Empirical Evidence of the Existence of Investable Premiums in Emerging Market Investable Stocks

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This paper shows that portfolios of more investable securities bear a premium when compared to portfolios of less investable stocks, reflecting compensation for local risk factors. The investable premium is overwhelmingly priced across 3,782 companies traded in 29 emerging markets from 1988-2006. The investable premium impacts stock returns at least as much as other fundamental premiums such as size, value, momentum, and loads on political, economic, and financial risk factors. The impact of the investable premium on emerging stocks returns has increased in strength, implying that foreign ownership has greater influence on local markets in recent years.

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1. Introduction

This paper examines the relation between investability and stock returns in emerging capital markets by answering the following two questions: (i) Is there an investable premium in emerging markets? (ii) If so, how does the investable premium relate to the economic, financial, and political landscapes of emerging markets?

Studies abound on the return-generating process of stocks traded in emerging equity markets, and there is a dichotomy in the findings as to whether the factors driving the return-generating process in emerging and developed economies are similar. For instance, Fama and French (1998); Patel (1998); Rouwenhorst (1999); and Barry, Golgreyer, Lockwood, and Rodriguez (2002) argue that risk premiums in emerging markets exhibit the same characteristics as those in developed markets — they display significant momentum, small stocks outperform large stocks, and value stocks outperform growth stocks. On the other hand, Claessens, Dasgupta, and Glen (1998) and Girard and Omran (2007) describe mixed results for the relation between fundamental attributes and returns in emerging markets. In some instances they find a positive relation between size and returns and a positive relation between price-to-book value and returns. Both results are contrary to the conventional belief that small and value firms are riskier, but the researchers make cogent arguments to explain their findings.[1]

The anomalous findings clearly indicate the presence of return-generating dynamics in the emerging markets above and beyond those found in the developed markets. Perhaps one factor contributing to the specific dynamics of emerging markets is investment restrictions on fo-

[1] These explanations include a liquidity premium for value stocks in emerging markets (Daniel and Titman, 1997), a market growth resulting from an increase in the number of firms rather than an increase in value (Harvey and Roper, 1999), a low leverage of small firms due to capital market imperfections in emerging markets (Bolbol and Omran, 2005; Girard and Omran, 2007), and a market segmentation of nascent markets because of market microstructure and regulatory and tax regimes (Classens, Dasgupta, and Glen, 1998).

reigners. In many emerging markets, stocks listed on the market are not equally accessible to foreign and local investors. As of December 2006, the Emerging Markets Database (EMDB) lists 29 emerging markets where stocks are listed as partially or fully restricted for trading by foreign investors. Several papers find that an increase in openness (e.g., making a larger share of the market open to foreign investment) is usually associated with a small or large decrease in the cost of capital (Bekaert and Harvey, 2000; Henry, 2000a and 2000b; Edison and Warnock, 2003; and Karolyi and Stulz, 2003). Bae, Chan, and Ng (2004) find that highly investable stocks exhibit higher return volatility than non-investable stocks, even after controlling for country, industry, firm size, and turnover. Theoretically, this should imply that a portfolio of "more investable" securities bears a premium when compared to a portfolio of "less investable" stocks, thereby reflecting compensation for segmentation, capital control, as well as economic, financial, and political risk differentials.

No previous paper specifically examines the relation between investability and stock returns. This paper attempts to fill the gap in the literature by investigating the connection between investability and the returns dynamic of 3,782 stocks traded in 29 emerging markets from December 1988 to December 2006.

I find that stocks traded in emerging markets exhibit momentum, growth stocks outperform value stocks, large companies outperform small companies, and more investable securities bear a premium when compared to less investable stocks. The investable premium is significantly priced, increases in importance over time, and impacts stock returns at least as much as other factors such as size, value, and momentum premiums. Finally, I show that the investable premium reflects compensation for local economic, financial, and political risk factors.

2. Data and sample selection

As of December 2006, the SP/IFC Emerging Markets Database (EMDB) reports 29 stock markets with foreign investment restrictions.[2] The IFC provides monthly stock prices dating as far back as 1975 and stock fundamentals from the 1980s onward.

The EMDB does not constitute a random sample of emerging market stocks. As Rouwenhorst (1999) argues, the database is biased toward larger and more liquid firms (selection bias). In addition, data available prior to 1982 are collected based on the composition of the global indices before 1982, which introduces survivorship bias. While selection bias is inevitable because the EMDB is the most comprehensive provider of emerging market stock data, survivorship bias can be carefully diminished by selecting an appropriate period.

