 PR_{i,t} + \varepsilon_{i,t} \quad (7)$$

For their estimation of the political risk spreads, Bekaert et al. (2016) first ran a pooled OLS regression on an unbalanced panel of 3438 non-default observations from 1994 to 2013 of 20 emerging market countries across the world. This method has the implicit assumption that the contribution of the political risk variable to the sovereign spread is comparable across the emerging markets used in the sample. This assumption can be questioned due to the emerging markets being situated in different economic zones. As an alternative, we first run a pooled OLS regression across the sample of all five Latin American economies and also run individual regressions on a country basis. We believe this to be the more intuitive approach.

As reviewed in Section 2.2, Bekaert et al. (2014; 2016) propose estimating the Narrow Political Risk Spread (NPRSS) the following way:

$$NPRSS_{i,t} = \frac{\widehat{c_5} PR_{i,t}}{\hat{S}S_{i,t}} SS_{i,t} \quad (2)$$

Adjustments to these values, given specific failures of the computation, are further elaborated in the following paragraph:

> "First, political risk in the country examined may be smaller than in the United States, making $PR_{i,t}$ negative. In that case, we simply set the narrow political risk spreads equal to 0. This situation happens in about 1% of all cases. Second, the political risk variable may account for more than 100% of the spread, for example, in instances, where the macroeconomic outlook of a country is better than that of the United States. In that case, we set the ratio […] equal to 1.00. Third, the predicted spread may be negative, even when there is positive political risk in a country, because of negative contributions of the other independent variables. In

that case, we use an average of the positive ratios over the last 12 months as the ratio. If there are no such positive ratios, we set the ratio to 1.0." (Bekaert et al., 2014)

Following the outlined methodology, we also adjust for the failures in the computation as cited above. We would like to highlight that Bekaert et al. (2014) does not account for the possibility of a negative coefficient on the political risk factor. Although theoretically counterintuitive, this can still occur, as is further illustrated in Section 5.1.

Furthermore, Bekaert et al. (2016) states *"[it] is also important to acknowledge that political and other risks may be correlated; an increase in macroeconomic and/or liquidity risk may be partially induced by political risk events".* They therefore also propose and alternative broader political risk measure, namely the wide political risk spread (WPRSS). The WPRSS is estimated by first adjusting the initial multi-factor regression as presented in Equation 7. All independent variables, except for the global factor and the political factor, are replaced by the residuals of individual regressions of the respective factors onto the political risk factor. Through this process *"the political risk variable now soaks up all the correlated risks*" (Bekaert et al., 2016). This process for our specific case is further illustrated in Equations 8, 9, and 10.

$$Local_{i,t}^{Est.} = c_o + c_1 PR_{i,t} + \varepsilon_{i,t}^{Local} \quad (8)$$

$$BVOL_{i,t}^{BofA,Adj.} = c_o + c_1 PR_{i,t} + \varepsilon_{i,t}^{BVOL} \quad (9)$$

$$SS_{i,t} = c_o + c_1 Global_t^{BofA} + +c_3 \varepsilon_{i,t}^{Local} + c_4 \varepsilon_{i,t}^{BVOL} + c_5 PR_{i,t} + \varepsilon_{i,t} \quad (10)$$

The WPRSS time series is then estimated by the same method as the NPRSS, which is explained above and illustrated in Equation 2, using the respective coefficients, and fitted values from Equation 10. Given the relevant relationship between political risk and other risk factors, we deem the WPRSS most appropriate to use in the asset pricing model test described in Section 4.3. To estimate the respective WPRSS time series we use the regressions coefficients on a pooled regional basis, given the higher consistency as presented in Section 5.1.

4.3. Asset pricing model tests

4.3.1. Construction of LHS portfolios

Provided that political risk for a given country should in theory be most present on a country-level, we also construct the left-hand-side (LHS) portfolios, acting as the dependent variable for the asset pricing models, on a country-level.

To do so we used CapitalIQ and the following screening criteria for their database:

- Company Type: Public Company
- Industry Classifications: NOT (Financials (Primary))
- Equity Security Type (Primary Listing): Common Stock OR Depository Receipt (Common Stock)
- Geographic Locations: Respective Country (e.g. Brazil) (Primary)

We do not use the stock exchange listing of the equity in the respective country as a criterium, given that a number of emerging market companies are primarily, or only, listed on foreign exchanges such as the New York Stock Exchange. We therefore deem ”Geographic Location”, which is based on the location of the headquarter, as the most relevant proxy for the company being a mainly Brazilian, Colombian, Chilean, Mexican or Peruvian company. We then manually exclude securities which are only traded over the counter, as these tend to show characteristics, primarily high illiquidity, which are unfavorable for the assessment of asset pricing models, as well as securities which do not show any returns on their securities during the sample period of October 2001 to June 2018, either because they were only publicly listed after the sample period, or because the database does not report the necessary underlying data.

The returns are transformed into USD returns, using the historical exchange rates of the USD and the local currency, to mitigate the influence of exchange rate fluctuations for the analysis and to match the currency of the factor returns used (see Section 4.3.2). However, on should acknowledge that it is not possible to completely eliminate the influence of exchange rates fluctuations, as exchange rate risks such as transaction and economic risk, do have an influence on the cash flows of the companies, which in turn should be reflected in their stock price. Additionally, political risk can at times significantly influence exchange rates of the respective economies.

The monthly risk-free USD rate, as used in the construction of the five-factor sets published on Kenneth French’s website, was deducted from the USD stock return to a arrive at USD excess returns for the further analysis.

The portfolios are solely constructed using the USD market capitalizations at the beginning of each month and split into three size groups using the percentile the company is in (i.e. Small-Cap: $\leq$ 33.3 Percentile; Mid-Cap: $>$ 33.3 Percentile & $\leq$ 66.6 Percentile; Large-Cap: $>$ 66.6 Percentile). The portfolios are re-weighed each month. Given the limited universe of public companies in the respective markets (see Table 2) and limited access to reliable information on financials such as investments or profitability, only three portfolios were constructed for each country. This is to maintain the diversification effects for the respective portfolios, which necessitates an adequate number of companies in a given portfolio.

Table 2. Number of observed public companies at the beginning of the year.

	Brazil	Colombia	Chile	Mexico	Peru	Total
2001	50	14	84	44	62	254
2002	50	17	84	44	62	257
2003	53	22	84	47	62	268
2004	53	23	86	49	63	274
2005	56	26	89	51	63	285
2006	62	26	94	54	66	302
2007	79	27	97	58	68	329
2008	113	31	108	61	71	384
2009	120	31	109	63	72	395
2010	124	35	112	63	73	407
2011	129	37	114	66	74	420
2012	137	35	117	68	74	431
2013	141	36	122	70	79	448
2014	146	38	125	74	76	459
2015	148	38	125	76	80	467
2016	150	40	127	81	79	477
2017	150	46	130	88	81	495
2018	160	46	133	92	88	519

Note: The number of observed public companies shown for 2001 represents the number of observed public companies as of the 1st of October 2001, given the overall sample period.

4.3.2. Fama-French five-factors

To construct our basic Fama-French five-factor models and the extended model, we use three different sets of five-factors. The first set consists of the five-factors for developed markets published on Kenneth French's website. Although it initially appears to contradict the notion that local factors in emerging markets perform better compared to global factors (see Section 2.6), the inclusion of this set follows the intuition that differences between developed and emerging markets are partly driven by country or political risk. If this intuition is correct, the inclusion of a political risk spread should show a significant improvement of the asset pricing model. This approach can also be observed in applied corporate finance literature such as Abuaf (2015), as well as theoretical corporate finance literature such as Bekaert et al. (2016). The second set we use is the five-factors for emerging markets as published on Kenneth French's website. We include this set in our analysis to be able to observe potential differences to the developed market five-factors and to serve as a robustness check. The raw data for the construction of both the developed market and the emerging market factors from Kenneth French's website are from Morgan Stanley Capital International for the period of 1975 to 2006 and from Bloomberg from 2007 onwards. The third and final set is based on the regional five-factors used by Carvalho et al. (2021). The data was provided

to us by one of the authors of the paper. The inclusion of this set is driven by the same motivation as the inclusion of the emerging market factors, namely, to be able observe potential differences and to serve as a robustness check. As the data is based on the same set of countries as in our analysis, it is also useful to be able to observe potential correlations between political risk and the five-factors. The raw data for the local five-factors from Carvalho et al. (2021) are provided by Bloomberg. Relevant descriptive statistics of the three sets of five-factors are presented in Appendices 18-20.

4.3.3. GRS test

As stated by Fama & French (2015): *"an asset pricing model explains expected returns, [when] the intercept is indistinguishable from zero in the time series regression of any asset's excess returns on the model's factors"*. To that end Fama & French (2015), and subsequent studies such as Fama & French (2017), Foye (2018), Leite et al. (2018), and Carvalho et al. (2021) use the GRS statistic developed by Gibbons, Ross, & Shanken (1989) as a primary measure to test the quality of the Fama-French five-factor model compared to other models. The null hypothesis of this statistical test is that the intercepts of the set of regressions is jointly equal to zero. The null hypothesis fails to be rejected if the test statistic is sufficiently low, or equivalently the p-value is sufficiently high. In line with previous studies on the quality of the five-factor model, we use the GRS statistic to test if the addition of the political risk spread to the five-factors results in lower GRS statistics, which would indicate that the addition of the political risk improves the quality of the model when pricing emerging market equities.

This approach differs from the one the used in Bekaert et al. (2016) to test if political risk is priced in several aspects. Bekaert et al. (2016) constructs long-short portfolios using both the EMBI sovereign spread and the political risk spread as values to sort the country equity indices into portfolios of countries with high or low EMBI spread/political risk spreads. These high-minus-low portfolios are then used as dependent variables in multi-factor regressions which use combinations of the MRP, SMB, HML and the WML factors for developed markets obtained from Kenneth French's website as independent variables. They also run a single-factor regression with the MRP for emerging markets as an independent variable. Bekaert et al. (2016) expect the coefficients in these regressions to be positive and significant if sovereign or political risk is priced. The evidence obtained from this test is described as mixed. Bekaert et al. (2016) further state that *"It is conceivable that country risk is priced but the power of our test is weak"*. In contrast to this procedure, we add the political risk spread directly to the five-factor model and use the GRS statistic as a relevant test statistic for political risk being priced. The use of an alternative testing procedure allows us to test the robustness of Bekaert et al. (2016) mixed results and is in line with previous literature.

4.3.4. Factor spanning test

Following previous studies in this field such as Fama & French (2015), Fama & French (2017) as well as Foye (2018), we use factor spanning test to determine potentially redundant factors, by using regressions of five factors to explain the sixth. As previous studies on the three, four and five-factor model, both in developed and emerging markets, have shown mixed results on the redundancy of specific factors, the results of these tests should be taken with caution. Given that the main purpose of this work is to observe the effects of the addition of a political risk spread to the Fama French five-factor model, we mainly focus on the effects of the addition of the political risk spread in this model, i.e. if the political risk spread is explained by the other factors, or if the political risk spread explains a large share of the variance in the other factors.

4.4. Limitations of the methodology described

There are three key limitations to the described methodology, which might affect the reliability of the underlying tests and analysis. First, the adjustments to the methodology of Bekaert et al. (2016) due to certain restrictions in data availability, could possibly lead to a bias in the political risk spread, which would subsequently affect the overall analysis. Two central adjustments in this part of the methodology are the exclusion of the illiquidity factor and the estimation of the monthly local factor through linear interpolation. Especially in emerging markets with less developed capital markets, liquidity constraints can play a central in asset pricing. The estimation of the monthly local factor through linear interpolation might also contribute to a bias, as it decreases volatility between the two data points which are used for the estimation, which means that sudden swings of the factor due to specific events are not properly accounted for. However, the high R^2 values for the multi-factor regression presented in the subsequent Section 5.1 can be viewed as an indication that these two adjustments do not have a substantial influence on the estimation of the fitted values, which in turn can be interpreted as an indication that the relevant ratio $\frac{\widehat{c_5}PR_{i,t}}{\hat{S}S_{i,t}}$ is not severely affected. The second key limitation in the methodology is the small number of companies included in certain portfolios, especially in the early stages of our sample period when the capital markets in the respective economies are relatively undeveloped. This could potentially cause non-diversification of idiosyncratic risk, which can lead to a bias in the overall analysis. Lastly, we observe that in the early stages of our sample period certain companies make up large portions of the individual portfolios, which in turn would also lead to a higher inclusion of idiosyncratic risk in the respective portfolios, potentially also leading to biases in the overall analysis. Both the second and third limitation are less pronounced in later periods within the sample. Readers should consider these limitations in the subsequent analysis.

5. Results

The following section describes this thesis' results. First, the results of the multi-factor regression of Bekaert et al. (2016) with an orthogonalized political factor in Brazil, Chile, Colombia, Mexico, and Peru are presented. Then we present the results of our political risk-adjusted Fama-French five-factor model in the same region.

Overall, we find that the multi-factor regression coefficients are significant at the 1% level in Latin American markets on a pooled OLS basis and find some evidence that the regressions provide adequate results on a local basis. Based on the comparison of the GRS statistic with and without the political risk factor (the WPRSS for the respective country) we find mixed evidence that the Fama-French five-factor model improves when adding a political risk factor in Brazil, Chile, Columbia, Mexico, and Peru. Although the evidence is mixed, there appears to be a tendency towards improved results based on the test statistic used.

5.1. Estimation of the political risk spreads

5.1.1. WPRSS results for the full period, October 2001 to June 2018

Based on the results presented in Table 3, we find that all regression coefficients are significant at the 1% level and provide a high R^2 value for Brazil, Colombia, Chile, Mexico, and Peru on a pooled basis ('LATAM'). On a country-level, we find that the regression coefficients are significant at the 1% level for the majority of the coefficients in Colombia, Mexico, and Peru. The exceptions in these countries consist of the global factor in Colombia (Significant at the 10% level), as well as the volatility factors in Colombia and Mexico (Significant at the 5% and 10% level, respectively). The regression on a country-level in Chile returns highly significant coefficients for the global and political factor, and insignificant coefficients for the local and volatility factor. In Brazil, we find all explanatory variables, with the exception of the local factor, to be insignificant. This is likely partly due to the economic turmoil in Brazil (see Section 3.1 and Appendix 1) during the beginning of this thesis' observed period. Surprisingly, Peru's political factor shows a negative value significant at the 1% level. Brazil also shows a negative coefficient for the political factor, which is, however, highly insignificant with a p-value of 0.76.

Based on the descriptive statistics Chile appears to be the most stable economy in the sample with the lowest mean value and the second lowest standard deviation. Furthermore, the spreads in Chile appear to be extremely concentrated around the mean, as demonstrated by the high kurtosis.

Table 3. Full period WPRSS regression, October 2001 to June 2018.

	LATAM	Brazil	Colombia	Chile	Mexico	Peru
Constant	1.02***	3.75*	-3.99***	0.42*	0.87***	4.71***
	p = 0.00	*p = 0.09*	*p = 0.00*	*p = 0.07*	*p = 0.00*	*p = 0.00*
Global Factor	0.11***	0.12	0.13*	0.15***	0.14***	0.16***
	p = 0.00	*p = 0.33*	*p = 0.08*	*p = 0.00*	*p = 0.00*	*p = 0.01*
Local Factor	11.08***	17.06***	15.97***	1.04	6.40***	12.15***
(Residuals)	*p = 0.00*	*p = 0.00*	*p = 0.00*	*p = 0.47*	*p = 0.00*	*p = 0.00*
Volatility Factor	1.07***	0.84	0.70**	0.30	0.41*	1.03***
(Residuals)	*p = 0.00*	*p = 0.21*	*p = 0.01*	*p = 0.65*	*p = 0.07*	*p = 0.00*
Political Factor	4.83***	-1.87	18.22***	3.76***	3.45***	-11.78***
	p = 0.00	*p = 0.76*	*p = 0.00*	*p = 0.00*	*p = 0.00*	*p = 0.00*
Observations	1,005	201	201	201	201	201
Adjusted R^2	0.81	0.83	0.77	0.77	0.84	0.85

Notes: 1. *p<0.1; **p<0.05; ***p<0.01; 2. LATAM results are based on a pooled OLS regression; 3. p-values account for heteroskedasticity and autocorrelation through a Newey-West correction with four lags.

Table 4. Descriptive statistics of WPRSS based on pooled and country-level OLS regressions for the full period, October 2001 to June 2018

	Brazil	Brazil	Clmb	Clmb	Chile	Chile	Mexico	Mexico	Peru	Peru
Minimum	0.5177	NA	0.6136	1.0838	0.0211	0.0172	0.0414	0.0255	0.6353	NA
Maximum	3.6795	NA	3.8774	9.8595	1.6462	1.6462	1.7740	1.4719	1.7569	NA
1. Quartile	1.4710	NA	0.9999	1.7350	0.1051	0.1305	0.5500	0.4297	0.8885	NA
3. Quartile	2.1395	NA	1.5733	3.6090	0.4724	0.4043	1.1436	0.7552	1.1943	NA
Mean	1.7749	NA	1.4255	2.8265	0.2975	0.2856	0.7957	0.6251	1.0700	NA
Median	1.7606	NA	1.2172	2.1474	0.2043	0.2150	0.6687	0.5426	1.0362	NA
Stdev	0.5723	NA	0.6736	1.6303	0.2657	0.2476	0.3953	0.3309	0.2297	NA
Skewness	0.4046	NA	1.6249	1.6478	1.8509	2.2403	0.5534	0.6868	0.6549	NA
Kurtosis	1.0112	NA	2.3867	2.7861	5.2432	8.0083	-0.5093	-0.1996	-0.0620	NA

Notes: 1. Blue and white columns show pooled and country-level results respectively; 2. NA is due to negative political risk coefficient; 3. 'Clmb' is a shortened version of Colombia.

5.1.2. WPRSS results for the first subperiod, October 2001 to December 2009

As presented in Table 5 all coefficients on a LATAM basis are still significant at the 1% level and provide a high R^2 value for the first subperiod. However, we find that the political factor on a country-level is insignificant in Brazil, Chile, and Peru. Again, this is likely partly due to the economic and political turmoil in Latin America (see Section 3 and Appendix 1) during the beginning of this thesis' observed period as well as the effects of the global financial crisis.

Table 5. First subperiod WPRSS regression, October 2001 to December 2009.

	LATAM	Brazil	Colombia	Chile	Mexico	Peru
Constant	1.27***	3.64	-3.77***	0.35*	0.62***	4.14***
	p = 0.00	*p = 0.25*	*p = 0.00*	*p = 0.07*	*p = 0.00*	*p = 0.00*
Global Factor	0.09***	0.08	0.12**	0.16***	0.13***	0.19**
	p = 0.00	*p = 0.41*	*p = 0.05*	*p = 0.00*	*p = 0.00*	*p = 0.02*
Local Factor	13.29***	17.88***	30.85***	0.28	8.34***	15.27***
(Residuals)	*p = 0.00*	*p = 0.00*	*p = 0.00*	*p = 0.84*	*p = 0.01*	*p = 0.01*
Volatility Factor	0.97***	0.86	0.87***	0.69	0.57*	0.64***
(Residuals)	*p = 0.00*	*p = 0.17*	*p = 0.01*	*p = 0.29*	*p = 0.07*	*p = 0.01*
Political Factor	7.59***	6.69	18.67***	2.04	7.44***	-8.10
	p = 0.00	*p = 0.57*	*p = 0.00*	*p = 0.23*	*p = 0.00*	*p = 0.12*
Observations	495	99	99	99	99	99
Adjusted R^2	0.82	0.84	0.82	0.88	0.88	0.85

Notes: 1. *p<0.1; **p<0.05; ***p<0.01; 2. LATAM results are based on a pooled OLS regression; 3. p-values account for heteroskedasticity and autocorrelation through a Newey-West correction with four lags.