As of December 2006, 4,004 stocks are available in the EMDB, with as many as 475 firms in China and as few as 23 firms in Slovakia. Stock data date back between late 1975 (Argentina, Brazil, Chile, India, Korea, Mexico, Thailand, and Zimbabwe) and late 1996 (Israel). The EMDB also provides investable indices based on investability weight (percentage of foreign ownership authorized) for each stock.[3] The investable index (IFCI) started as early as 1988 (Argentina, Brazil, Chile, Jordan, Malaysia, Mexico, the Philippines, and Thailand) and as late as 1997 (Egypt, Morocco, Russia, and Slovakia). Another observation is the number of delistings that occur prior to the creation of investable indices: coverage is stopped at a rate of one stock every four years prior to the apparition of the investable index and one stock every two months thereafter. This observation suggests that survivorship bias is likely much stronger prior to the

[2] Excluding Greece and Portugal, which are classified as "developed" markets in 2001.

[3] The EMDB provides the following two types of value-weighted indices per country: a global (IFCG) index and an investable (IFCI) index. The global index is intended to represent a target of 60% to 75% of a country's total market capitalization and an industrial composition similar to that of the overall market. The investable index is a subset of the global index and represents the portion of the market available to foreigners. The investable index only includes firms with at least $50 million in investable market capitalization and a minimum of $20 million in annual trading.

first date of the creation of "investable" indices. Therefore, I only includes firms after their respective country investable indices are available.[4]

Monthly return, size, and price-to-book ratios are downloaded for each firm that is traded in the 29 emerging markets from at least 1988:12 until 2006:12. The U.S. dollar is the standard to make the average returns comparable across countries.[5] Stocks are included in the sample as they become available, and "dead stocks" are included for the period they are traded. Not all firms are retained in the final sample. The criterion for retention is that stock return series must have at least two years of data. In the case of data imperfections such as missing values, recording errors, and stocks with negative book equity, the firm is dropped for the particular month of data imperfection but is retained as part of the sample.[6]

At the beginning of each month, stocks with available ranking information are sorted into three portfolios (top 30%, middle 40%, bottom 30%) based on the investable weight provided by the EMDB.[7] The top 30% makes up the "more investable" category, and the "less investable" group consists of the bottom 30%. Table 1 provides descriptive statistics per country and investability group from 1988:12 to 2006:12, such as the number of stocks that retained investability weight, as well as return, standard deviation, beta, size, and price-to-book statistics.

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[4] In some cases, earlier return series are used to obtain a preliminary estimate of momentum and the beta version is used to rank stocks in the first month that a country enters the sample.

[5] All return series are converted to U.S. dollars using the exchange rates provided by the EMDB.

[6] Data errors (zero entries for missing observations and unrealistic return figures) can significantly bias return estimates. As in Bae, Chan, and Ng (2004), I detect "questionable return values" as follows: Absolute returns in the top 0.1% tail of the distributions of all firm-month return observations in a country are identified and cross-checked using Datastream. If the return outliers deviate from the figures from Datastream by more than 5% or if data are not available from Datastream, they are discarded.

[7] As advanced by Edison and Warnock (2002) and Bae, Chan, and Ng (2004), the annually rebalanced investable weight recorded by the EMDB might sometimes fail to reflect the actual degree of investability. However Bae, Chan, and Ng (2004) argue that their results are not sensitive to adjustments to the data based on additional information on capital controls. Therefore, they only report their results based on unadjusted data. In the same vein, I use unadjusted EMDB investable weight as a measure of investability (i.e., an investable stock has a non-zero investable weight).

Insert Table 1 about here

The final sample consists of 3,782 firms with 1,804 more investable and 2,204 less investable stocks traded in 29 emerging markets.[8] Rather than use the value-weighted indices (IFCG indices) provided by the EMDB, I build an equally weighted index for each country by averaging the returns for the stocks available each month. The database is already biased towards large and liquid firms, and in general, value-weighted indices of emerging markets are more likely dominated by a few very large stocks. Thus, the use of an equally weighted index can minimize the size bias.

Table 1 shows the arithmetic return and standard deviations for the equally weighted more investable and less investable indices. Two empirical findings emerge. First, the average return of more investable stocks is greater than the average return of less investable stocks in 20 of the 29 markets and overall (1.45% per month for more investable stocks and 1.13% per month for less investable stocks). Second, the volatility of more investable stocks is greater than the volatility of less investable stocks in 20 of the 29 markets and overall (27.07% per month for more investable stocks and 25.55% per month for less investable stocks).

There are two practical implications for the observations. First, the observed difference between more and less investable stock returns could be correlated with other fundamental factors. As Bae, Chan, and Ng (2004) suggest, firm characteristics other than investability can affect stock returns. That is, systematic risk, size, value, and momentum could possibly explain the observed higher volatility of more investable stocks when compared to less investable stocks. Second, if a portfolio of more investable securities bears a premium when compared to a portfolio of less investable stocks, the premium might reflect compensation not only for segmentation

[8] These numbers do not total 3,782 (total stocks retained) since many stocks have different investable weights throughout the period.

and capital control but also for political, economic, and financial risks to which foreign investors are more sensitive than local investors.

3. Evidence of an investable premium

3.1 Stock characteristics and fundamental factors

Stock investability, as measured by its "investable weight," can change over time. For example, a stock might have an investable weight of 10% in 1990 and 90% in 2006. As shown in Table 1, the average investable weight in emerging markets is 42% but investability varies widely across countries. For instance, foreign investors can own, on average, 74% of the firms traded in South Africa and 12% of the stocks traded in Zimbabwe. Table 1 further shows that more investable stocks (overall beta of 1.02) have more systematic risk than less investable stocks (overall beta of 0.97). In addition, more investable stocks are much larger than less investable stocks (i.e., more investable stocks average $1.03 billion, and less investable stocks average $0.87 billion). Price-to-book ratios are smaller for more investable firms (average of 3.91) when compared to the less investable firms (average of 6.20).

For all stocks traded in each market for each month from 1988:12 to 2006:12, I compute a beta premium (HML-β), size premium (SMB), value premium (HML-BP), and momentum premium (MOM). I proceed by carefully following the methodology described in Rouwenhorst (1999). That is, at the beginning of each month, stocks with available ranking information are sorted into three portfolios (top 30%, middle 40%, bottom 30%) based on beta,[9] the natural logarithm of market value measured in U.S. dollars, or the book-to-price ratio. For each sorting and within each group, the returns of the stocks are then averaged. The difference between the top

[9] As in Rouwenhorst (1999), local betas are computed by regressing each stock dollar's returns on a country index to which the firm belongs. The equally weighted country index is comprised of dollar-denominated stock returns averaged each month. One lag of the equally weighted country index is included to allow for a delayed response due to non-synchronous trading. Betas are computed with a minimum of two years and a maximum of five years of historical monthly returns in a rolling monthly estimation window of five years.

and bottom beta-sorted portfolios provides a "beta premium" (HML-β), the difference between the bottom and top size-sorted portfolios provides a size premium (SMB), and the difference between the top and the bottom book-to-price portfolios provides a value premium (HML-BP). Finally, momentum portfolios are formed by sorting all stocks with available information at the beginning of each month on prior six-month returns ("month -7" to "month -2"). Stocks are ranked into three portfolios (high 30%, middle 40%, bottom 30%) and returns are averaged within each group. The difference between the top tier (winners) and the bottom tier (losers) provides a monthly momentum premium (MOM).[10]

The sign and significance of the four factors (HML-β, HML-BP, SMB, and MOM) are examined in Table 2, Panel A. As in Pettengill, Sundaram, and Mathur (1995) and Fletcher (1997, 2000), I further differentiate between upstates and downstates in Table 2, Panel B. That is, if the equally weighted country risk premium is positive (negative), then the state is "up" ("down").[11] Overall significance is determined by computing a *t*-statistic by dividing the mean of Newey-West heteroskedasticity and autocorrelation corrected standard errors.

Insert Table 2 about here

There is an overall positive and significant relation between beta and stock risk premiums. The state-dependent sorted HML-β is negative in downstate and positive in upstate. Thus, high beta stocks have higher expected returns (positive) than low beta stocks. The value premium (HML-BP) is significantly negative suggesting that growth stocks are riskier than value

[10] For some months and countries, the tier sorting yields a portfolio with less than five stocks. In such cases, the months in question are discarded.