In the descriptive statistics of the WPRSS for the first subperiod presented in Table 6 we can observe similar patterns as for the full sample period presented in Table 4. Both Brazil and Colombia still exhibit the highest mean values and standard deviations in the sample. Chile's results still show the lowest value in regard to the mean and the second lowest value in regard to standard deviation. Moreover, it is interesting to observe that both Chile and Mexico show slightly lower mean values compared to the full sample period.

Table 6. Descriptive statistics of WPRSS based on pooled and country-level OLS regressions for the first subperiod, October 2001 to December 2009.

	Brazil	Brazil	Clmb	Clmb	Chile	Chile	Mexico	Mexico	Peru	Peru
Minimum	0.8982	0.6682	0.8256	1.0838	0.0275	0.0101	0.0331	0.0475	1.0395	NA
Maximum	4.5081	2.2050	4.4823	9.5649	1.6462	1.6462	1.3126	1.4521	2.5068	NA
1. Quartile	1.8616	1.1241	1.4930	2.1525	0.0766	0.0321	0.5512	0.6399	1.3843	NA
3. Quartile	2.6175	1.6878	2.7423	4.9440	0.2592	0.1169	1.0094	1.1505	1.7778	NA
Mean	2.3028	1.3837	2.2268	3.7438	0.2643	0.1506	0.7521	0.8702	1.6031	NA
Median	2.2660	1.4216	1.9987	3.5885	0.1775	0.0850	0.7945	0.9144	1.5516	NA
Stdev	0.7366	0.3684	0.9415	1.8494	0.3057	0.2990	0.3293	0.3627	0.3007	NA
Skewness	0.6815	-0.1269	0.7708	0.8272	2.5653	3.6246	-0.5897	-0.7276	0.6171	NA
Kurtosis	0.6411	-0.9178	-0.3798	0.4259	7.0800	12.6123	-0.3966	-0.3121	-0.0350	NA

Notes: 1. Blue and white columns show pooled and country-level results respectively; 2. NA is due to negative political risk coefficient; 3. 'Clmb' is a shortened version of Colombia.

5.1.3. WPRSS results for the second subperiod, January 2010 to June 2018

For the second subperiod, we find that the regression coefficients overall are more often significant compared to the first subperiod (see Table 7), likely due to the relative economic and political stability of this time period (see Section 3 and Appendix 1). LATAM is still significant and provides a high R^2 value, although the R^2 value is slightly lower compared to the full sample period and the first subperiod. On a country-level, the political factor is highly significant in Brazil, Chile, Mexico, and Peru, and insignificant in Colombia. It should be further highlighted that we can observe a substantial decrease on a regional ('LATAM') basis in both the local and the political factor coefficients, which suggests a lower influence of these two factors in times of economic and political stability.

Table 7. Second subperiod WPRSS regression, December 2010 to June 2018.

	LATAM	**Brazil**	**Colombia**	**Chile**	**Mexico**	**Peru**
Constant	0.46***	-1.32**	0.88	0.49***	0.28	0.44*
	p = 0.00	*p = 0.02*	*p = 0.14*	*p = 0.01*	*p = 0.25*	*p = 0.09*
Global Factor	0.17***	0.19***	0.14***	0.19***	0.16***	0.15***
	p = 0.00	*p = 0.01*	*p = 0.01*	*p = 0.00*	*p = 0.00*	*p = 0.00*
Local Factor	6.25***	4.17***	6.33***	3.19***	1.38	3.59***
(Residuals)	*p = 0.00*	*p = 0.00*	*p = 0.00*	*p = 0.00*	*p = 0.36*	*p = 0.00*
Volatility Factor	1.01***	1.00**	0.73**	1.48***	0.95***	1.00***
(Residuals)	*p = 0.00*	*p = 0.02*	*p = 0.03*	*p = 0.00*	*p = 0.00*	*p = 0.00*
Political Factor	3.31***	12.61***	1.32	1.92**	4.86***	2.22***
	p = 0.00	*p = 0.00*	*p = 0.44*	*p = 0.03*	*p = 0.00*	*p = 0.01*
Observations	510	102	102	102	102	102
Adjusted R^2	0.78	0.89	0.78	0.70	0.80	0.69

Notes: 1. *p<0.1; **p<0.05; ***p<0.01; 2. LATAM results are based on a pooled OLS regression; 3. p-values account for heteroskedasticity and autocorrelation through a Newey-West correction with four lags.

In Table 8 we can observe that the mean values and standard deviations of Brazil, Colombia and Peru decrease substantially in the second subperiod, which makes intuitive sense, given the aforementioned higher economic and political stability. Although we can observe slight increases in the mean values of Chile and Mexico, we can observe a considerable decrease in the standard deviation of Chile. Chile's spread increase is likely related to the increasing political uncertainty in this period (see Section 3.2). Mexico's higher values might be explained by Mexico's relative insensitivity to the South American economies, as mentioned in Section 3.4.

Table 8. Descriptive statistics of WPRSS based on pooled and country-level OLS regressions for the second subperiod, December 2010 to June 2018.

	Brazil	Brazil	Clmb	Clmb	Chile	Chile	Mexico	Mexico	Peru	Peru
Minimum	0.4838	1.4333	0.5915	0.2627	0.0936	0.0517	0.4272	0.6174	0.4977	0.4240
Maximum	2.5982	5.4677	1.2745	0.5872	0.5575	0.3468	1.6585	2.0077	1.0296	0.8653
1. Quartile	0.6824	2.0206	0.7921	0.3726	0.2134	0.1150	0.5714	0.8344	0.6560	0.5354
3. Quartile	1.3751	2.8310	0.9733	0.4542	0.4131	0.2436	1.1845	1.5676	0.7963	0.6528
Mean	1.0526	2.5101	0.8871	0.4113	0.3184	0.1856	0.8915	1.1856	0.7305	0.6020
Median	0.8518	2.3388	0.8848	0.4065	0.3491	0.2025	0.8093	1.0053	0.7240	0.5996
Stdev	0.4856	0.8072	0.1282	0.0649	0.1177	0.0708	0.3476	0.4074	0.1016	0.0841
Skewness	1.0273	1.4929	0.0741	-0.0155	-0.3011	-0.2091	0.3768	0.3927	0.2489	0.3542
Kurtosis	0.2001	2.4373	-0.0747	-0.2569	-1.1107	-1.0673	-1.2407	-1.4058	-0.1985	-0.0121

Notes: 1. Blue and white columns show pooled and country-level results respectively; 2. NA is due to negative political risk coefficient; 3. 'Clmb' is a shortened version of Colombia.

5.2. Political risk-adjusted Fama French five-factor model in Latin America

5.2.1. Descriptive statistics of the portfolios' monthly excess returns

Tables 9-11 exhibit the average monthly excess returns and standard deviation of the three size portfolios per country for the full sample period and the two subperiods. The tables are ordered by size on the horizontal plane and by the average monthly WPRSS on the vertical plane.

In the full sample (see Table 9) we can observe a relatively clear size effect, as the small-cap portfolios exhibit higher average excess returns than their mid and large-cap counterparts. The only exception is Brazil, in which the mid-cap portfolio shows a higher average monthly excess return than the small-cap portfolio. Interestingly there appears to be a slightly negative relation between the standard deviation and the average excess return in Chile and Mexico. In Peru, Colombia, and Brazil the standard deviation and average excess return are, as expected, positively correlated.

In regard to a possible political risk effect, we are not able to observe such a clear tendency as with the size effect when looking at the average excess return during the full period. There are, however, some indications for a possible political risk effect. Brazil, being the country with the highest average WPRSS, exhibits higher average monthly excess returns in both the large and the mid-cap segments than any other country in the sample, with the only exception being Peru in the large-cap segment, where the average monthly excess returns are roughly equal to the ones in Brazil. We can further observe a constant increase of average excess returns with an increase in WPRSS in the mid-cap segment, with Colombia as the only exception. In the small-cap portfolios we cannot observe a similar relationship in regard to WPRSS.

Another indicator of a potential political risk effect can be observed when looking at the standard deviations of the portfolios. In both the large and mid-cap segments standard deviations consistently increase with the WPRSS. This tendency cannot be observed as clearly in the small-cap segment, where standard deviation decreases with WPRSS from Peru to Brazil (see Table 9).

Table 9. Average and standard deviations of the excess returns of the LHS portfolios; Full period, October 2001 to June 2018.

	Average			Standard Deviation			
Country	**Large**	**Medium**	**Small**	**Large**	**Medium**	**Small**	**WPRSS**
Chile	0.81	1.19	1.42	6.25	6.16	6.11	0.02
Mexico	0.79	1.23	1.07	6.36	6.19	6.18	0.07
Peru	1.31	1.86	4.00	6.76	7.25	22.72	0.09
Colombia	0.26	1.11	2.10	7.27	10.61	12.16	0.12
Brazil	1.31	2.23	1.72	8.42	13.69	10.43	0.15

Note: WPRSS represents the average of WPRSS over the observed time period, adjusted on a monthly basis.

The first subperiod exhibits similar patterns as the full period, although the size effect appears to be less consistent (see Table 10). In both the large and mid-cap segment Brazil exhibits higher average monthly excess returns than any other country in the sample. In both these segments there also appears to be a general tendency toward higher average excess returns with increasing WPRSS. This tendency is only disrupted by Colombia in the large and mid-cap segments and by Mexico in the large-cap segment. We can further observe a consistent increase with the WPRSS when looking at the standard deviations of the large and mid-cap segment. Once again, we cannot observe any trend in regard to the WPRSS in the small-cap segment.

Table 10. Average and standard deviations of the excess returns of the LHS portfolios; First subperiod, October 2001 to December 2009.

	Average			Standard Deviation			
Country	**Large**	**Medium**	**Small**	**Large**	**Medium**	**Small**	**WPRSS**
Chile	1.77	1.44	1.85	6.22	6.42	7.18	0.02
Mexico	1.48	1.69	1.87	7.28	7.09	7.30	0.06
Peru	2.11	3.09	8.46	7.80	9.11	31.63	0.13
Colombia	0.31	2.29	1.44	7.90	14.10	7.19	0.19
Brazil	2.81	4.44	3.57	9.64	17.62	11.23	0.19

Note: WPRSS represents the average of WPRSS over the observed time period, adjusted on a monthly basis.

We are not able to observe any clear manifestation of the size effect nor a potential political risk effect in the second subperiod, as presented in Table 11. The differences in average WPRSS have, however, gotten significantly smaller. Compared to the data from the first subperiod (see Table 10), where the difference in average WPRSS between the country with the highest value (Brazil) and the country with the lowest value (Chile) was 0.17, the difference between Brazil and Chile in the second period (see Table 11) is only 0.06.

Table 11. Average and standard deviations of the excess returns of the LHS portfolios; Second subperiod, January 2010 to June 2018.

	Average			Standard Deviation			
Country	**Large**	**Medium**	**Small**	**Large**	**Medium**	**Small**	**WPRSS**
Chile	-0.11	0.95	1.00	6.16	5.91	4.85	0.03
Peru	0.54	0.66	-0.32	5.51	4.53	3.71	0.06
Colombia	0.21	-0.04	2.74	6.66	5.24	15.55	0.07
Mexico	0.12	0.78	0.30	5.27	5.15	4.78	0.07
Brazil	-0.15	0.09	-0.08	6.79	7.78	9.30	0.09

Note: WPRSS represents the average of WPRSS over the observed time period, adjusted on a monthly basis.

5.2.2. Results of the GRS tests

As explained in Section 4.3.3 we use the GRS statistic, in line with previous studies on the quality of the five-factor model, to test if the addition of the political risk spread to the five-factors results in lower GRS statistics, which would indicate that the addition of the political risk factor improves the quality of the model when pricing emerging market equities. The Tables 12-14 showcase the results of these tests on the three sets of five-factors.

Using the developed market factors (see Table 12), considering the GRS statistic in the full sample period, we can observe a significant improvement of the asset pricing model for Brazil and Chile, but a deterioration for Colombia, Peru, and Mexico. The average R^2 values for the full period regressions based on the developed market factors are, with the exception of Mexico, considerably low and the only country where we can see an increase in the average R^2 values of more than one percentage point is Peru. For the complete period, using the developed market factors, the evidence is overall inconclusive but indicates that there is a tendency that the political risk spread adjustment does not improve the model.

For the first subperiod from 2001 to 2009 in this factor set we can observe an improvement of the GRS statistic in Brazil, Colombia and Chile, and a deterioration in

Colombia and Peru. The regression sets in this subperiod, and factor set show no significant increases in the average R^2 values when the political risk factor is added. Overall, based on the GRS statistic, there appears to be some evidence in this subperiod that the addition of the political risk factor improves the model.

For the second subperiod from 2010 to 2018 in this factor set we observe improvements in the GRS statistics for all countries when the political risk factor is added to the model. Once again there are no significant increases in the average R^2 values when the political risk factor is added.

Table 12. Summary statistics of the GRS test using the developed market Fama-French five-factors and the WPRSS.

	Complete Period (Oct. 2001 – Jun. 2018)					1. Sub-Period (Oct. 2001 – Dec. 2009)					2. Sub-Period (Jan. 2010 – Jun. 2018)				
	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$
Brazil: FF5	0.61	0.61	0.69	0.50	0.38	4.72	0.00	2.87	0.80	0.44	2.78	0.05	-1.43	0.24	0.39
Brazil: FF5&WPRSS	0.05	0.98	0.33	0.59	0.38	0.59	0.62	2.24	1.29	0.45	1.16	0.33	-2.19	0.68	0.39
Colombia: FF5	1.00	0.39	0.29	0.80	0.16	0.64	0.59	0.60	0.65	0.19	1.07	0.37	-0.08	1.18	0.19
Colombia: FF5&WPRSS	1.73	0.16	0.22	2.86	0.17	0.25	0.86	0.19	1.08	0.19	0.30	0.83	0.56	4.74	0.19
Chile: FF5	2.55	0.06	0.67	0.43	0.28	2.79	0.04	1.41	0.24	0.32	3.13	0.03	0.05	0.77	0.28
Chile: FF5&WPRSS	1.08	0.36	0.76	0.28	0.28	1.18	0.32	1.27	0.11	0.32	1.72	0.17	-0.76	1.27	0.29
Mexico: FF5	0.75	0.52	0.20	0.24	0.50	1.92	0.13	0.92	0.38	0.59	2.83	0.04	-0.42	0.39	0.41
Mexico: FF5&WPRSS	3.30	0.02	1.39	0.80	0.51	3.80	0.01	1.79	2.36	0.60	0.70	0.56	-0.20	0.58	0.41
Peru: FF5	2.76	0.04	1.68	1.32	0.15	3.00	0.03	3.78	3.26	0.16	2.19	0.09	-0.26	0.46	0.25
Peru: FF5&WPRSS	3.77	0.01	-7.74	3.07	0.19	3.42	0.02	6.45	18.77	0.17	0.13	0.94	-0.97	1.06	0.25

Notes: 1. $\overline{\alpha_i}$ corresponds to the average intercept across the respective three size portfolio regressions; 2. $sd(\alpha_i)$ corresponds to the standard deviation across the respective three size portfolio regressions; 3. $\overline{R^2}$ corresponds to the average R^2 value across the respective three size portfolio regressions

Using the test results based on the emerging market factors set (see Table 13) as robustness check of the previous findings, we can observe that the tendencies of the GRS statistics and the average R^2 values are equal to the results based on the developed market factors for the majority of the countries across sample periods. The only exception is that the GRS statistics deteriorate for Colombia in the first subperiod, and for Brazil in the second subperiod, in contrast to the results presented in Table 12. The average R^2 values are overall higher when using the emerging market factor set compared to the developed market factor set.

Table 13. Summary statistics of the GRS test using the emerging market Fama-French five-factors and the WPRSS.

	Complete Period (Oct. 2001 – Jun. 2018)					1. Sub-Period (Oct. 2001 – Dec. 2009)					2. Sub-Period (Jan. 2010 – Jun. 2018)				
	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$
Brazil – FF5	0.59	0.62	0.36	0.65	0.51	1.74	0.16	2.11	1.43	0.47	1.24	0.30	-0.51	0.26	0.66
Brazil – FF5&WPRSS	0.22	0.88	-0.35	0.83	0.51	0.56	0.64	0.69	1.85	0.48	1.26	0.29	-0.95	1.16	0.66
Colombia – FF5	1.12	0.34	0.26	0.92	0.24	0.26	0.86	-0.00	0.51	0.25	1.45	0.23	0.72	1.97	0.32
Colombia – FF5&WPRSS	1.47	0.22	0.26	2.74	0.25	0.72	0.54	-1.17	2.50	0.25	0.85	0.47	2.04	7.93	0.32
Chile – FF5	1.49	0.22	0.33	0.46	0.35	0.89	0.45	0.59	0.31	0.33	3.57	0.02	0.23	0.85	0.42
Chile – FF5&WPRSS	0.44	0.72	0.27	0.35	0.35	0.29	0.83	0.57	0.14	0.33	1.63	0.19	-0.26	1.35	0.42
Mexico – FF5	0.18	0.91	0.06	0.13	0.53	1.17	0.32	0.35	0.52	0.58	2.61	0.06	-0.23	0.37	0.47
Mexico – FF5&WPRSS	2.39	0.07	0.40	0.92	0.54	3.68	0.01	1.24	2.51	0.59	0.49	0.69	0.17	0.51	0.47
Peru – FF5	1.85	0.14	1.02	0.57	0.20	2.84	0.04	2.16	1.71	0.20	2.51	0.06	-0.06	0.63	0.29
Peru – FF5&WPRSS	2.37	0.07	-6.45	2.93	0.23	3.13	0.03	5.04	17.58	0.22	0.08	0.97	-0.21	0.58	0.29

Notes: 1. $\overline{\alpha_i}$ corresponds to the average intercept across the respective three size portfolio regressions; 2. $sd(\alpha_i)$ corresponds to the standard deviation across the respective three size portfolio regressions; 3. $\overline{R^2}$ corresponds to the average R^2 value across the respective three size portfolio regressions

Table 14 exhibits the results for the GRS tests when using the regional LATAM factor set based on Carvalho et al. (2021). As expected, the average R^2 values based on this factor set are generally higher compared to the equivalent values based on the developed or emerging market factor sets, which is in line with previous research (see Section 2.6). The results of the GRS statistics are comparable to the tendencies observed in Table 12 and Table 13 with a few exceptions. In contrast to the results based on the developed market factor set, the results of Colombia improve in the full sample period, whereas the results of Chile in the same sample period deteriorate. In the first subperiod the only exception is the development of the Brazilian results, which deteriorate slightly. In the second subperiod the only exception are the results of Chile, which more or less stay the same.

Table 14. Summary statistics of the GRS test using the Carvalho et al. (2021) Fama-French five-factors for the five identified countries in the LATAM region and the WPRSS.