[11] Pettengill, Sundaram, and Mathur (1995) state that "the existence of a large number of negative market excess return periods suggests that previous studies that test for unconditional positive correlation between beta and realized returns are biased against finding a positive relationship." The idea of the state-dependent approach is to account for the negative portion of the realized market risk premium distribution.

stocks. Results with state dependent sorting of HML-BP show that the premium is negative in upstates and downstates, indicating that growth stocks outperform value stocks.[12] There is an overall significantly negative size premium (SMB), implying that large firms are riskier than small firms. In upstates and downstates, the overall sample mean is significantly negative, which indicates that large firms outperform small firms in my sample period.[13] Finally, the overall momentum factor is positive and significant, indicating that the past winners tend to outperform past losers. The state-dependent sorting does not change this conclusion.

In sum, as shown in Table 1, more investable firms have more systematic risk and consist of larger value stocks, while less investable firms have less systematic risk and consist of smaller growth stocks. Findings related to fundamental factors (Table 2) show that "high beta," "past winners," "large," and "growth" stocks outperform "low beta," "past loser," "small," and "value" stocks. Thus, it is unclear whether the difference in returns between more investable and less investable stocks can be correlated with the fundamental characteristics of the stocks making each category.

3.2 The investable premium

To separate the effect of investability from other fundamental factors, returns are orthogonalized with a four-factor model (market premium, SMB, HML-BP, and momentum factors). For each month and each country, I compute an investable premium (IP) using all stocks traded in each market from 1988:06 to 2006:12. At the beginning of each month, stocks with available ranking information are sorted into three portfolios (top 30%, middle 40%, bottom 30%) based

[12] As suggested in Harvey and Roper (1999), a "market growth premium" could result from an increase in the number of firms rather than an increase in value. Also, Claessens, Dasgupta, and Glen (1998) suggest that micro-structural issues, as well as regulatory and tax regimes could cause growth stocks to outperform value stocks.

[13] The "large firm premium" is reported by Classens, Dasgupta, and Glen (1998) and Girard and Omran (2007).

on investable weight provided by the EMDB.[14] For each sorting and within each group, the orthogonalized returns are averaged. The difference between the top and bottom investable-sorted portfolios provides an "investable premium" (IP). [15]

Table 2 conveys information related to the investable premium. In Panel A, the overall IP factor (0.48% per month) is positive and significant, indicating that more investable stocks return more than less investable stocks. Results are not entirely consistent across countries: eighteen IP factors are positive, with 7 statistically significant. In Panel B, results related to the state-dependent sorted IP provide a much clearer picture regarding the importance of this factor. Indeed, the overall downstate IP is significantly negative (-1.02% per month) and the overall upstate IP is significantly positive (1.33% per month). Twenty-six out of 29 investable premiums are negative in downstate (they are significantly negative in 19 markets) and 27 out of 29 investable premiums are positive in upstate (they are significantly positive in 24 markets).

Thus, more investable stocks are expected to return a premium when compared to less investable stocks, and this premium compensates for the excess volatility of more investable stocks when compared to less investable stocks. In addition, the investable premium seems pervasive since it is priced in most emerging markets with foreign ownership restrictions.

4. Relative importance of the investable premium in investable stock returns

I investigate the standardized impact of one standard deviation in market, size, value, momentum, and investable premium factors on the return premiums for all stocks (Table 3 Panel A), stocks sorted by investability tiers (Panel B), and stocks sorted by country (Panel C). I ex-

[14] For any month and country, if stocks cannot be sorted in tiers (e.g., stocks have the same investability weight and cannot be placed in a tier) or if the tier sorting yields a portfolio with less than five stocks, the observation is discarded.

[15] I check the pairwise correlations between the IP and the four other factors (Rm, SMB, HML-BP, and MOM). Results indicate that the pairwise correlations are low and not significant (while not reported in detail, the table is available).

amine four WLS regression models with the following independent variables: (1) IP; (2) Rm and IP; (3) Rm, HML, SMB, and IP; and (4) Rm, HML, SMB, MOM, and IP.

$$w\mathrm{Ret}_t = w\beta_0 + w\beta_5 IP_t + \varepsilon_t \quad (1)$$

$$w\mathrm{Ret}_t = w\beta_0 + w\beta_1 Rm_t + w\beta_5 IP_t + \varepsilon_t \quad (2)$$

$$w\mathrm{Ret}_t = w\beta_0 + w\beta_1 Rm_t + w\beta_2 HML_t + w\beta_3 SMB_t + w\beta_5 IP_t + \varepsilon_t \quad (3)$$

$$w\mathrm{Ret}_t = w\beta_0 + w\beta_1 Rm_t + w\beta_2 HML_t + w\beta_3 SMB_t + w\beta_4 MOM_t + w\beta_5 IP_t + \varepsilon_t \quad (4)$$

where Ret_t is the monthly risk premium for a firm and R_{mt} is the monthly local market risk premium.[16] The other variables have been previously defined.