	Complete Period (Oct. 2001 – Jun. 2018)					1. Sub-Period (Oct. 2001 – Dec. 2009)					2. Sub-Period (Jan. 2010 – Jun. 2018)				
	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$	GRS	p(GRS)	$\overline{\alpha_i}$	$sd(\alpha_i)$	$\overline{R^2}$
Brazil – FF5	0.53	0.66	-0.26	0.24	0.66	0.10	0.96	0.15	0.21	0.60	1.68	0.18	-0.60	0.26	0.84
Brazil – FF5&WPRSS	0.36	0.78	-0.44	0.69	0.66	0.16	0.92	-1.44	1.89	0.61	0.47	0.71	-0.35	0.68	0.84
Colombia – FF5	1.56	0.20	0.57	0.94	0.21	1.16	0.33	0.33	1.16	0.20	1.05	0.38	0.97	1.48	0.35
Colombia – FF5&WPRSS	1.10	0.35	0.50	2.27	0.22	0.48	0.70	-0.48	1.74	0.20	0.27	0.84	2.81	5.47	0.35
Chile – FF5	0.93	0.43	0.36	0.25	0.49	2.51	0.06	0.34	0.43	0.50	2.13	0.10	0.51	0.44	0.53
Chile – FF5&WPRSS	0.81	0.49	0.57	0.10	0.49	2.01	0.12	0.78	0.40	0.50	2.17	0.10	-0.09	1.39	0.54
Mexico – FF5	0.29	0.83	0.23	0.06	0.60	0.54	0.66	0.15	0.32	0.64	1.77	0.16	0.28	0.29	0.55
Mexico – FF5&WPRSS	1.66	0.18	0.18	0.74	0.61	2.67	0.05	0.99	2.10	0.65	0.56	0.64	0.46	0.48	0.56
Peru – FF5	1.12	0.34	1.07	1.00	0.26	1.25	0.29	2.27	2.13	0.30	1.53	0.21	-0.11	0.41	0.35
Peru – FF5&WPRSS	1.14	0.33	-4.63	2.93	0.27	1.92	0.13	9.31	17.27	0.30	0.26	0.85	-1.00	1.48	0.35

Notes: 1. $\overline{\alpha_i}$ corresponds to the average intercept across the respective three size portfolio regressions; 2. $sd(\alpha_i)$ corresponds to the standard deviation across the respective three size portfolio regressions; 3. $\overline{R^2}$ corresponds to the average R^2 value across the respective three size portfolio regressions

Overall, the results are inconclusive given the limits of the thesis and data. However, there appears to be some evidence, based on changes in the GRS test statistic, that the inclusion of the political factor in the Fama-French five-factor model improves the model in emerging markets, particularly when looking at specific historical periods. However, we were not able to observe significant changes in the average R^2 values of the multi-factor regressions when adding the political risk factor.

5.2.3. Results of the factor spanning tests

As explained in Section 2.6, previous studies find mixed results of potential factor redundancies in the five-factor model based on factor spanning tests. Given the research focus of this thesis, which examines the effect of including the political risk factor in the five-factor model, we only focus on the political risk factor in the factor spanning test results. In other words, we only focus on cases, where the intercepts of the regressions where the five factors were regressed onto the political risk factor are significant and where the political risk factor potentially explains a material part of the variation of the other five factors, i.e., the WPRSS coefficient has to be significant and considerably high. The results of the factor spanning tests are presented in the Appendices 20-34. The intercepts of the regressions where the five factors were regressed onto the political risk factor are significant at the 1% level in all observed cases. Further, the political risk

factor generally does not explain a material part of the variation of the other five factors as the WPRSS coefficient tends to be either insignificant or relatively low. However, there are three noteworthy exceptions to this assessment, which are outlined below.

In Appendix 31 we see that the WPRSS coefficient on the HML regression for Chile in the second subperiod is not only considerably high with a value of 74.61 but also significant at the 5% level. In this particular case the intercept itself is, however, still significant at the 5% level, suggesting that the HML factor is not redundant in this regression. In Appendix 33 we see that the WPRSS coefficient on the MRP regression for Mexico in the first subperiod is not only considerably high with a value of 58.59 but also significant at the 5% level. At the same time the intercept itself is insignificant. However, the R^2 value in this particular regression of 0.39 suggests that a large part of the variation in the MRP is still left unexplained, which would suggest that the MRP should be included in the model. In Appendix 34 we see that the WPRSS coefficients on the MRP regression for Peru in both the full sample period and the second subperiod are not only considerably high with values of 55.38 and 130.3 respectively, but also significant at the 5% level. However, the respective intercepts are both significant at the 5% level and the respective R^2 values of 0.31 and 0.27, suggesting that a large part of the variation in the MRP is still left unexplained. One can therefore presume that the MRP is not redundant in these regressions. It is important to note that all outlined exceptions occurred in regressions based on the Carvalho et al. (2021) regional LATAM five-factors. First, this makes more sense intuitively than if these exceptions occurred in the developed market or emerging market factor sets, which are global. Second, these exceptions might be interpreted as an indicator that political risk potentially has an influence on underlying asset pricing factors in emerging markets.

6. Discussion

6.1. Estimation of the political risk spreads

The results of the political risk spread estimation, as presented in Section 5.1, show a number of noteworthy distinct features.

Both the regional and country-level regressions show a higher explanatory power based on adjusted R^2 values than the regressions presented in Bekaert et al. (2016), despite the exclusion of the illiquidity factor. This raises the question which approach is more appropriate when estimating political risk spreads. Although the results on a regional or country-level basis generally show higher explanatory power, some factors lose their significance in the observed sample periods, which is likely due to the overall lower sample size for specific countries. A pooled OLS regression on a variety of emerging markets across the globe, as presented in Bekaert et al. (2016), would have the implicit assumption that sovereign spreads are determined equally across the realm of emerging markets, which may be questioned due to the different political, cultural and socioeconomic characteristics of regional and local emerging markets. We believe the more intuitive approach appears to be to run separate regressions on samples of closely connected regional markets, which share similar characteristics, as has been done in this thesis for the Latin American market. Following this logic, one might be inclined to argue for regressions on a local market level, instead of a regional level. This might, however, have the disadvantage that distinct local events distort the overall estimation procedure. Regressions on a local level are further impeded by lower sample sizes, which likely cause lower significance levels of the local coefficients in comparison to their regional counterparts. We defer the analysis regarding which approach is more appropriate or how to determine the preferred approach to future works.

We further observe considerable differences in the values and the significance levels of the coefficients across the two observed subperiods of the sample. This suggests a substantial variance of the coefficients across time, which one should consider when selecting the appropriate sample period. Other approaches might include rolling betas across shorter time horizons to improve the quality of the model.

Another distinct characteristic of the presented results is the generally higher explanatory power in terms of adjusted R^2 values in the first subperiod, with the only exception being Brazil, which might suggest that the multi-factor model works better in times of higher economic and political turmoil. Although the models show a generally higher explanatory power in terms of adjusted R^2 values in the first subperiod, they also show generally more stable results in terms of significance of coefficients in the second subperiod, pointing towards the multi-factor model's somewhat inconsistent performance across times of economic and political turmoil or stability.

As we can see in Tables 10 and 11 the divergences of the average WPRSS decrease from the first to the second subperiod. This is in line with the overall convergence of the EMBI+ spreads over the sample period, as can be seen in Appendix 1, which is likely due to a more comparable economic and political landscape in the second period. Across the two subperiods Chile and Brazil maintain their positions as the economies with the lowest and highest average WPRSS spread respectively. In comparison to the first subperiod, where Mexico exhibits the second lowest average WPRSS, Mexico exhibits the second highest average WPRSS in the second subperiod. This is most likely due to Mexico's higher detachment from the crises within South America in the first subperiod, as described in Section 3.4. Apart from Mexico, Chile is the only country that shows a higher WPRSS in the second subperiod than in the first subperiod. This might be explained by Chile`s resilience to both the South American financial crisis and the financial crisis in the first subperiod as well as the increasing social and political instability in the second period (See Section 3.2).

One should further critically assess the methodology and data used in the estimation of the political risk, which is already touched upon in Section 4.4, but will be further discussed in detail in the following paragraphs.

Although the ICRG data is most likely one of the most reliable data sources to display quantitative scores of political, financial and economic risk, as can be seen by several studies which uncover relationships between the ICRG data and other observed phenomena, as well as the use of the data by renowned institutions such as the IMF (PRS Group, 2021), the political factor is still based on subjective assessment (Howell, 2011), which is prone to bias. With new technological developments, such as advances in sentiment analysis, future works might be able to develop quantitative ratings with higher reliability as well as higher frequency of data points.

We are also unable to observe how the exclusion of the illiquidity factor affects our estimation. The effects of illiquidity for asset prices and spreads have been a highly discussed issue in financial literature (e.g. Amihud, 2002; Bao, Pan, & Wang, 2011; Li, Novy-Marx, & Velikov, 2019; Tirole, 2011) and particularly in emerging market finance literature (e.g. Bekaert, Harvey, & Lundblad, 2007; Chowdhury, Uddin, & Anderson, 2018; Hund & Lesmond, 2008). As stated by Bekaert et al. (2007): *"It is generally acknowledged that liquidity is important for asset pricing. Illiquid assets and assets with high transaction costs trade at low prices relative to their expected cash flows, that is, average liquidity is priced"*, which would suggest that the exclusion of illiquidity factor would lead to less accurate fitted values, which in turn would affect the quality of our analysis overall.

Moreover, we were unable to adjust the volatility factor for the average life of the bond indices used in the factor. However, as the average life of the bond indices used in the respective volatility factors tend to be fairly stable, we believe that the exclusion of this

adjustment in our model does not decrease the quality of the overall model substantially.

Lastly, the monthly interpolated values for the local factor based on annual averages (see Section 4.4) might lead to a certain bias, as they decrease the volatility between the two data points which are used for the estimation, further implying that sudden swings of the factor due to specific events are not properly accounted for.

Despite the described potential problems with the methodology and the data, the relatively high adjusted R^2 in all regressions suggest that the model still explains a large part of the variations in the EMBI spread, which can be interpreted as an indication of the model's reliability.

As some of the results of the political risk spread estimation appear to feature anomalies, further studies of the multi-factor regression are warranted in other regions, e.g. Eastern Europe or Asia, to test the robustness of the model on a regional basis. Future research might also want to test the quality of alternative political risk proxies in the proposed model, such as, for example, the Economic Policy Uncertainty Index (Baker, S. R., Bloom, & Davis, 2021).

6.2. Political risk-adjusted Fama-French five-factor model in Latin America

The results of the political risk-adjusted Fama-French five-factor model, as presented in Section 5.2, contain multiple noteworthy points for discussion.

We find that the "political risk effect" is not particularly clear when observing average return, although we can observe certain tendencies, as outlined in Section 5.2.1. We acknowledge that there might also be a possibility that other factors, such as liquidity, have a greater influence on average returns in the assessed markets than the political risk. However, political risk is an essential feature of emerging market economies which most likely also often constraints for example the liquidity in these markets. A potential "political risk effect" is somewhat apparent for the mid and large-cap segments in the full sample period as well as the first subperiod, but unclear for smaller companies in all analyzed periods. This could potentially be explained by smaller companies' greater reliance on internal performance rather than the political environment.

We find some evidence that the inclusion of the political risk factor improves the Fama-French five-factor model in Latin America, particularly when using developed market Fama-French factors. Overall, GRS test results are improved when using regional factors.

Interestingly, the political risk-adjusted Fama-French five-factor model using emerging market factors improves in Brazil for the full period and first subperiod but deteriorates in the second subperiod. This might be explained by a higher influence of other factors on asset prices in times of political stability.

We acknowledge that sample sizes could have an impact on the results, for example Colombia's sample only consists of 14 companies in 2001 (see Table 2). The companies are also of highly varying sizes in specific countries in the beginning of the sample period, which might also distort the results. Moreover, the size-criteria used to sort the portfolios may not reflect reality. These potential issues might be contributing reasons to why the "size effect" and "political risk effect" are less consistent in specific countries and portfolios.

Given that we find somewhat inconclusive results when testing the political risk-adjusted Fama-French five-factor model in Latin America, further tests of the model are warranted in other markets and regions. As mentioned in Section 6.1, other factors such as liquidity could also have significant explanatory power for asset pricing in emerging markets. We defer such analysis to future works.

7. Conclusion

In our thesis we find evidence that the multi-factor regression proposed by Bekaert et al. (2016) provides significant results in Latin American Markets, and document evidence that adding the political risk factor to the Fama-French five-factor model improves the quality of the model in Latin America, although the evidence seems stronger in certain subperiods.

Further elaborated in regard to the multi-factor regression (see Section 1.1.1), the regional model as tested in this thesis provides significant coefficients and higher explanatory power than the global model proposed by Bekaert et al. (2016), despite the exclusion of the illiquidity factor.

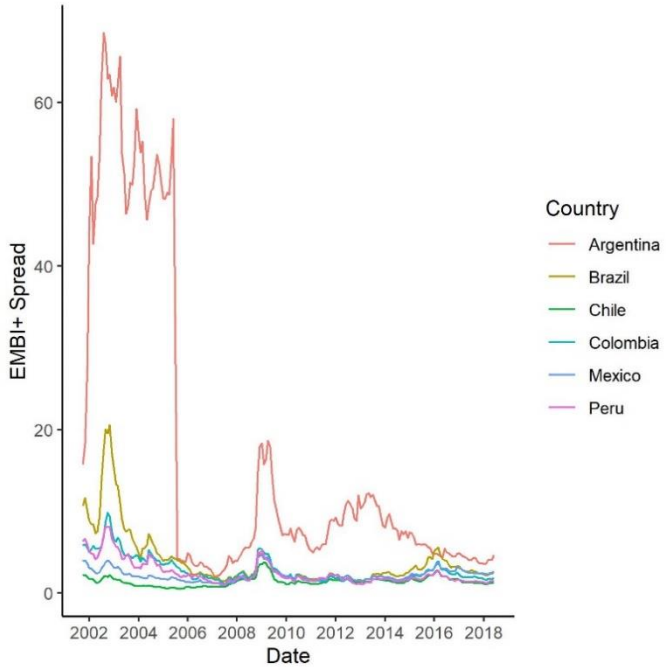
Regarding the political risk-adjusted Fama-French five-factor model (see Section 1.1.2), we discover three main findings. First, we find some tendencies for a potential "political risk effect" in the large and mid-cap LHS portfolios (see Section 5.2.1). Second, we find some evidence that the GRS statistics improve when adding the political risk factor to the Fama-French five-factor model, with developed market factors in the second subperiod providing the most consistent improvements (see Section 5.2.2). Third, we do not observe noteworthy improvements overall in terms of R^2 values across factor sets and periods.

We defer the analysis of finding more robust evidence of the pricing of political risk spreads in emerging markets to future work, due to its importance for practical applications such as project valuation and return benchmarking in emerging markets. Many practitioners adjust discount rates for valuation projects in emerging markets using the methods presented in Table 1 and reviewed in Sections 2.1 – 2.3, which are typically based on the full sovereign spreads. Given the criticism of these approaches and the, in our opinion, stronger academic foundation of the estimation of political risk spreads through the methodology proposed by Bekaert et al. (2014; 2016), we believe the adjustment of discount rates with political risk spreads instead of sovereign yield spreads would result in more accurate discount rates, which circumvent the issue of over-discounting. The estimated political risk spreads could potentially be combined with more intuitive practical approaches such as the ones proposed by Damodaran (2003) and Abuaf (2015).

8. Appendix

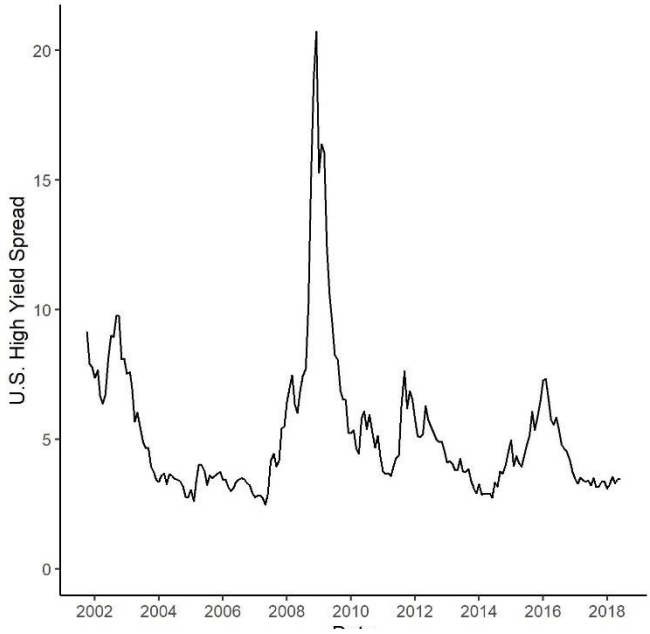
8.1. Political risk spread exhibits

Appendix 1**.** EMBI+ spreads of major Latin American economies.



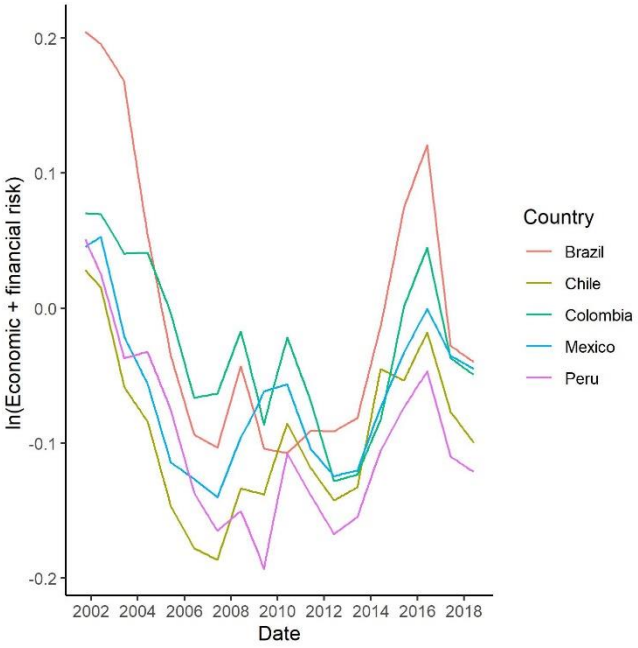
Source: The World Bank (2020)

Appendix 2. Time-series of the multi-factor regression's global factor.



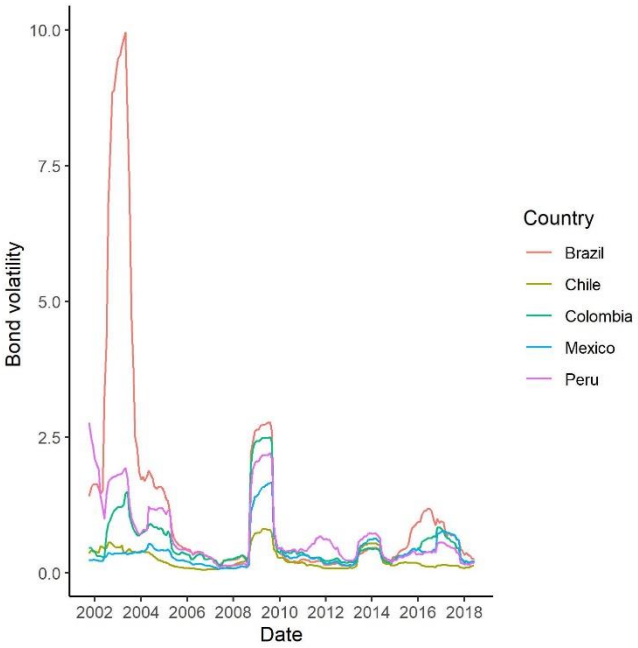
Source: Refinitiv

Appendix 3. Time-series of the multi-factor regression's local factor.



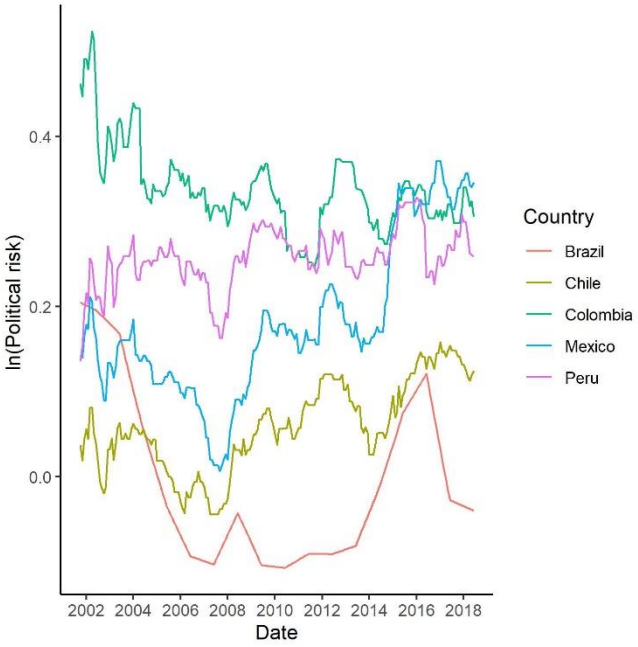
Source: ICRG

Appendix 4. Timeseries of the multi-factor regression's volatility factor.



Source: Refinitiv

Appendix 5. Time-series of the multi-factor regression's political factor.



Source: ICRG

Appendix 6. Descriptive statistics of the dependent and independent variables for the political risk spread regression from Brazil.

		EMBI Spread	Global Factor	Local Factor	Volatility Factor	Political Factor
Complete Period (Oct. 2001 – Jun. 2018)	**Minimum**	1.43	2.48	-0.11	0.13	0.12
	Maximum	20.57	20.73	0.20	9.94	0.36
	1. Quartile	2.16	3.45	-0.09	0.25	0.19
	3. Quartile	4.31	6.08	0.06	1.46	0.24
	Mean	3.97	5.23	-0.01	1.29	0.22
	Median	2.58	4.32	-0.04	0.44	0.21
	Stdev	3.45	2.80	0.10	2.08	0.05
	Skewness	2.76	2.66	0.88	2.95	0.77
	Kurtosis	8.26	9.19	-0.53	8.23	-0.00
	t-statistic	16.31	26.50	-1.37	8.76	61.03
1. Sub-Period (Oct. 2001 – Dec. 2009)	**Minimum**	1.47	2.48	-0.11	0.15	0.12
	Maximum	20.57	20.73	0.20	9.94	0.30
	1. Quartile	2.36	3.44	-0.09	0.38	0.17
	3. Quartile	6.95	7.56	0.12	2.60	0.22
	Mean	5.45	6.00	0.01	2.16	0.20
	Median	4.16	4.66	-0.05	1.50	0.20
	Stdev	4.39	3.66	0.11	2.69	0.04
	Skewness	1.76	1.83	0.62	1.82	0.24
	Kurtosis	2.69	3.61	-1.28	2.17	0.09
	t-statistic	12.36	16.31	0.82	7.99	54.93
2. Sub-Period (Jan. 2010 – Jun. 2018)	**Minimum**	1.43	2.74	-0.11	0.13	0.16
	Maximum	5.58	7.62	0.12	1.19	0.36
	1. Quartile	2.02	3.50	-0.09	0.21	0.20
	3. Quartile	2.83	5.26	0.03	0.59	0.29
	Mean	2.54	4.48	-0.03	0.44	0.24
	Median	2.34	4.27	-0.04	0.33	0.22
	Stdev	0.85	1.16	0.07	0.30	0.05
	Skewness	1.49	0.62	0.65	1.08	0.51
	Kurtosis	2.22	-0.47	-0.97	-0.06	-1.08
	t-statistic	30.01	38.88	-3.89	14.76	43.95

Appendix 7. Descriptive statistics of the dependent and independent variables for the political risk spread regression from Colombia.

		EMBI Spread	Global Factor	Local Factor	Volatility Factor	Political Factor
Complete Period (Oct. 2001 – Jun. 2018)	**Minimum**	1.08	2.48	-0.13	0.14	0.25
	Maximum	9.86	20.73	0.07	2.51	0.52
	1. Quartile	1.74	3.45	-0.07	0.27	0.31
	3. Quartile	3.61	6.08	0.02	0.69	0.35
	Mean	2.83	5.23	-0.03	0.58	0.34
	Median	2.15	4.32	-0.04	0.38	0.33
	Stdev	1.63	2.80	0.06	0.53	0.05
	Skewness	1.65	2.66	0.13	2.44	1.15
	Kurtosis	2.79	9.19	-0.90	5.65	2.21
	t-statistic	24.58	26.50	-7.82	15.35	96.04
1. Sub-Period (Oct. 2001 – Dec. 2009)	**Minimum**	1.08	2.48	-0.09	0.14	0.29
	Maximum	9.86	20.73	0.07	2.51	0.52
	1. Quartile	2.15	3.44	-0.06	0.30	0.33
	3. Quartile	4.94	7.56	0.04	0.91	0.39
	Mean	3.75	6.00	-0.01	0.78	0.36
	Median	3.59	4.66	-0.02	0.46	0.35
	Stdev	1.86	3.66	0.05	0.69	0.05
	Skewness	0.86	1.83	0.17	1.49	1.33
	Kurtosis	0.57	3.61	-1.55	1.10	1.11
	t-statistic	20.04	16.31	-1.50	11.36	70.58
2. Sub-Period (Jan. 2010 – Jun. 2018)	**Minimum**	1.10	2.74	-0.13	0.18	0.25
	Maximum	3.92	7.62	0.04	0.84	0.37
	1. Quartile	1.56	3.50	-0.10	0.24	0.30
	3. Quartile	2.15	5.26	-0.02	0.45	0.34
	Mean	1.93	4.48	-0.05	0.38	0.31
	Median	1.83	4.27	-0.05	0.35	0.31
	Stdev	0.52	1.16	0.05	0.16	0.03
	Skewness	1.26	0.62	0.10	0.97	-0.14
	Kurtosis	2.09	-0.47	-1.03	0.29	-0.64
	t-statistic	37.67	38.88	-10.58	23.32	94.99

Appendix 8. Descriptive statistics of the dependent and independent variables for the political risk spread regression from Chile.

		EMBI Spread	Global Factor	Local Factor	Volatility Factor	Political Factor
Complete Period (Oct. 2001 – Jun. 2018)	**Minimum**	0.55	2.48	-0.19	0.06	-0.04
	Maximum	3.83	20.73	0.03	0.82	0.16
	1. Quartile	1.11	3.45	-0.14	0.11	0.03
	3. Quartile	1.68	6.08	-0.05	0.38	0.10
	Mean	1.44	5.23	-0.10	0.25	0.06
	Median	1.36	4.32	-0.10	0.18	0.06
	Stdev	0.58	2.80	0.05	0.19	0.05
	Skewness	1.40	2.66	0.35	1.24	-0.08
	Kurtosis	3.28	9.19	-0.63	0.71	-0.79
	t-statistic	35.26	26.50	-25.62	18.96	15.88
1. Sub-Period (Oct. 2001 – Dec. 2009)	**Minimum**	0.55	2.48	-0.19	0.06	-0.04
	Maximum	3.83	20.73	0.03	0.82	0.08
	1. Quartile	0.80	3.44	-0.16	0.11	-0.01
	3. Quartile	1.69	7.56	-0.07	0.45	0.05
	Mean	1.36	6.00	-0.11	0.32	0.02
	Median	1.19	4.66	-0.13	0.30	0.03
	Stdev	0.75	3.66	0.06	0.22	0.04
	Skewness	1.45	1.83	0.76	0.66	-0.27
	Kurtosis	1.88	3.61	-0.63	-0.51	-1.14
	t-statistic	18.11	16.31	-16.75	14.38	5.57
2. Sub-Period (Jan. 2010 – Jun. 2018)	**Minimum**	1.08	2.74	-0.14	0.08	0.03
	Maximum	2.79	7.62	-0.02	0.56	0.16
	1. Quartile	1.28	3.50	-0.12	0.12	0.06
	3. Quartile	1.68	5.26	-0.05	0.20	0.12
	Mean	1.52	4.48	-0.09	0.19	0.10
	Median	1.44	4.27	-0.09	0.15	0.10
	Stdev	0.33	1.16	0.04	0.13	0.04
	Skewness	1.47	0.62	0.06	1.89	-0.17
	Kurtosis	2.67	-0.47	-1.29	2.45	-1.23
	t-statistic	46.17	38.88	-23.28	15.12	26.85

Appendix 9. Descriptive statistics of the dependent and independent variables for the political risk spread regression from Mexico.

		EMBI Spread	Global Factor	Local Factor	Volatility Factor	Political Factor
Complete Period (Oct. 2001 – Jun. 2018)	**Minimum**	0.98	2.48	-0.14	0.08	0.01
	Maximum	4.63	20.73	0.05	1.66	0.37
	1. Quartile	1.68	3.45	-0.11	0.21	0.12
	3. Quartile	2.52	6.08	-0.04	0.43	0.21
	Mean	2.21	5.23	-0.07	0.40	0.18
	Median	2.04	4.32	-0.07	0.32	0.16
	Stdev	0.74	2.80	0.05	0.32	0.09
	Skewness	1.12	2.66	0.57	2.40	0.53
	Kurtosis	1.13	9.19	-0.44	6.01	-0.51
	t-statistic	42.42	26.50	-19.04	17.24	27.75
1. Sub-Period (Oct. 2001 – Dec. 2009)	**Minimum**	0.98	2.48	-0.14	0.08	0.01
	Maximum	4.63	20.73	0.05	1.66	0.21
	1. Quartile	1.56	3.44	-0.12	0.16	0.09
	3. Quartile	2.67	7.56	-0.03	0.42	0.15
	Mean	2.24	6.00	-0.07	0.42	0.12
	Median	1.94	4.66	-0.08	0.31	0.12
	Stdev	0.93	3.66	0.06	0.43	0.05
	Skewness	0.96	1.83	0.72	1.95	-0.45
	Kurtosis	-0.02	3.61	-0.68	2.60	-0.28
	t-statistic	23.84	16.31	-11.31	9.82	23.60
2. Sub-Period (Jan. 2010 – Jun. 2018)	**Minimum**	1.54	2.74	-0.12	0.14	0.14
	Maximum	3.72	7.62	-0.00	0.77	0.37
	1. Quartile	1.77	3.50	-0.11	0.23	0.17
	3. Quartile	2.45	5.26	-0.04	0.44	0.33
	Mean	2.19	4.48	-0.07	0.37	0.24
	Median	2.10	4.27	-0.06	0.32	0.21
	Stdev	0.49	1.16	0.04	0.18	0.08
	Skewness	0.72	0.62	-0.05	0.83	0.25
	Kurtosis	-0.01	-0.47	-1.39	-0.41	-1.73
	t-statistic	45.55	38.88	-17.21	21.12	30.67

Appendix 10. Descriptive statistics of the dependent and independent variables for the political risk spread regression from Peru.

		EMBI Spread	Global Factor	Local Factor	Volatility Factor	Political Factor
Complete Period (Oct. 2001 – Jun. 2018)	**Minimum**	1.04	2.48	-0.19	0.11	0.14
	Maximum	8.16	20.73	0.05	2.77	0.33
	1. Quartile	1.57	3.45	-0.15	0.32	0.24
	3. Quartile	2.67	6.08	-0.06	0.81	0.28
	Mean	2.49	5.23	-0.10	0.71	0.26
	Median	1.92	4.32	-0.12	0.45	0.26
	Stdev	1.47	2.80	0.06	0.61	0.03
	Skewness	1.83	2.66	0.74	1.42	-0.58
	Kurtosis	2.98	9.19	-0.24	0.92	1.03
	t-statistic	24.07	26.50	-25.25	16.55	106.81
1. Sub-Period (Oct. 2001 – Dec. 2009)	**Minimum**	1.04	2.48	-0.19	0.11	0.14
	Maximum	8.16	20.73	0.05	2.77	0.30
	1. Quartile	1.96	3.44	-0.16	0.35	0.23
	3. Quartile	4.42	7.56	-0.03	1.75	0.26
	Mean	3.29	6.00	-0.09	1.01	0.24
	Median	2.67	4.66	-0.10	0.86	0.25
	Stdev	1.74	3.66	0.07	0.75	0.04
	Skewness	0.92	1.83	0.33	0.43	-0.68
	Kurtosis	0.14	3.61	-1.29	-1.18	0.09
	t-statistic	18.88	16.31	-12.37	13.42	67.63
2. Sub-Period (Jan. 2010 – Jun. 2018)	**Minimum**	1.08	2.74	-0.17	0.16	0.23
	Maximum	2.82	7.62	-0.05	0.74	0.33
	1. Quartile	1.47	3.50	-0.14	0.31	0.25
	3. Quartile	1.88	5.26	-0.09	0.54	0.29
	Mean	1.72	4.48	-0.11	0.42	0.27
	Median	1.67	4.27	-0.12	0.41	0.27
	Stdev	0.33	1.16	0.03	0.16	0.03
	Skewness	0.67	0.62	0.27	0.28	0.63
	Kurtosis	0.42	-0.47	-0.98	-0.85	-0.47
	t-statistic	52.15	38.88	-33.89	27.28	106.78

Appendix 11. Pooled and country-level OLS regressions with EMBI+ spreads as dependent variable from October 2001 to June 2018 (NPRSS Regressions).

	LATAM	Brazil	Colombia	Chile	Mexico	Peru
Constant	1.740***	3.395***	-0.499	0.462*	1.479***	3.673***
	p = 0.000	*p = 0.002*	*p = 0.568*	*p = 0.087*	*p = 0.000*	*p = 0.001*
Global Factor	0.106***	0.121	0.131*	0.153***	0.139***	0.155***
	p = 0.001	*p = 0.325*	*p = 0.083*	*p = 0.000*	*p = 0.000*	*p = 0.005*
Local Factor	11.083***	17.061***	15.967***	1.035	6.402***	12.148***
	p = 0.000	*p = 0.000*	*p = 0.003*	*p = 0.466*	*p = 0.004*	*p = 0.002*
Volatility Factor	1.070***	0.837	0.703**	0.300	0.414*	1.033***
	p = 0.000	*p = 0.205*	*p = 0.014*	*p = 0.648*	*p = 0.072*	*p = 0.000*
Political Factor	1.365**	-4.455	8.087***	3.457***	1.533**	-5.759**
	p = 0.014	*p = 0.240*	*p = 0.001*	*p = 0.001*	*p = 0.039*	*p = 0.037*
Observations	1,005	201	201	201	201	201
Adjusted R^2	0.808	0.832	0.769	0.768	0.842	0.854

Appendix 12. Pooled and country-level OLS regressions with EMBI+ spreads as dependent variable from October 2001 to December 2009 (NPRSS Regressions).

	LATAM	Brazil	Colombia	Chile	Mexico	Peru
Constant	2.074***	-0.134	3.586*	0.222	1.986***	3.479***
	p = 0.000	*p = 0.957*	*p = 0.098*	*p = 0.446*	*p = 0.000*	*p = 0.001*
Global Factor	0.088***	0.081	0.124**	0.162***	0.126***	0.186**
	p = 0.005	*p = 0.403*	*p = 0.043*	*p = 0.001*	*p = 0.000*	*p = 0.019*
Local Factor	13.287***	17.878***	30.853***	0.278	8.341***	15.273***
	p = 0.000	*p = 0.000*	*p = 0.001*	*p = 0.831*	*p = 0.005*	*p = 0.004*
Volatility Factor	0.973***	0.863	0.869***	0.695	0.569*	0.639***
	p = 0.000	*p = 0.163*	*p = 0.002*	*p = 0.284*	*p = 0.067*	*p = 0.002*
Political Factor	2.183**	15.531	-2.833	-1.126	-1.525	-2.343
	p = 0.015	*p = 0.172*	*p = 0.633*	*p = 0.361*	*p = 0.478*	*p = 0.343*
Observations	495	99	99	99	99	99
Adjusted R^2	0.817	0.840	0.818	0.879	0.876	0.851

Notes: 1. *p<0.1; **p<0.05; ***p<0.01; 2. LATAM results are based on a pooled OLS regression; 3. p-values account for heteroskedasticity and autocorrelation through a Newey-West correction with four lags.

Appendix 13. Pooled and country-level OLS regressions with EMBI+ spreads as dependent variable from January 2010 to June 2018 (NPRSS Regressions).

	LATAM	**Brazil**	**Colombia**	**Chile**	**Mexico**	**Peru**
Constant	1.071***	0.442	0.458	0.219	0.299	0.308
	p = 0.000	*p = 0.499*	*p = 0.423*	*p = 0.330*	*p = 0.201*	*p = 0.414*
Global Factor	0.168***	0.191***	0.142***	0.189***	0.161***	0.150***
	p = 0.000	*p = 0.003*	*p = 0.002*	*p = 0.000*	*p = 0.001*	*p = 0.000*
Local Factor	6.254***	4.167***	6.330***	3.193***	1.382	3.589***
	p = 0.000	*p = 0.001*	*p = 0.000*	*p = 0.000*	*p = 0.358*	*p = 0.001*
Volatility Factor	1.015***	1.003**	0.733**	1.480***	0.948***	1.004***
	p = 0.000	*p = 0.013*	*p = 0.021*	*p = 0.000*	*p = 0.001*	*p = 0.000*
Political Factor	0.970***	3.853*	2.862*	4.579***	3.736***	2.675***
	p = 0.002	*p = 0.084*	*p = 0.087*	*p = 0.000*	*p = 0.000*	*p = 0.006*
Observations	510	102	102	102	102	102
Adjusted R^2	0.782	0.888	0.775	0.700	0.805	0.689

Notes: 1. *p<0.1; **p<0.05; ***p<0.01; 2. LATAM results are based on a pooled OLS regression; 3. p-values account for heteroskedasticity and autocorrelation through a Newey-West correction with four lags.

Appendix 14. Correlation tables of multi-factor regression (NPRSS Regressions).

Panel a) LATAM (Brazil, Chile, Colombia, Mexico, and Peru).

	Global Factor	Local Factor	Volatility Factor	Political Factor
Global Factor	1			
Local Factor	0.090	1		
Volatility Factor	0.330	0.480	1	
Political Factor	-0.010	0.340	0.080	1

Panel b) Brazil.

	Global Factor	Local Factor	Volatility Factor	Political Factor
Global Factor	1			
Local Factor	0.120	1		
Volatility Factor	0.360	0.620	1	
Political Factor	-0.090	0.330	-0.230	1

Panel c) Chile.

	Global Factor	Local Factor	Volatility Factor	Political Factor
Global Factor	1			
Local Factor	0.120	1		
Volatility Factor	0.600	0.290	1	
Political Factor	-0.040	0.410	-0.120	1

Panel d) Colombia.

	Global Factor	Local Factor	Volatility Factor	Political Factor
Global Factor	1			
Local Factor	0.120	1		
Volatility Factor	0.670	0.180	1	
Political Factor	0.180	0.480	0.200	1

Panel e) Mexico.

	Global Factor	Local Factor	Volatility Factor	Political Factor
Global Factor	1			
Local Factor	0.260	1		
Volatility Factor	0.530	0.190	1	
Political Factor	-0.120	0.480	0.180	1

Panel f). Peru.

	Global Factor	Local Factor	Volatility Factor	Political Factor
Global Factor	1			
Local Factor	-0.039	1		
Volatility Factor	0.601	0.413	1	
Political Factor	0.050	-0.166	-0.142	1

Appendix 15. Descriptive statistics of NPRSS based on pooled and country-level OLS regressions.

Panel a) Full period, October 2001 to June 2018.

	Brazil	**Brazil**	**Clmb**	**Clmb**	**Chile**	**Chile**	**Mexico**	**Mexico**	**Peru**	**Peru**
Minimum	0.1235	NA	0.2120	1.0838	0.0089	0.0158	0.0151	0.0113	0.1850	NA
Maximum	0.5331	NA	0.9495	5.3149	1.6462	1.6462	0.5480	0.6535	0.6169	NA
1. Quartile	0.2466	NA	0.3121	1.7276	0.0395	0.1199	0.1706	0.1908	0.3365	NA
3. Quartile	0.3607	NA	0.4746	2.7765	0.1512	0.3715	0.3671	0.3353	0.4358	NA
Mean	0.3118	NA	0.4225	2.2644	0.1280	0.2657	0.2499	0.2775	0.3894	NA
Median	0.3068	NA	0.3777	1.9647	0.0669	0.1976	0.2118	0.2409	0.3923	NA
Stdev	0.0894	NA	0.1604	0.8164	0.2176	0.2409	0.1199	0.1469	0.0764	NA
Skewness	0.3838	NA	1.3590	1.1755	4.9150	2.5452	0.5046	0.6868	0.0520	NA
Kurtosis	-0.2592	NA	1.4714	1.0078	26.4308	9.9330	-0.5788	-0.1996	-0.2222	NA

Panel b) First subperiod, October 2001 to December 2009.

	Brazil	**Brazil**	**Clmb**	**Clmb**	**Chile**	**Chile**	**Mexico**	**Mexico**	**Peru**	**Peru**
Minimum	0.2037	1.4710	0.3013	NA	0.0158	NA	0.0249	NA	0.2904	NA
Maximum	0.7742	5.1211	1.3787	NA	1.6462	NA	0.3672	NA	0.9312	NA
1. Quartile	0.3335	2.1061	0.5176	NA	0.0455	NA	0.2189	NA	0.5312	NA
3. Quartile	0.5793	3.3578	0.8533	NA	0.1536	NA	0.2942	NA	0.7165	NA
Mean	0.4603	2.7364	0.7130	NA	0.1758	NA	0.2425	NA	0.6239	NA
Median	0.4456	2.4264	0.6567	NA	0.0614	NA	0.2570	NA	0.6211	NA
Stdev	0.1564	0.8701	0.2559	NA	0.3023	NA	0.0787	NA	0.1200	NA
Skewness	0.3594	0.7111	0.6971	NA	3.2837	NA	-1.1690	NA	-0.1637	NA
Kurtosis	-0.9852	-0.3818	-0.3485	NA	10.8168	NA	0.9138	NA	-0.2725	NA

Panel c) Second subperiod, January 2010 to June 2018.

	Brazil	**Brazil**	**Clmb**	**Clmb**	**Chile**	**Chile**	**Mexico**	**Mexico**	**Peru**	**Peru**
Minimum	0.1701	0.5842	0.1590	0.5710	0.0227	0.1233	0.1279	0.4742	0.1644	0.5101
Maximum	0.4514	1.6711	0.3940	1.2761	0.1724	0.8273	0.4668	1.5421	0.3469	1.0410
1. Quartile	0.2095	0.7382	0.2368	0.8098	0.0551	0.2744	0.1733	0.6408	0.2256	0.6442
3. Quartile	0.2936	1.0598	0.3045	0.9871	0.1257	0.5812	0.3383	1.2040	0.2771	0.7854
Mean	0.2540	0.9192	0.2689	0.8939	0.0929	0.4427	0.2596	0.9106	0.2517	0.7243
Median	0.2400	0.8853	0.2713	0.8835	0.1026	0.4832	0.2398	0.7721	0.2512	0.7213
Stdev	0.0626	0.2304	0.0469	0.1411	0.0393	0.1690	0.0940	0.3129	0.0365	0.1012
Skewness	0.8977	0.8610	-0.1930	-0.0155	-0.2110	-0.2091	0.3436	0.3927	0.0420	0.3542
Kurtosis	0.4265	0.6331	-0.2805	-0.2569	-1.2583	-1.0673	-1.2383	-1.4058	-0.4256	-0.0121

Notes: 1. Blue and white columns show pooled and country-level results respectively; 2. NA is due to negative political risk coefficient; 3. ‘Clmb’ is a shortened version of Colombia.

Appendix 16. Correlation tables of orthogonalized regressions (WPRSS Regressions).

Panel a) LATAM (Brazil, Chile, Colombia, Mexico, and Peru).

	Global Factor	Local Factor – Res.	Volatility Factor – Res.	Political Factor
Global Factor	1			
Local Factor – Res.	0.100	1		
Volatility Factor – Res.	0.330	0.490	1	
Political Factor	-0.010	0	0	1

Panel b) Brazil.

	Global Factor	Local Factor – Res.	Volatility Factor – Res.	Political Factor
Global Factor	1			
Local Factor – Res.	0.150	1		
Volatility Factor – Res.	0.350	0.750	1	
Political Factor	-0.090	0	0	1

Panel c) Colombia.

	Global Factor	Local Factor – Res.	Volatility Factor – Res.	Political Factor
Global Factor	1			
Local Factor – Res.	0.040	1		
Volatility Factor – Res.	0.640	0.090	1	
Political Factor	0.180	0	0	1

Panel d) Chile.

	Global Factor	Local Factor – Res.	Volatility Factor – Res.	Political Factor
Global Factor	1			
Local Factor – Res.	0.150	1		
Volatility Factor – Res.	0.600	0.380	1	
Political Factor	-0.040	0	0	1

Panel e) Mexico.

	Global Factor	Local Factor – Res.	Volatility Factor – Res.	Political Factor
Global Factor	1			
Local Factor – Res.	0.360	1		
Volatility Factor – Res.	0.560	0.120	1	
Political Factor	-0.120	0	0	1

Panel f) Peru.

	Global Factor	Local Factor – Res.	Volatility Factor – Res.	Political Factor
Global Factor	1			
Local Factor – Res.	-0.030	1		
Volatility Factor – Res.	0.610	0.400	1	
Political Factor	0.050	0	0	1

Note: 'Res.' is a shortened version of 'Residuals'.

8.2. Asset pricing model exhibits

Appendix 17. Descriptive statistics of RHS factors in Developed Markets.

Panel a) Full period, October 2001 to June 2018.

	MRP	SMB	HML	RMW	CMA
Minimum	-19.51	-6.02	-5.13	-5.05	-5.00
Maximum	11.41	4.95	5.40	4.49	6.01
1. Quartile	-1.73	-0.72	-0.83	-0.53	-0.54
3. Quartile	2.87	1.35	1.27	1.10	0.80
Mean	0.66	0.25	0.16	0.28	0.14
Median	1.23	0.11	0.13	0.37	-0.07
Stdev	4.27	1.57	1.73	1.34	1.45
Skewness	-0.83	-0.19	-0.02	-0.25	0.58
Kurtosis	2.45	0.77	0.51	1.22	3.21
t-statistic	2.19	2.22	1.30	2.99	1.37

Panel b) First subperiod, October 2001 to December 2009.

	MRP	SMB	HML	RMW	CMA
Minimum	-19.51	-6.02	-5.13	-5.05	-5.00
Maximum	11.41	4.95	5.40	4.49	6.01
1. Quartile	-1.98	-0.74	-0.40	-0.48	-0.52
3. Quartile	3.08	1.80	1.39	1.06	0.76
Mean	0.48	0.40	0.46	0.31	0.25
Median	1.32	0.46	0.48	0.41	0.05
Stdev	4.77	1.79	1.75	1.50	1.80
Skewness	-1.03	-0.40	-0.41	-0.32	0.50
Kurtosis	2.54	0.68	1.52	1.44	1.95
t-statistic	0.99	2.24	2.62	2.03	1.37

Panel c) Second subperiod, January 2010 to June 2018.

	MRP	SMB	HML	RMW	CMA
Minimum	-9.54	-3.29	-4.52	-2.77	-2.76
Maximum	10.01	3.96	4.39	2.73	2.75
1. Quartile	-1.63	-0.70	-1.38	-0.55	-0.55
3. Quartile	2.66	1.12	0.88	1.09	0.83
Mean	0.84	0.09	-0.13	0.26	0.04
Median	1.03	-0.07	-0.28	0.24	-0.15
Stdev	3.73	1.30	1.68	1.16	1.02
Skewness	-0.26	0.06	0.37	-0.13	0.05
Kurtosis	0.62	0.03	-0.07	-0.46	-0.04
t-statistic	2.27	0.71	-0.80	2.24	0.37

Appendix 18. Descriptive statistics of RHS factors in Emerging Markets.

Panel a) Full period, October 2001 to June 2018.

	MRP	SMB	HML	RMW	CMA
Minimum	-27.31	-6.95	-3.03	-3.70	-6.22
Maximum	17.98	4.19	5.25	3.65	6.32
1. Quartile	-2.05	-0.90	-0.49	-0.59	-0.53
3. Quartile	5.09	1.13	1.75	0.94	0.84
Mean	1.09	0.01	0.63	0.16	0.22
Median	1.09	0	0.41	0.23	0.26
Stdev	5.97	1.67	1.70	1.25	1.44
Skewness	-0.64	-0.29	0.25	-0.25	0.20
Kurtosis	2.33	1.10	-0.26	0.28	4.10
t-statistic	2.59	0.04	5.26	1.87	2.13

Panel b) First subperiod, October 2001 to December 2009.

	MRP	SMB	HML	RMW	CMA
Minimum	-27.31	-6.95	-2.59	-3.70	-6.22
Maximum	17.98	3.90	5.25	3.65	6.32
1. Quartile	-1.97	-0.98	0.10	-0.88	-0.64
3. Quartile	6.46	1.18	2.10	0.83	1.14
Mean	1.72	-0.06	1.21	-0.06	0.22
Median	2.80	-0.11	1.26	-0.13	0.24
Stdev	6.94	1.88	1.62	1.37	1.78
Skewness	-0.94	-0.49	0.19	-0.10	0.18
Kurtosis	2.34	1.09	-0.10	0.14	2.84
t-statistic	2.46	-0.29	7.43	-0.47	1.23

Panel c) Second subperiod, January 2010 to June 2018.

	MRP	SMB	HML	RMW	CMA
Minimum	-14.82	-2.91	-3.03	-2.98	-2.54
Maximum	12.15	4.19	4.34	2.65	3.78
1. Quartile	-2.22	-0.84	-0.93	-0.23	-0.33
3. Quartile	3.37	1.09	0.97	1.11	0.66
Mean	0.49	0.06	0.07	0.39	0.21
Median	0.51	0.005	-0.09	0.29	0.27
Stdev	4.81	1.45	1.59	1.08	1.03
Skewness	-0.09	0.23	0.37	-0.22	0.18
Kurtosis	0.57	-0.16	-0.31	0.02	0.80
t-statistic	1.02	0.44	0.45	3.61	2.10

Appendix 19. Descriptive statistics of RHS factors in LATAM Markets.

Panel a) Full period, October 2001 to June 2018.

	MRP	SMB	HML	RMW	CMA
Minimum	-35.92	-4.79	-10.64	-17.93	-13.34
Maximum	18.23	9.33	12.36	7.55	14.90
1. Quartile	-2.29	-1.14	-1.93	-1.67	-1.98
3. Quartile	5.90	2.57	2.73	2.38	2.37
Mean	1.04	0.88	0.49	0.23	0.18
Median	1.86	0.93	0.46	0.55	0.53
Stdev	6.90	2.64	3.80	3.37	3.98
Skewness	-0.99	0.26	0.14	-0.97	0.05
Kurtosis	3.61	-0.06	0.52	3.48	1.57
t-statistic	2.15	4.72	1.81	0.96	0.64

Panel b) First subperiod, October 2001 to December 2009.

	MRP	SMB	HML	RMW	CMA
Minimum	-35.92	-4.38	-10.64	-17.93	-13.34
Maximum	18.23	7.94	8.39	7.55	14.90
1. Quartile	-1.19	-1.08	-1.76	-1.91	-3.04
3. Quartile	6.81	3.07	2.81	2.45	2.27
Mean	2.11	1.10	0.74	0.10	-0.22
Median	3.34	1.31	1.22	0.36	0.26
Stdev	7.66	2.81	3.74	3.79	4.58
Skewness	-1.60	0.02	-0.33	-1.03	0.15
Kurtosis	5.28	-0.66	0.33	3.78	0.99
t-statistic	2.74	3.90	1.97	0.27	-0.47

Panel c) Second subperiod, January 2010 to June 2018.

	MRP	SMB	HML	RMW	CMA
Minimum	-18.33	-4.79	-7.89	-8.89	-10.75
Maximum	15.46	9.33	12.36	7.55	12.12
1. Quartile	-3.60	-1.13	-2.00	-1.32	-1.38
3. Quartile	4.10	2.27	2.26	2.22	2.38
Mean	0.01	0.66	0.24	0.35	0.56
Median	-0.39	0.37	-0.00	0.72	0.74
Stdev	5.93	2.45	3.85	2.92	3.26
Skewness	-0.09	0.52	0.56	-0.67	0.13
Kurtosis	0.34	0.88	0.85	0.75	1.69
t-statistic	0.02	2.72	0.62	1.20	1.75

Appendix 20. Factor spanning test using developed market Fama-French five-factors and the WPRSS of Brazil.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	0.66		-0.15	0.63	-1.34	-1.40	3.43	0.37
	p-value	0.42		0.35	0.00	0.00	0.00	0.51	
	SMB								
	Coef	1.00	-0.03		0.25	-0.05	-0.24	-4.91	0.08
	p-value	0.01	0.35		0.00	0.60	0.01	0.03	
	HML								
	Coef	-0.31	0.10	0.21		-0.07	0.72	1.79	0.37
	p-value	0.35	0.00	0.00		0.41	0.00	0.40	
	RMW								
	Coef	0.13	-0.16	-0.03	-0.05		-0.15	1.93	0.25
	p-value	0.63	0.00	0.60	0.41		0.05	0.28	
	CMA								
	Coef	0.58	-0.14	-0.13	0.46	-0.13		-2.39	0.44
	p-value	0.03	0.00	0.01	0.00	0.05		0.15	
	WPRSS								
	Coef	0.15	0.00	0.00	0.00	0.00	0.00		0.04
	p-value	0.00	0.51	0.03	0.40	0.28	0.15		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	1.68		0.00	1.03	-1.42	-1.71	-4.26	0.52
	p-value	0.15		0.99	0.00	0.00	0.00	0.46	
	SMB								
	Coef	0.90	0.00		0.34	0.11	-0.23	-3.27	0.10
	p-value	0.13	0.99		0.01	0.44	0.12	0.27	
	HML								
	Coef	-0.41	0.16	0.21		0.24	0.69	2.40	0.43
	p-value	0.38	0.00	0.01		0.02	0.00	0.30	
	RMW								
	Coef	0.14	-0.20	0.06	0.22		-0.32	1.11	0.31
	p-value	0.75	0.00	0.44	0.02		0.00	0.61	
	CMA								
	Coef	0.95	-0.22	-0.11	0.56	-0.29		-3.79	0.56
	p-value	0.02	0.00	0.12	0.00	0.00		0.07	
	WPRSS								
	Coef	0.19	0.00	0.00	0.00	0.00	-0.01		0.05
	p-value	0.00	0.46	0.27	0.30	0.61	0.07		

	MRP								
	Coef	1.06		-0.72	-0.12	-1.86	-0.47	3.64	0.26
	p-value	0.19		0.01	0.68	0.00	0.25	0.66	
	SMB								
	Coef	0.21	-0.10		-0.13	-0.63	-0.07	1.25	0.19
	p-value	0.48	0.01		0.22	0.00	0.66	0.68	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.07	-0.02	-0.12		-0.73	0.80	1.39	0.55
	p-value	0.80	0.68	0.22		0.00	0.00	0.63	
	RMW								
	Coef	0.23	-0.11	-0.29	-0.36		0.10	1.08	0.54
	p-value	0.24	0.00	0.00	0.00		0.34	0.59	
	CMA								
	Coef	0.38	-0.03	-0.03	0.40	0.10		-3.31	0.39
	p-value	0.05	0.25	0.66	0.00	0.34		0.10	
	WPRSS								
	Coef	0.09	0.00	0.00	0.00	0.00	-0.01		0.04
	p-value	0.00	0.66	0.68	0.63	0.59	0.10		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 21. Factor spanning test using developed market Fama-French five-factors and the WPRSS of Chile.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
	MRP								
	Coef	1.29		-0.17	0.64	-1.33	-1.41	-4.49	0.37
	p-value	0.00		0.28	0.00	0.00	0.00	0.69	
	SMB								
	Coef	0.52	-0.03		0.24	-0.07	-0.22	-9.44	0.07
	p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.05	
	HML								
Complete	Coef	-0.03	0.11	0.20		-0.07	0.72	-0.42	0.37
Period	p-value	0.84	0.00	0.00		0.44	0.00	0.00	0.00
(Oct. 2001 –	**RMW**								
Jun. 2018)	Coef	0.47	-0.16	-0.04	-0.05		-0.15	-2.01	0.24
	p-value	0.00	0.00	0.44	0.44		0.04	0.60	
	CMA								
	Coef	0.24	-0.15	-0.12	0.46	-0.14		-0.34	0.43
	p-value	0.05	0.00	0.02	0.00	0.04		0.92	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.02
	p-value	0.00	0.69	0.05	0.92	0.60	0.92		
	MRP								
	Coef	1.08		0.01	1.02	-1.44	-1.68	-9.73	0.52
	p-value	0.03		0.98	0.00	0.00	0.00	0.47	
	SMB								
	Coef	0.42	0.00		0.33	0.10	-0.21	-6.59	0.10
	p-value	0.09	0.98		0.01	0.49	0.15	0.35	
	HML								
1. Sub-	Coef	-0.01	0.16	0.20		0.25	0.68	2.61	0.42
Period	p-value	0.98	0.00	0.01		0.02	0.00	0.63	
(Oct. 2001 –	**RMW**								
Dec. 2009)	Coef	0.39	-0.21	0.05	0.23		-0.33	-1.24	0.30
	p-value	0.03	0.00	0.49	0.02		0.00	0.81	
	CMA								
	Coef	0.31	-0.23	-0.11	0.57	-0.31		-3.33	0.55
	p-value	0.09	0.00	0.15	0.00	0.00		0.50	
	WPRSS								
	Coef	0.02	0.00	0.00	0.00	0.00	0.00		0.02
	p-value	0.00	0.47	0.35	0.63	0.81	0.50		

	MRP								
	Coef	0.28		-0.70	-0.16	-1.87	-0.47	41.37	0.27
	p-value	0.77		0.01	0.58	0.00	0.25	0.22	
	SMB								
	Coef	0.30	-0.09		-0.13	-0.63	-0.08	0.86	0.19
	p-value	0.40	0.01		0.23	0.00	0.61	0.94	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.35	-0.02	-0.12		-0.73	0.79	15.21	0.56
	p-value	0.30	0.58	0.23		0.00	0.00	0.20	
	RMW								
	Coef	0.14	-0.11	-0.28	-0.36		0.09	6.86	0.54
	p-value	0.54	0.00	0.00	0.00		0.36	0.41	
	CMA								
	Coef	0.24	-0.03	-0.04	0.41	0.10		-5.29	0.38
	p-value	0.33	0.25	0.61	0.00	0.36		0.53	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.03
	p-value	0.00	0.22	0.94	0.20	0.41	0.53		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 22. Factor spanning test using developed market Fama-French five-factors and the WPRSS of Colombia.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	0.41		-0.21	0.60	-1.34	-1.42	6.57	0.37
	p-value	0.48		0.19	0.00	0.00	0.00	0.15	
	SMB								
	Coef	-0.39	-0.04		0.21	-0.08	-0.23	5.76	0.10
	p-value	0.13	0.19		0.01	0.36	0.02	0.00	
	HML								
	Coef	-0.38	0.10	0.18		-0.07	0.70	2.98	0.38
	p-value	0.10	0.00	0.01		0.38	0.00	0.10	
	RMW								
	Coef	0.22	-0.16	-0.05	-0.05		-0.16	1.73	0.25
	p-value	0.26	0.00	0.36	0.38		0.03	0.27	
	CMA								
	Coef	0.07	-0.15	-0.13	0.45	-0.14		1.40	0.43
	p-value	0.69	0.00	0.02	0.00	0.03		0.34	
	WPRSS								
	Coef	0.11	0.00	0.01	0.00	0.00	0.00		0.09
	p-value	0.00	0.15	0.00	0.10	0.27	0.34		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	-0.03		-0.04	1.00	-1.42	-1.68	4.95	0.52
	p-value	0.97		0.86	0.00	0.00	0.00	0.28	
	SMB								
	Coef	-0.75	-0.01		0.31	0.09	-0.22	5.63	0.15
	p-value	0.09	0.86		0.01	0.51	0.11	0.01	
	HML								
	Coef	0.08	0.16	0.20		0.25	0.68	-0.15	0.42
	p-value	0.82	0.00	0.01		0.02	0.00	0.94	
	RMW								
	Coef	0.32	-0.21	0.05	0.23		-0.33	0.24	0.30
	p-value	0.35	0.00	0.51	0.02		0.00	0.89	
	CMA								
	Coef	-0.06	-0.23	-0.12	0.56	-0.30		1.59	0.55
	p-value	0.87	0.00	0.11	0.00	0.00		0.34	
	WPRSS								
	Coef	0.18	0.00	0.01	0.00	0.00	0.01		0.09
	p-value	0.00	0.28	0.01	0.94	0.89	0.34		

	MRP								
	Coef	-4.21		-0.66	-0.20	-1.83	-0.38	75.25	0.31
	p-value	0.07		0.01	0.49	0.00	0.34	0.01	
	SMB								
	Coef	0.48	-0.09		-0.12	-0.62	-0.08	-2.28	0.19
	p-value	0.58	0.01		0.24	0.00	0.59	0.85	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-1.00	-0.03	-0.11		-0.74	0.80	14.31	0.56
	p-value	0.23	0.49	0.24		0.00	0.00	0.20	
	RMW								
	Coef	-0.17	-0.12	-0.28	-0.36		0.10	6.71	0.54
	p-value	0.77	0.00	0.00	0.00		0.34	0.39	
	CMA								
	Coef	0.65	-0.03	-0.04	0.41	0.10		-7.53	0.38
	p-value	0.28	0.34	0.59	0.00	0.34		0.35	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	0.00		0.09
	p-value	0.00	0.01	0.85	0.20	0.39	0.35		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 23. Factor spanning test using developed market Fama-French five-factors and the WPRSS of Mexico.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	0.52		-0.17	0.65	-1.32	-1.40	9.79	0.37
	p-value	0.35		0.29	0.00	0.00	0.00	0.19	
	SMB								
	Coef	0.21	-0.03		0.25	-0.07	-0.22	1.01	0.06
	p-value	0.40	0.29		0.00	0.48	0.02	0.76	
	HML								
	Coef	0.14	0.11	0.20		-0.06	0.71	-2.79	0.37
	p-value	0.54	0.00	0.00		0.45	0.00	0.36	
	RMW								
	Coef	0.41	-0.16	-0.04	-0.05		-0.15	0.21	0.24
	p-value	0.03	0.00	0.48	0.45		0.04	0.93	
	CMA								
	Coef	0.29	-0.15	-0.12	0.45	-0.14		-0.87	0.43
	p-value	0.11	0.00	0.02	0.00	0.04		0.72	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	0.00		0.03
	p-value	0.00	0.19	0.76	0.36	0.93	0.72		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	-0.74		-0.10	0.95	-1.44	-1.61	26.53	0.54
	p-value	0.40		0.63	0.00	0.00	0.00	0.05	
	SMB								
	Coef	-0.88	-0.03		0.29	0.05	-0.19	19.18	0.17
	p-value	0.04	0.63		0.02	0.73	0.18	0.00	
	HML								
	Coef	-0.09	0.16	0.19		0.25	0.68	2.40	0.42
	p-value	0.81	0.00	0.02		0.02	0.00	0.66	
	RMW								
	Coef	0.01	-0.21	0.03	0.22		-0.32	5.89	0.31
	p-value	0.98	0.00	0.73	0.02		0.00	0.25	
	CMA								
	Coef	0.20	-0.23	-0.10	0.57	-0.31		0.44	0.54
	p-value	0.53	0.00	0.18	0.00	0.00		0.93	
	WPRSS								
	Coef	0.06	0.00	0.00	0.00	0.00	0.00		0.17
	p-value	0.00	0.05	0	0.66	0.25	0.93		

	MRP								
	Coef	1.20		-0.71	-0.12	-1.85	-0.49	2.39	0.26
	p-value	0.20		0.01	0.68	0.00	0.23	0.84	
	SMB								
	Coef	0.30	-0.09		-0.13	-0.63	-0.08	0.21	0.19
	p-value	0.38	0.01		0.23	0.00	0.61	0.96	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.11	-0.01	-0.12		-0.73	0.81	2.17	0.55
	p-value	0.73	0.68	0.23		0.00	0.00	0.59	
	RMW								
	Coef	0.39	-0.11	-0.28	-0.35		0.08	-0.80	0.54
	p-value	0.09	0.00	0.00	0.00		0.41	0.78	
	CMA								
	Coef	0.45	-0.03	-0.04	0.40	0.08		-4.71	0.39
	p-value	0.05	0.23	0.61	0.00	0.41		0.10	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	-0.01		0.04
	p-value	0.00	0.84	0.96	0.59	0.78	0.10		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 24. Factor spanning test using developed market Fama-French five-factors and the WPRSS of Peru.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	1.46		-0.79	0.98	-1.57	-2.41	-2.23	0.59
	p-value	0.28		0.00	0.00	0.00	0.00	0.88	
	SMB								
	Coef	1.11	-0.13		-0.01	-0.34	-0.27	-9.44	0.14
	p-value	0.04	0.00		0.95	0.00	0.01	0.12	
	HML								
	Coef	-1.04	0.11	0.00		-0.39	0.46	16.97	0.41
	p-value	0.02	0.00	0.95		0.00	0.00	0.00	
	RMW								
	Coef	0.15	-0.10	-0.14	-0.23		-0.21	3.58	0.38
	p-value	0.67	0.00	0.00	0.00		0.00	0.36	
	CMA								
	Coef	0.30	-0.18	-0.13	0.30	-0.23		-0.34	0.47
	p-value	0.42	0.00	0.01	0.00	0.00		0.93	
	WPRSS								
	Coef	0.09	0.00	0.00	0.00	0.00	0.00		0.09
	p-value	0.00	0.88	0.12	0.00	0.36	0.93		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	2.31		-0.95	0.91	-1.89	-2.65	-9.62	0.65
	p-value	0.33		0.00	0.00	0.00	0.00	0.59	
	SMB								
	Coef	2.01	-0.16		0.11	-0.40	-0.43	-13.88	0.19
	p-value	0.04	0.00		0.39	0.01	0.00	0.06	
	HML								
	Coef	-0.36	0.10	0.07		-0.19	0.44	9.62	0.27
	p-value	0.65	0.00	0.39		0.14	0.00	0.10	
	RMW								
	Coef	-0.16	-0.13	-0.17	-0.12		-0.34	4.01	0.37
	p-value	0.80	0.00	0.01	0.14		0.00	0.40	
	CMA								
	Coef	0.36	-0.21	-0.20	0.31	-0.38		-1.48	0.58
	p-value	0.59	0.00	0.00	0.00	0.00		0.77	
	WPRSS								
	Coef	0.13	0.00	0.00	0.00	0.00	0.00		0.08
	p-value	0.00	0.59	0.06	0.10	0.40	0.77		

	MRP								
	Coef	-2.71		-0.61	1.42	-0.77	-1.80	62.75	0.54
	p-value	0.29		0.01	0.00	0.06	0.00	0.13	
	SMB								
	Coef	-0.75	-0.10		-0.15	-0.26	0.01	16	0.14
	p-value	0.48	0.01		0.26	0.12	0.96	0.35	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	1.10	0.15	-0.09		-0.58	0.52	-16.13	0.57
	p-value	0.19	0.00	0.26		0.00	0.00	0.23	
	RMW								
	Coef	1.51	-0.05	-0.10	-0.35		0.02	-17.58	0.44
	p-value	0.02	0.06	0.12	0.00		0.86	0.09	
	CMA								
	Coef	0.61	-0.13	0.00	0.35	0.02		-6.08	0.31
	p-value	0.37	0.00	0.96	0.00	0.86		0.58	
	WPRSS								
	Coef	0.06	0.00	0.00	0.00	0.00	0.00		0.10
	p-value	0.00	0.13	0.35	0.23	0.09	0.58		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 25. Factor spanning test using emerging market Fama-French five-factors and the WPRSS of Brazil.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
	MRP								
	Coef	1.48		-0.79	0.96	-1.57	-2.41	-8.21	0.59
	p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.51	
	SMB								
	Coef	0.36	-0.13		-0.04	-0.35	-0.28	-2.68	0.13
	p-value	0.05	0.00		0.62	0.00	0.01	0.60	
	HML								
Complete	Coef	0.59	0.12	-0.03		-0.40	0.48	-5.10	0.38
Period	p-value	0.00	0.00	0.62		0.00	0.00	0.24	
(Oct. 2001 –	**RMW**								
Jun. 2018)	Coef	0.52	-0.11	-0.14	-0.22		-0.21	-2.36	0.38
	p-value	0.00	0.00	0.00	0.00		0.00	0.46	
	CMA								
	Coef	0.29	-0.18	-0.13	0.30	-0.24		-0.71	0.47
	p-value	0.02	0.00	0.01	0.00	0.00		0.83	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.01
	p-value	0.00	0.51	0.60	0.24	0.46	0.83		
	MRP								
	Coef	1.36		-0.92	0.89	-1.92	-2.66	-14.13	0.65
	p-value	0.04		0.00	0.00	0.00	0.00	0.40	
	SMB								
	Coef	0.20	-0.16		0.07	-0.44	-0.44	0.14	0.16
	p-value	0.48	0.00		0.57	0.01	0.00	0.98	
	HML								
1. Sub-	Coef	0.88	0.10	0.05		-0.18	0.45	1.94	0.25
Period	p-value	0.00	0.00	0.57		0.18	0.00	0.74	
(Oct. 2001 –	**RMW**								
Dec. 2009)	Coef	0.44	-0.14	-0.18	-0.11		-0.35	-3.15	0.36
	p-value	0.01	0.00	0.01	0.18		0.00	0.48	
	CMA								
	Coef	0.26	-0.21	-0.19	0.31	-0.39		-4.05	0.58
	p-value	0.17	0.00	0.00	0.00	0.00		0.39	
	WPRSS								
	Coef	0.02	0.00	0.00	0.00	0.00	0.00		0.01
	p-value	0.00	0.40	0.98	0.74	0.48	0.39		

	MRP								
	Coef	1.93		-0.60	1.41	-0.93	-1.92	-27.76	0.54
	p-value	0.06		0.01	0.00	0.02	0.00	0.43	
	SMB								
	Coef	0.68	-0.10		-0.15	-0.31	-0.03	-16.21	0.14
	p-value	0.11	0.01		0.26	0.06	0.87	0.26	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.20	0.15	-0.09		-0.54	0.55	11.06	0.56
	p-value	0.56	0.00	0.26		0.00	0.00	0.33	
	RMW								
	Coef	0.70	-0.06	-0.12	-0.33		0.01	-9.78	0.43
	p-value	0.01	0.02	0.06	0.00		0.91	0.27	
	CMA								
	Coef	0.60	-0.13	-0.01	0.36	0.01		-13.17	0.32
	p-value	0.03	0.00	0.87	0.00	0.91		0.15	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.07
	p-value	0.00	0.43	0.26	0.33	0.27	0.15		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 26. Factor spanning test using emerging market Fama-French five-factors and the WPRSS of Chile.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
	MRP								
	Coef	1.48		-0.79	0.96	-1.57	-2.41	-8.21	0.59
	p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.51	
	SMB								
	Coef	0.36	-0.13		-0.04	-0.35	-0.28	-2.68	0.13
	p-value	0.05	0.00		0.62	0.00	0.01	0.60	
	HML								
Complete	Coef	0.59	0.12	-0.03		-0.40	0.48	-5.10	0.38
Period	p-value	0.00	0.00	0.62		0.00	0.00	0.24	
(Oct. 2001 –	**RMW**								
Jun. 2018)	Coef	0.52	-0.11	-0.14	-0.22		-0.21	-2.36	0.38
	p-value	0.00	0.00	0.00	0.00		0.00	0.46	
	CMA								
	Coef	0.29	-0.18	-0.13	0.30	-0.24		-0.71	0.47
	p-value	0.02	0.00	0.01	0.00	0.00		0.83	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.01
	p-value	0.00	0.51	0.60	0.24	0.46	0.83		
	MRP								
	Coef	1.36		-0.92	0.89	-1.92	-2.66	-14.13	0.65
	p-value	0.04		0.00	0.00	0.00	0.00	0.40	
	SMB								
	Coef	0.20	-0.16		0.07	-0.44	-0.44	0.14	0.16
	p-value	0.48	0.00		0.57	0.01	0.00	0.98	
	HML								
1. Sub-	Coef	0.88	0.10	0.05		-0.18	0.45	1.94	0.25
Period	p-value	0.00	0.00	0.57		0.18	0.00	0.74	
(Oct. 2001 –	**RMW**								
Dec. 2009)	Coef	0.44	-0.14	-0.18	-0.11		-0.35	-3.15	0.36
	p-value	0.01	0.00	0.01	0.18		0.00	0.48	
	CMA								
	Coef	0.26	-0.21	-0.19	0.31	-0.39		-4.05	0.58
	p-value	0.17	0.00	0.00	0.00	0.00		0.39	
	WPRSS								
	Coef	0.02	0.00	0.00	0.00	0.00	0.00		0.01
	p-value	0.00	0.40	0.98	0.74	0.48	0.39		

	MRP								
	Coef	1.93		-0.60	1.41	-0.93	-1.92	-27.76	0.54
	p-value	0.06		0.01	0.00	0.02	0.00	0.43	
	SMB								
	Coef	0.68	-0.10		-0.15	-0.31	-0.03	-16.21	0.14
	p-value	0.11	0.01		0.26	0.06	0.87	0.26	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.20	0.15	-0.09		-0.54	0.55	11.06	0.56
	p-value	0.56	0.00	0.26		0.00	0.00	0.33	
	RMW								
	Coef	0.70	-0.06	-0.12	-0.33		0.01	-9.78	0.43
	p-value	0.01	0.02	0.06	0.00		0.91	0.27	
	CMA								
	Coef	0.60	-0.13	-0.01	0.36	0.01		-13.17	0.32
	p-value	0.03	0.00	0.87	0.00	0.91		0.15	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.07
	p-value	0.00	0.43	0.26	0.33	0.27	0.15		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 27. Factor spanning test using emerging market Fama-French five-factors and the WPRSS of Colombia.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	2.01		-0.79	1.05	-1.56	-2.46	-6.66	0.59
	p-value	0.00		0.00	0.00	0.00	0.00	0.20	
	SMB								
	Coef	0.30	-0.13		-0.04	-0.35	-0.28	-0.10	0.13
	p-value	0.28	0.00		0.68	0.00	0.01	0.96	
	HML								
	Coef	-0.50	0.12	-0.02		-0.34	0.51	8	0.44
	p-value	0.03	0.00	0.68		0.00	0.00	0.00	
	RMW								
	Coef	0.49	-0.11	-0.14	-0.21		-0.21	-0.28	0.38
	p-value	0.00	0.00	0.00	0.00		0.00	0.84	
	CMA								
	Coef	0.72	-0.18	-0.12	0.34	-0.23		-4.03	0.49
	p-value	0.00	0.00	0.01	0.00	0.00		0.00	
	WPRSS								
	Coef	0.11	0.00	0.00	0.01	0.00	-0.01		0.14
	p-value	0.00	0.20	0.96	0.00	0.84	0.00		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	1.71		-0.93	0.95	-1.89	-2.69	-3.91	0.65
	p-value	0.13		0.00	0.00	0.00	0.00	0.50	
	SMB								
	Coef	0.44	-0.16		0.10	-0.44	-0.45	-1.42	0.16
	p-value	0.35	0.00		0.47	0.01	0.00	0.56	
	HML								
	Coef	-0.08	0.10	0.06		-0.18	0.48	5.41	0.32
	p-value	0.83	0.00	0.47		0.15	0.00	0.00	
	RMW								
	Coef	0.25	-0.13	-0.18	-0.12		-0.34	0.68	0.36
	p-value	0.41	0.00	0.01	0.15		0.00	0.66	
	CMA								
	Coef	0.67	-0.20	-0.20	0.34	-0.36		-2.96	0.59
	p-value	0.03	0.00	0.00	0.00	0.00		0.06	
	WPRSS								
	Coef	0.17	0.00	0.00	0.02	0.00	-0.01		0.11
	p-value	0.00	0.50	0.56	0.00	0.66	0.06		

	MRP								
	Coef	-0.13		-0.59	1.40	-0.84	-1.84	17.23	0.53
	p-value	0.96		0.02	0.00	0.04	0.00	0.62	
	SMB								
	Coef	-0.72	-0.10		-0.16	-0.25	0.03	12.69	0.14
	p-value	0.50	0.02		0.22	0.14	0.87	0.37	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	0.40	0.15	-0.10		-0.57	0.53	-3.92	0.56
	p-value	0.63	0.00	0.22		0.00	0.00	0.72	
	RMW								
	Coef	1.97	-0.05	-0.09	-0.33		-0.02	-20.63	0.46
	p-value	0.00	0.04	0.14	0.00		0.85	0.01	
	CMA								
	Coef	1.44	-0.12	0.01	0.34	-0.02		-16.00	0.33
	p-value	0.03	0.00	0.87	0.00	0.85		0.07	
	WPRSS								
	Coef	0.08	0.00	0.00	0.00	0.00	0.00		0.16
	p-value	0.00	0.62	0.37	0.72	0.01	0.07		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 28. Factor spanning test using emerging market Fama-French five-factors and the WPRSS of Mexico.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
	MRP								
	Coef	1.26		-0.79	0.97	-1.57	-2.41	0.01	0.59
	p-value	0.06		0.00	0.00	0.00	0.00	1.00	
	SMB								
	Coef	0.29	-0.13		-0.04	-0.35	-0.28	-0.03	0.13
	p-value	0.29	0.00		0.66	0.00	0.01	0.99	
	HML								
Complete	Coef	0.92	0.12	-0.03		-0.40	0.46	-6.73	0.39
Period	p-value	0.00	0.00	0.66		0.00	0.00	0.02	
(Oct. 2001 –	**RMW**								
Jun. 2018)	Coef	0.61	-0.10	-0.14	-0.22		-0.21	-2.23	0.38
	p-value	0.00	0.00	0.00	0.00		0.00	0.31	
	CMA								
	Coef	0.42	-0.18	-0.12	0.29	-0.24		-2.18	0.47
	p-value	0.02	0.00	0.01	0.00	0.00		0.35	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	0.00		0.05
	p-value	0.00	1	0.99	0.02	0.31	0.35		
	MRP								
	Coef	1.31		-0.92	0.90	-1.92	-2.67	-4.25	0.65
	p-value	0.26		0.00	0.00	0.00	0.00	0.80	
	SMB								
	Coef	0.04	-0.16		0.06	-0.44	-0.42	2.64	0.16
	p-value	0.93	0.00		0.62	0.01	0.01	0.71	
	HML								
1. Sub-	Coef	0.31	0.10	0.04		-0.15	0.49	9.74	0.28
Period	p-value	0.42	0.00	0.62		0.25	0.00	0.08	
(Oct. 2001 –	**RMW**								
Dec. 2009)	Coef	0.62	-0.13	-0.18	-0.10		-0.36	-4.26	0.37
	p-value	0.04	0.00	0.01	0.25		0.00	0.34	
	CMA								
	Coef	0.79	-0.20	-0.18	0.32	-0.38		-10.47	0.60
	p-value	0.01	0.00	0.01	0.00	0.00		0.02	
	WPRSS								
	Coef	0.06	0.00	0.00	0.00	0.00	-0.01		0.13
	p-value	0.00	0.80	0.71	0.08	0.34	0.02		

	MRP								
	Coef	2.39		-0.59	1.40	-0.98	-1.96	-15.67	0.54
	p-value	0.02		0.02	0.00	0.02	0.00	0.19	
	SMB								
	Coef	0.43	-0.10		-0.16	-0.31	-0.02	-2.50	0.14
	p-value	0.31	0.02		0.22	0.07	0.91	0.62	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.09	0.15	-0.10		-0.54	0.56	2.50	0.56
	p-value	0.79	0.00	0.22		0.00	0.00	0.52	
	RMW								
	Coef	0.85	-0.06	-0.11	-0.32		-0.01	-5.33	0.44
	p-value	0.00	0.02	0.07	0.00		0.91	0.07	
	CMA								
	Coef	0.75	-0.13	-0.01	0.35	-0.01		-6.62	0.34
	p-value	0.00	0.00	0.91	0.00	0.91		0.03	
	WPRSS								
	Coef	0.08	0.00	0.00	0.00	-0.01	-0.01		0.09
	p-value	0.00	0.19	0.62	0.52	0.07	0.03		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 29. Factor spanning test using emerging market Fama-French five-factors and the WPRSS of Peru.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	1.46		-0.79	0.98	-1.57	-2.41	-2.23	0.59
	p-value	0.28		0.00	0.00	0.00	0.00	0.88	
	SMB								
	Coef	1.11	-0.13		-0.01	-0.34	-0.27	-9.44	0.14
	p-value	0.04	0.00		0.95	0.00	0.01	0.12	
	HML								
	Coef	-1.04	0.11	0.00		-0.39	0.46	16.97	0.41
	p-value	0.02	0.00	0.95		0.00	0.00	0.00	
	RMW								
	Coef	0.15	-0.10	-0.14	-0.23		-0.21	3.58	0.38
	p-value	0.67	0.00	0.00	0.00		0.00	0.36	
	CMA								
	Coef	0.30	-0.18	-0.13	0.30	-0.23		-0.34	0.47
	p-value	0.42	0.00	0.01	0.00	0.00		0.93	
	WPRSS								
	Coef	0.09	0.00	0.00	0.00	0.00	0.00		0.09
	p-value	0.00	0.88	0.12	0.00	0.36	0.93		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	2.31		-0.95	0.91	-1.89	-2.65	-9.62	0.65
	p-value	0.33		0.00	0.00	0.00	0.00	0.59	
	SMB								
	Coef	2.01	-0.16		0.11	-0.40	-0.43	-13.88	0.19
	p-value	0.04	0.00		0.39	0.01	0.00	0.06	
	HML								
	Coef	-0.36	0.10	0.07		-0.19	0.44	9.62	0.27
	p-value	0.65	0.00	0.39		0.14	0.00	0.10	
	RMW								
	Coef	-0.16	-0.13	-0.17	-0.12		-0.34	4.01	0.37
	p-value	0.80	0.00	0.01	0.14		0.00	0.40	
	CMA								
	Coef	0.36	-0.21	-0.20	0.31	-0.38		-1.48	0.58
	p-value	0.59	0.00	0.00	0.00	0.00		0.77	
	WPRSS								
	Coef	0.13	0.00	0.00	0.00	0.00	0.00		0.08
	p-value	0.00	0.59	0.06	0.10	0.40	0.77		

	MRP								
	Coef	-2.71		-0.61	1.42	-0.77	-1.80	62.75	0.54
	p-value	0.29		0.01	0.00	0.06	0.00	0.13	
	SMB								
	Coef	-0.75	-0.10		-0.15	-0.26	0.01	16	0.14
	p-value	0.48	0.01		0.26	0.12	0.96	0.35	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	1.10	0.15	-0.09		-0.58	0.52	-16.13	0.57
	p-value	0.19	0.00	0.26		0.00	0.00	0.23	
	RMW								
	Coef	1.51	-0.05	-0.10	-0.35		0.02	-17.58	0.44
	p-value	0.02	0.06	0.12	0.00		0.86	0.09	
	CMA								
	Coef	0.61	-0.13	0.00	0.35	0.02		-6.08	0.31
	p-value	0.37	0.00	0.96	0.00	0.86		0.58	
	WPRSS								
	Coef	0.06	0.00	0.00	0.00	0.00	0.00		0.10
	p-value	0.00	0.13	0.35	0.23	0.09	0.58		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 30. Factor spanning test using Carvalho et al. (2021) Fama-French five-factors and the WPRSS of Brazil.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	-0.31		-0.11	0.80	-0.14	-0.54	8.03	0.29
	p-value	0.83		0.51	0.00	0.29	0.00	0.37	
	SMB								
	Coef	1.92	-0.02		-0.02	-0.19	-0.03	-6.52	0.07
	p-value	0.00	0.51		0.67	0.00	0.60	0.10	
	HML								
	Coef	0.80	0.25	-0.04		-0.19	0.16	-3.58	0.25
	p-value	0.32	0.00	0.67		0.01	0.01	0.48	
	RMW								
	Coef	1.03	-0.04	-0.28	-0.17		-0.17	-2.69	0.14
	p-value	0.18	0.29	0.00	0.01		0.01	0.58	
	CMA								
	Coef	2.03	-0.21	-0.05	0.19	-0.22		-10.99	0.17
	p-value	0.02	0.00	0.60	0.01	0.01		0.05	
	WPRSS								
	Coef	0.15	0.00	0.00	0.00	0.00	0.00		0.05
	p-value	0.00	0.37	0.10	0.48	0.58	0.05		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	2.04		-0.02	0.75	-0.12	-0.73	-3.18	0.35
	p-value	0.37		0.93	0.00	0.51	0.00	0.77	
	SMB								
	Coef	2.68	0.00		-0.07	-0.19	-0.04	-7.85	0.10
	p-value	0.01	0.93		0.39	0.01	0.54	0.09	
	HML								
	Coef	1.14	0.22	-0.11		-0.01	0.07	-3.78	0.19
	p-value	0.36	0.00	0.39		0.91	0.42	0.53	
	RMW								
	Coef	0.69	-0.04	-0.35	-0.01		-0.19	-0.82	0.11
	p-value	0.60	0.51	0.01	0.91		0.05	0.90	
	CMA								
	Coef	3.27	-0.28	-0.09	0.10	-0.22		-14.77	0.29
	p-value	0.02	0.00	0.54	0.42	0.05		0.03	
	WPRSS								
	Coef	0.20	0.00	0.00	0.00	0.00	0.00		0.09
	p-value	0.00	0.77	0.09	0.53	0.90	0.03		

	MRP								
	Coef	0.33		-0.35	0.66	-0.23	-0.15	-0.87	0.24
	p-value	0.80		0.12	0.00	0.28	0.39	0.95	
	SMB								
	Coef	0.97	-0.07		0.04	-0.16	0.03	-3.16	0.06
	p-value	0.10	0.12		0.67	0.12	0.74	0.61	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-0.40	0.21	0.05		-0.51	0.26	7.17	0.44
	p-value	0.58	0.00	0.67		0.00	0.01	0.34	
	RMW								
	Coef	0.74	-0.05	-0.16	-0.36		-0.02	-2.21	0.32
	p-value	0.22	0.28	0.12	0.00		0.83	0.72	
	CMA								
	Coef	-0.32	-0.05	0.04	0.29	-0.03		9.04	0.13
	p-value	0.68	0.39	0.74	0.01	0.83		0.25	
	WPRSS								
	Coef	0.09	0.00	0.00	0.00	0.00	0.00		0.05
	p-value	0.00	0.95	0.61	0.34	0.72	0.25		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 31. Factor spanning test using Carvalho et al. (2021) Fama-French five-factors and the WPRSS of Chile.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	0.93		-0.13	0.79	-0.15	-0.55	-1.23	0.29
	p-value	0.16		0.43	0.00	0.27	0.00	0.95	
	SMB								
	Coef	1.15	-0.02		-0.02	-0.19	-0.01	-7.64	0.06
	p-value	0.00	0.43		0.70	0.00	0.82	0.36	
	HML								
	Coef	0.42	0.25	-0.04		-0.19	0.17	-6.34	0.25
	p-value	0.26	0.00	0.70		0.01	0.01	0.56	
	RMW								
	Coef	1.09	-0.04	-0.28	-0.17		-0.15	-18.56	0.15
	p-value	0.00	0.27	0.00	0.01		0.01	0.07	
	CMA								
	Coef	0.05	-0.22	-0.02	0.21	-0.21		12.90	0.16
	p-value	0.90	0.00	0.82	0.01	0.01		0.28	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.03
	p-value	0.00	0.95	0.36	0.56	0.07	0.28		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	0.79		0.02	0.77	-0.08	-0.72	25.89	0.35
	p-value	0.40		0.92	0.00	0.65	0.00	0.32	
	SMB								
	Coef	1.48	0.00		-0.08	-0.21	-0.01	-14.21	0.09
	p-value	0.00	0.92		0.35	0.01	0.85	0.21	
	HML								
	Coef	0.90	0.23	-0.12		-0.04	0.09	-21.83	0.20
	p-value	0.08	0.00	0.35		0.70	0.30	0.12	
	RMW								
	Coef	1.13	-0.03	-0.36	-0.04		-0.17	-26.31	0.14
	p-value	0.03	0.65	0.01	0.70		0.07	0.07	
	CMA								
	Coef	0.19	-0.30	-0.03	0.13	-0.21		7.96	0.25
	p-value	0.75	0.00	0.85	0.30	0.07		0.63	
	WPRSS								
	Coef	0.02	0.00	0.00	0.00	0.00	0.00		0.07
	p-value	0.00	0.32	0.21	0.12	0.07	0.63		

	MRP								
	Coef	-0.10		-0.35	0.65	-0.24	-0.15	13.73	0.24
	p-value	0.95		0.11	0.00	0.28	0.38	0.81	
	SMB								
	Coef	-0.16	-0.07		0.01	-0.16	0.02	32.38	0.07
	p-value	0.83	0.11		0.95	0.12	0.77	0.21	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-1.72	0.19	0.01		-0.49	0.26	74.61	0.47
	p-value	0.04	0.00	0.95		0.00	0.00	0.01	
	RMW								
	Coef	0.31	-0.05	-0.16	-0.37		-0.02	9.28	0.32
	p-value	0.68	0.28	0.12	0.00		0.80	0.73	
	CMA								
	Coef	0.57	-0.05	0.04	0.31	-0.03		-3.55	0.12
	p-value	0.54	0.38	0.77	0.00	0.80		0.92	
	WPRSS								
	Coef	0.03	0.00	0.00	0.00	0.00	0.00		0.11
	p-value	0.00	0.81	0.21	0.01	0.73	0.92		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 32. Factor spanning test using Carvalho et al. (2021) Fama-French five-factors and the WPRSS of Colombia.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	-1.08		-0.15	0.80	-0.16	-0.53	16.87	0.30
	p-value	0.27		0.35	0.00	0.22	0.00	0.02	
	SMB								
	Coef	0.55	-0.03		-0.01	-0.19	-0.01	3.49	0.06
	p-value	0.21	0.35		0.80	0.00	0.80	0.30	
	HML								
	Coef	0.83	0.26	-0.02		-0.18	0.16	-4.89	0.26
	p-value	0.14	0.00	0.80		0.02	0.01	0.25	
	RMW								
	Coef	0.18	-0.05	-0.28	-0.16		-0.16	3.80	0.14
	p-value	0.73	0.22	0.00	0.02		0.01	0.35	
	CMA								
	Coef	0.71	-0.21	-0.03	0.20	-0.22		-2.82	0.16
	p-value	0.25	0.00	0.80	0.01	0.01		0.56	
	WPRSS								
	Coef	0.12	0.00	0.00	0.00	0.00	0.00		0.04
	p-value	0.00	0.02	0.30	0.25	0.35	0.56		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	-0.40		-0.02	0.78	-0.15	-0.70	9.76	0.35
	p-value	0.82		0.94	0.00	0.41	0.00	0.25	
	SMB								
	Coef	0.94	0.00		-0.06	-0.20	-0.02	1.26	0.08
	p-value	0.21	0.94		0.50	0.01	0.81	0.73	
	HML								
	Coef	1.90	0.23	-0.09		0.02	0.08	-8.22	0.21
	p-value	0.04	0.00	0.50		0.85	0.37	0.07	
	RMW								
	Coef	-0.86	-0.05	-0.34	0.02		-0.17	7.47	0.13
	p-value	0.38	0.41	0.01	0.85		0.06	0.12	
	CMA								
	Coef	0.71	-0.29	-0.04	0.11	-0.22		-1.78	0.25
	p-value	0.52	0.00	0.81	0.37	0.06		0.74	
	WPRSS								
	Coef	0.18	0.00	0.00	0.00	0.00	0.00		0.07
	p-value	0.00	0.25	0.73	0.07	0.12	0.74		

	MRP								
	Coef	-5.62		-0.30	0.66	-0.17	-0.17	78.93	0.26
	p-value	0.14		0.17	0.00	0.42	0.32	0.12	
	SMB								
	Coef	2.59	-0.06		0.03	-0.17	0.03	-25.60	0.06
	p-value	0.15	0.17		0.75	0.09	0.71	0.28	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	1.28	0.21	0.04		-0.52	0.28	-14.11	0.44
	p-value	0.56	0.00	0.75		0.00	0.00	0.63	
	RMW								
	Coef	3.31	-0.04	-0.17	-0.36		-0.01	-37.34	0.33
	p-value	0.06	0.42	0.09	0.00		0.91	0.12	
	CMA								
	Coef	-1.52	-0.06	0.05	0.31	-0.01		26.78	0.13
	p-value	0.51	0.32	0.71	0.00	0.91		0.38	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	0.00		0.09
	p-value	0.00	0.12	0.28	0.63	0.12	0.38		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 33. Factor spanning test using Carvalho et al. (2021) Fama-French five-factors and the WPRSS of Mexico.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	0.98		-0.13	0.80	-0.15	-0.55	-1.16	0.29
	p-value	0.31		0.43	0.00	0.27	0.00	0.93	
	SMB								
	Coef	1.17	-0.02		-0.02	-0.19	-0.01	-3.22	0.06
	p-value	0.01	0.43		0.74	0.00	0.81	0.57	
	HML								
	Coef	0.04	0.25	-0.03		-0.19	0.16	3.33	0.25
	p-value	0.94	0.00	0.74		0.01	0.01	0.64	
	RMW								
	Coef	0.64	-0.04	-0.28	-0.17		-0.16	-0.21	0.14
	p-value	0.22	0.27	0.00	0.01		0.01	0.98	
	CMA								
	Coef	-0.33	-0.22	-0.02	0.20	-0.22		10.70	0.16
	p-value	0.58	0.00	0.81	0.01	0.01		0.18	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	0.00		0.01
	p-value	0.00	0.93	0.57	0.64	0.98	0.18		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	-2.29		0.00	0.80	-0.14	-0.68	58.59	0.39
	p-value	0.16		0.99	0.00	0.43	0.00	0.01	
	SMB								
	Coef	1.22	0.00		-0.06	-0.20	-0.02	-0.75	0.07
	p-value	0.10	0.99		0.45	0.01	0.80	0.94	
	HML								
	Coef	2.04	0.24	-0.10		0.00	0.08	-26.85	0.22
	p-value	0.02	0.00	0.45		0.97	0.33	0.04	
	RMW								
	Coef	-0.02	-0.05	-0.34	0.00		-0.18	8.87	0.11
	p-value	0.99	0.43	0.01	0.97		0.05	0.53	
	CMA								
	Coef	0.22	-0.30	-0.04	0.12	-0.23		2.67	0.25
	p-value	0.84	0.00	0.80	0.33	0.05		0.87	
	WPRSS								
	Coef	0.06	0.00	0.00	0.00	0.00	0.00		0.09
	p-value	0.00	0.01	0.94	0.04	0.53	0.87		

	MRP								
	Coef	0.62		-0.35	0.67	-0.24	-0.15	-5.03	0.24
	p-value	0.68		0.12	0.00	0.28	0.40	0.79	
	SMB								
	Coef	0.57	-0.07		0.03	-0.15	0.02	1.65	0.05
	p-value	0.41	0.12		0.73	0.13	0.80	0.85	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	-1.06	0.20	0.04		-0.49	0.25	17.48	0.45
	p-value	0.20	0.00	0.73		0.00	0.01	0.09	
	RMW								
	Coef	0.75	-0.05	-0.16	-0.36		-0.02	-2.78	0.32
	p-value	0.28	0.28	0.13	0.00		0.82	0.76	
	CMA								
	Coef	-0.25	-0.05	0.03	0.29	-0.03		9.94	0.13
	p-value	0.77	0.40	0.80	0.01	0.82		0.37	
	WPRSS								
	Coef	0.07	0.00	0.00	0.00	0.00	0.00		0.08
	p-value	0.00	0.79	0.85	0.09	0.76	0.37		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

Appendix 34. Factor spanning test using Carvalho et al. (2021) Fama-French five-factors and the WPRSS of Peru.

		Intercept	MRP	SMB	HML	RMW	CMA	WPRSS	R^2
Complete Period (Oct. 2001 – Jun. 2018)	**MRP**								
	Coef	-4.03		-0.14	0.80	-0.13	-0.54	55.38	0.31
	p-value	0.04		0.37	0.00	0.33	0.00	0.01	
	SMB								
	Coef	0.36	-0.03		-0.02	-0.18	-0.02	6.73	0.06
	p-value	0.69	0.37		0.78	0.00	0.76	0.49	
	HML								
	Coef	1.59	0.26	-0.03		-0.19	0.16	-15.06	0.26
	p-value	0.16	0.00	0.78		0.01	0.01	0.23	
	RMW								
	Coef	1.17	-0.04	-0.27	-0.17		-0.16	-6.12	0.14
	p-value	0.28	0.33	0.00	0.01		0.01	0.61	
	CMA								
	Coef	0.11	-0.22	-0.03	0.20	-0.22		3.07	0.15
	p-value	0.93	0.00	0.76	0.01	0.01		0.83	
	WPRSS								
	Coef	0.09	0.00	0.00	0.00	0.00	0.00		0.04
	p-value	0.00	0.01	0.49	0.23	0.61	0.83		
1. Sub-Period (Oct. 2001 – Dec. 2009)	**MRP**								
	Coef	-3.02		-0.01	0.78	-0.12	-0.72	33	0.36
	p-value	0.39		0.98	0.00	0.52	0.00	0.20	
	SMB								
	Coef	1.32	0.00		-0.06	-0.20	-0.02	-1.13	0.07
	p-value	0.40	0.98		0.45	0.01	0.81	0.92	
	HML								
	Coef	3.37	0.23	-0.10		-0.01	0.09	-22.34	0.21
	p-value	0.08	0.00	0.45		0.92	0.28	0.11	
	RMW								
	Coef	0.54	-0.04	-0.34	-0.01		-0.18	-0.03	0.11
	p-value	0.80	0.52	0.01	0.92		0.05	1.00	
	CMA								
	Coef	-1.32	-0.30	-0.04	0.13	-0.22		12.70	0.25
	p-value	0.56	0.00	0.81	0.28	0.05		0.45	
	WPRSS								
	Coef	0.13	0.00	0.00	0.00	0.00	0.00		0.03
	p-value	0.00	0.20	0.92	0.11	1.00	0.45		

	MRP								
	Coef	-7.72		-0.29	0.67	-0.21	-0.16	130.21	0.27
	p-value	0.05		0.17	0.00	0.33	0.36	0.04	
	SMB								
	Coef	2.13	-0.06		0.03	-0.16	0.02	-23.60	0.06
	p-value	0.24	0.17		0.77	0.12	0.76	0.42	
	HML								
2. Sub-Period (Jan. 2010 – Jun. 2018)	Coef	2.37	0.22	0.04		-0.51	0.27	-35.11	0.44
	p-value	0.28	0.00	0.77		0.00	0.00	0.33	
	RMW								
	Coef	1.13	-0.05	-0.16	-0.36		-0.02	-9.58	0.32
	p-value	0.54	0.33	0.12	0.00		0.81	0.75	
	CMA								
	Coef	-0.23	-0.06	0.04	0.31	-0.03		11.54	0.12
	p-value	0.92	0.36	0.76	0.00	0.81		0.76	
	WPRSS								
	Coef	0.06	0.00	0.00	0.00	0.00	0.00		0.06
	p-value	0.00	0.04	0.42	0.33	0.75	0.76		

Note: ‘Coef’ is a shortened version of ‘Coefficient’.

9. References

Abuaf, N. (2015). Valuing emerging market equities - A pragmatic approach based on the empirical evidence. *Journal of Applied Corporate Finance, 27*(1), 19-26. doi:10.1111/jacf.12100

Aharoni, G., Grundy, B., & Zeng, Q. (2013). Stock returns and the miller modigliani valuation formula: Revisiting the fama french analysis. *Journal of Financial Economics, 110*(2), 347-357. doi:10.1016/j.jfineco.2013.08.003

Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets, 5*(1), 31-56. doi:10.1016/S1386-4181(01)00024-6

Baker, H. K. (2011). *Capital budgeting valuation* (First ed.). New York, NY, USA: Wiley.

Baker, S. R., Bloom, N. & Davis, S. J. (2021). Economic policy uncertainty. Retrieved from https://www.policyuncertainty.com

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics, 9*(1), 3-18. doi:10.1016/0304-405x(81)90018-0

Bao, J., Pan, J., & Wang, J. (2011). The illiquidity of corporate bonds. *The Journal of Finance, 66*(3), 911-946. doi:10.2139/ssrn.1106852

Barry, C. B., Goldreyer, E., Lockwood, L., & Rodriguez, M. (2002). Robustness of size and value effects in emerging equity markets, 1985–2000. *Emerging Markets Review, 3*(1), 1-30. doi:10.1016/s1566-0141(01)00028-0

BBC. (2013, March 28,). Clashes as chile students march for education reform. *BBC News* Retrieved from https://www.bbc.com/news/world-latin-america-21971511

BBC. (2019, October 19,). Chile protests: Unrest in santiago over metro fare increase. *BBC News* Retrieved from https://www.bbc.com/news/world-latin-america-50106743

Bekaert, G., Erb, B., Claude, Harvey, R. C., & Viskanta, E., Tadas. (1998). Distributional characteristics of emerging market returns and asset allocation. *Journal of Portfolio Management, 24*(2), 102-116. doi:10.3905/jpm.24.2.102

Bekaert, G., & Harvey, C. R. (1997). Emerging equity market volatility. *Journal of Financial Economics, 43*(1), 29-77. doi:10.1016/S0304-405X(96)00889-6

Bekaert, G., Harvey, C. R., & Lundblad, C. (2007). Liquidity and expected returns: Lessons from emerging markets. *Review of Financial Studies, 20*(6), 1783-1831. doi:10.2139/ssrn.424480

Bekaert, G., Harvey, C. R., Lundblad, C. T., & Siegel, S. (2014). Political risk spreads. *Journal of International Business Studies, 45*(4), 471-493. doi:10.1057/jibs.2014.4

Bekaert, G., Harvey, C. R., Lundblad, C. T., & Siegel, S. (2016). Political risk and international valuation. *Journal of Corporate Finance, 37*, 1-23. doi:10.1016/j.jcorpfin.2015.12.007

Berk, J., & DeMarzo, P. (2017). *Corporate finance* (Fourth ed.), Harlow, Essex: England: Pearson Education.

Brewer, T. L., & Rivoli, P. (1990). Politics and perceived country creditworthiness in international banking. *Journal of Money, Credit and Banking, 22*(3), 357-369. doi:10.2307/1992565

Cakici, N., Fabozzi, F. J., & Tan, S. (2013). Size, value, and momentum in emerging market stock returns. *Emerging Markets Review, 16*, 46-65. doi:10.2139/ssrn.2070832

Cakici, N., Tang, Y., & Yan, A. (2016). Do the size, value, and momentum factors drive stock returns in emerging markets? *Journal of International Money and Finance, 69*, 179-204. doi:10.1016/j.jimonfin.2016.06.001

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance, 52*(1), 57-82. doi:10.1111/j.1540-6261.1997.tb03808.x

Carrasco, R., Enrique, & Williams, S. (2012). Emerging economies after the global financial crisis: The case of brazil. *Northwestern Journal of International Law & Business, 33*(1)

Carvalho, G. A. d., Amaral, H. F., Pinheiro, J. L., & Correia, L. F. (2021). The pricing of anomalies using factor models: A test in latin american markets. *Revista Contabilidade & Finanças, 32*(87), 492-509. doi:10.1590/1808-057x202111640

Chowdhury, A., Uddin, M., & Anderson, K. (2018). Liquidity and macroeconomic management in emerging markets. *Emerging Markets Review, 34*, 1-24. doi:10.1016/j.ememar.2017.10.001

Damodaran, A. (1999). *Estimating equity risk premiums*. Working Paper. New York, NY : New York University.

Damodaran, A. (2003). Country risk and company exposure: theory and practice. *Journal of Applied Finance, 13*, 63-76

Damodaran, A. (2009). *Volatility rules: Valuing emerging market companies* Working Paper. New York, NY : New York University.

Dominguez, C., & Silva Fernandez, D. (2019, Oct 19,). Chile's president declares state of emergency after riots over metro fare hike. *CNN* Retrieved from https://edition.cnn.com/2019/10/19/americas/chile-protests-intl/index.html

Elliott, L. (2021, Nov 20,). Chile on edge as voters lean to extremes ahead of election. *Financial Times* Retrieved from https://www.ft.com/content/a361ca42-235c-4837-8fff-95e6fd70d0d5

Erb, C. B., Harvey, C. R., & Viskanta, T. E. (1996). Expected returns and volatility in 135 countries. *Journal of Portfolio Management, 22*(3), 46-58. doi:10.3905/jpm.1996.409554

Estrada, J. (2007). Discount rates in emerging markets: Four models and an application. *Journal of Applied Corporate Finance, 19*(2), 72-77. doi:10.1111/j.1745-6622.2007.00137.x

Fama, E. F., & French, K. R. (2004). The capital asset pricing model: Theory and evidence. *The Journal of Economic Perspectives, 18*(3), 25-46. doi:10.2139/ssrn.440920

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3-56. doi:10.1016/0304-405x(93)90023-5

Fama, E. F., & French, K. R. (1998). Value versus growth: The international evidence. *The Journal of Finance, 53*(6), 1975-1999. doi:10.1111/0022-1082.00080

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics, 116*(1), 1-22. doi:10.1016/j.jfineco.2014.10.010

Fama, E. F., & French, K. R. (2017). International tests of a five-factor asset pricing model. *Journal of Financial Economics, 123*(3), 441-463. doi:10.1016/j.jfineco.2016.11.004

Foye, J. (2018). A comprehensive test of the fama-french five-factor model in emerging markets. *Emerging Markets Review, 37*, 199-222. doi:10.1016/j.ememar.2018.09.002

Gibbons, M. R., Ross, S. A., & Shanken, J. (1989). A test of the efficiency of a given portfolio. *Econometrica, 57*(5), 1121-1152. doi:10.2307/1913625

Godfrey, S., & Espinosa, R. (1996). A practical approach to calculating costs of equity for investments in emerging markets. *Journal of Applied Corporate Finance, 9*(3), 80-90. doi:10.1111/j.1745-6622.1996.tb00300.x

González-Sánchez, M. (2021). Asset pricing models in emerging markets: Factorial approaches vs. information stochastic discount factor. In Press, Corrected Proof .*Finance Research Letters,* doi:10.1016/j.frl.2021.102394

Grandes, M., Panigo, D. T., & Pasquini, R. A. (2010). On the estimation of the cost of equity in latin america. *Emerging Markets Review, 11*(4), 373-389. doi:10.1016/j.ememar.2010.08.001

Griffin, J. M. (2002). Are the fama and french factors global or country-specific? *The Review of Financial Studies, 15*(3), 783-803. doi:10.2139/ssrn.262647

Hanauer, M. X., & Lauterbach, J. G. (2019). The cross-section of emerging market stock returns. *Emerging Markets Review, 38*, 265-286. doi:10.1016/j.ememar.2018.11.009

Hanauer, M. X., & Linhart, M. (2015). Size, value, and momentum in emerging market stock returns: Integrated or segmented pricing? *Asia-Pacific Journal of Financial Studies, 44*(2), 175-214. doi:10.1111/ajfs.12086

Harvey, C. R. (1995). Predictable risk and returns in emerging markets. *The Review of Financial Studies, 8*(3), 773-816. doi:10.3386/w4621

Holz, E. (2000). The "samba" effect in MERCOSUR. *Law and Business Review of the Americas, 6*, 515.

Howell, L. D. (2011). *International country risk guide methodology.* East Syracuse, NY, USA: PRS Group.

Hund, J., & Lesmond, D. A. (2008). *Liquidity and credit risk in emerging debt markets.* 14th Annual Conference on Financial Economics and Accounting. Working Paper, SSRN. doi:10.2139/ssrn.1107586

International Monetary Fund. (2021). Mexico at a glance. Retrieved from https://www.imf.org/en/Countries/MEX

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance, 48*(1), 65-91. doi:10.1111/j.1540-6261.1993.tb04702.x

Kruschwitz, L., Löffler, A., & Mandl, G. (2012). Damodaran's country risk premium: A serious critique. *Business Valuation Review, 31*(2-3), 75-84. doi:10.5791/11-00017.1

Leite, A. L., Klotzle, M. C., Pinto, A. C. F., & da Silva, A. F. (2018). Size, value, profitability, and investment: Evidence from emerging markets. *Emerging Markets Review, 36*, 45-59. doi:10.1016/j.ememar.2018.04.006

Lessard, R., Donald. (1996). Incorporating country risk in the valuation of offshore projects. *Journal of Applied Corporate Finance,* (9), 52-63. doi:10.1111/j.1745-6622.1996.tb00298.x

Li, H., Novy-Marx, R., & Velikov, M. (2019). Liquidity risk and asset pricing. *Critical Finance Review, 8*(1-2), 223-255. doi:10.1561/104.00000076

Lin, Q. (2017). Noisy prices and the Fama–French five-factor asset pricing model in china. *Emerging Markets Review, 31*, 141-163. doi:10.1016/j.ememar.2017.04.002

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *The Review of Economics and Statistics, 47*(1), 13-37. doi:10.2307/1924119

Long, G. (2011, August 11,). Chile student protests point to deep discontent. *BBC News* Retrieved from https://www.bbc.com/news/world-latin-america-14487555

Lust, J. (2014). Social struggle and the political economy of natural resource extraction in peru. *Critical Sociology, 42*(2), 1-16. doi:10.1177/0896920513501354

Malinowski, M. (2021, Oct 19,). Street protests flare on anniversary of social unrest in chile. *Bloomberg* Retrieved from https://www.bloomberg.com/news/articles/2021-10-19/street-protests-flare-in-anniversary-of-chile-s-social-uprising

Maquieira, C. P., Preve, L. A., & Sarria-Allende, V. (2012). Theory and practice of corporate finance: Evidence and distinctive features in latin america. *Emerging Markets Review, 13*(2), 118-148. doi:10.1016/j.ememar.2011.11.001

Mariscal, J., O., & Dutra, E. (1996). *The valuation of latin american stocks: Part III.* New York, NY, USA: Goldman Sachs

Mariscal, J., O., & Hargis, K. (1999). *A long-term perspective on short-term risk long-term discount rates for emerging markets.* Global Emerging Markets Report. New York, NY, USA: Goldman Sachs

Mariscal, J., O., & Lee, R., M. (1993). The valuation of mexican stocks: An extension of the capital asset pricing model to emerging markets. New York, NY, USA: Goldman Sachs

Mosoeu, S., & Kodongo, O. (2020). The fama-french five-factor model and emerging market equity returns. In Press, Corrected Proof. *The Quarterly Review of Economics and Finance,* doi:10.1016/j.qref.2020.10.023

Mossin, J. (1966). Equilibrium in a capital asset market. *Econometrica, 34*(4), 768-783. doi:10.2307/1910098

Nagy, J., Pancras. (1978). Quantifying country risk: A system developed by economists at the bank of montreal. *Columbia Journal of World Business, 13*, 135-146.

Newman, L. (2019, Dec 6,). Chile protesters: 'The powerful threw the first stone'. *Al Jazeera* Retrieved from https://www.aljazeera.com/features/2019/12/6/chile-protesters-the-rich-and-powerful-threw-the-first-stone

Novy-Marx, R. (2013). The other side of value: The gross profitability premium. *Journal of Financial Economics, 108*(1), 1-28. doi:10.1016/j.jfineco.2013.01.003

Pagliardi, G., Poncet, P., & Zenios, S. A. (2019). *A political capital asset pricing model* Philadelphia, PA, USA: The Wharton Financial Institutions Center. The Wharton School, University of Pennsylvania. doi:10.2139/ssrn.3351403

Pereiro, L. E. (2006). The practice of investment valuation in emerging markets: Evidence from argentina. *Journal of Multinational Financial Management, 16*(2), 160-183. doi:10.1016/j.mulfin.2005.06.001

PRS Group. (2021). Research findings. Retrieved from https://www.prsgroup.com/whats-new/research/

Roggi, O., Giannozzi, A., & Baglioni, T. (2017). Valuing emerging markets companies: New approaches to determine the effective exposure to country risk. *Research in International Business and Finance, 39*, 553-567. doi:10.1016/j.ribaf.2016.07.028

Rosenberg, B., Reid, K., & Lanstein, R. (1985). Persuasive evidence of market inefficiency. *Journal of Portfolio Management, 11*, 9-17. doi:10.3905/jpm.1985.409007

Rouwenhorst, K. G. (1998). Local return factors and turnover in emerging stock markets. *The Journal of Finance, 54*(4), 1439-1464. doi:10.2139/ssrn.115788

Roy, J., & Cosset, J. (1991). The determinants of country risk ratings. *Journal of International Business Studies, 22*(1), 135-142. doi:10.1057/palgrave.jibs.8490296

Sargen, N. (1977). Economic indicators and country risk appraisal. *Economic Review*, (Fall), 19-35.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance, 19*(3), 425-442. doi:10.2307/2977928

Stattman, D. (1980). Book values and stock returns. *The Chicago MBA: A Journal of Selected Papers, 4*, 25-45.

Stott, M. (2021, November 30,). Three shocks unsettle business confidence across latin america. *Financial Times* Retrieved from https://www.ft.com/content/292eef73-e585-4b8d-a4ff-e17360de93ea

Sun, X., Feng, Q., & Li, J. (2021). Understanding country risk assessment: A historical review. *Applied Economics, 53*(37), 4329-4341. doi:10.1080/00036846.2021.1899120

The World Bank. (2020). Global economic monitor (GEM) - J.P. Morgan Emerging Market Bond Spread (EMBI+). Retrieved from https://databank.worldbank.org/id/d79f5818?Report_Name=EMBI-TS

The World Bank. (2021). GDP growth (annual %) - Brazil, Chile, Colombia, Mexico, Peru. Retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=BR-CL-CO-MX-PE

Tirole, J. (2011). Illiquidity and all its friends. *Journal of Economic Literature, 49*(2), 287-325. doi:10.1257/jel.49.2.287

Titman, S., Wei, K. C. J., & Xie, F. (2004). Capital investments and stock returns. *The Journal of Financial and Quantitative Analysis, 39*(4), 677-700. doi:10.1017/S0022109000003173

WFE, & WorldAtlas. (2021). Largest stock exchange operators worldwide as of september 2021, by market capitalization of listed companies. Retrieved from focus.world-exchanges.org

Zaremba, A., & Czapkiewicz, A. (2017). Digesting anomalies in emerging european markets: A comparison of factor pricing models. *Emerging Markets Review, 31*, 1-15. doi:10.1016/j.ememar.2016.12.002

Zenner, M., & Akaydin, E. (2002). A practical approach to the international valuation and capital allocation puzzle. *Global Corporate Finance Papers. Salomon Smith Barney, 26*