In Table 3, I show the results of the estimation of equations (1) through (4). In this attribution analysis, the signs associated with each factor are only indicative of the type of stocks comprising each portfolio. I only report the standardized coefficients to provide information on the relative importance of each factor. That is, an increase in one standard difference on one of the factors affects the "beta" standard difference in Ret, holding constant the other predictors in the model.

Insert Table 3 about here

As shown in the Panel A of Table 3, the market risk (Rm), size (SMB), momentum (MOM), and investability (IP) factors are priced at the 99% confidence interval with the expected positive loadings.[17] That is, from 1988 to 2006, emerging capital markets are comprised of small stocks with positive momentum. Standardized coefficients show that the local market risk premium is the most important factor affecting stock returns. For example, a one standard

[16] The return series for each stock and the IFCG country index returns (which includes both investable and non-investable stocks) are transformed into risk premium series by subtracting the U.S. monthly T-bill rate.

[17] The HML factor is insignificant as reported in several papers on emerging markets stock returns. For instance, Wang and Xu (2004) find the book-to-market variable useless in explaining Chinese equity returns.

difference on Rm leads to a 0.605 standard difference on Ret. The next most important factors, in sequential order, are IP, SMB, MOM, and HML.

Panel B of Table 3 provides additional information on the relation between foreign investment restrictions and the impact of the investable premium on the pricing of stocks traded in emerging markets. To be consistent with the previous categorization of investability, regressions one to four are tested on three portfolios sorted by investability tiers (bottom 30% = "less investable", middle 40%, and top 30% = "more investable"). As in Panel A of Table 3, Rm is found to be the largest driver of stock returns accounting for most of the variations in Ret. The negative (positive) coefficient associated with IP is significant and only indicates that the lower (higher) tiers are comprised of less (more) investable stocks. More importantly, the influence of IP on Ret increases with the decrease in foreign ownership restrictions. If a one standard difference on IP leads to less than a 0.06 standard difference on Ret for stocks included in the middle investability tier, a standard difference on IP can lead to approximately a 0.2 standard difference on Ret within the highest investability tier.

The findings summarized in Panels A and B of Table 3 are confirmed in Panel C, where regressions (1) through (4) are evaluated for each of the 29 markets. The market premium is significant in all markets; and IP, size, and MOM have significant impacts on stock risk premiums in most markets. Size, IP, and MOM are significant in 25, 23, and 20 markets, respectively. HML is only significant in 13 out of the 29 countries, further suggesting that price-to-book value is not as important in pricing emerging markets securities as in developed markets. A one standard difference on IP leads to a greater standard difference on Ret than a one standard difference on SMB in 17 out of the 29 countries, indicating that the investability premium is at least as important as the size factor in determining stock returns.

If IP is priced and varies over time, it is important to observe the behavior of this risk factor during different periods. Table 4 shows the results of the estimation of equations (1) through (4) for two periods (excluding the Asian Financial Crisis period): 1988:12-1995:12 and 2000:01-2006:12. Results indicate that the impact of IP always increases from the first period to the more recent period, indicating that foreign ownership has had greater influence on local markets in recent years.

5. Economic, financial and political determinants of investable premiums

In this section, I investigate whether the investable premium loads on factors are related to segmentation, capital control, or more generally to a country's political, economic, and financial risks.

Erb, Harvey, and Viskanta (1995, 1996a, 1996b, 1998) conclude after an extensive survey that the country risk factors and scoring system used by the International Country Risk Guide (ICRG) managed by the PRS group best explain index returns.[18] Accordingly, I use the ICRG risk factors and scores for this analysis. ICRG assesses country risk based on three dimensions – political, economic, and financial. Each dimension is measured using several factors. The political risk dimension is measured using 12 factors, and the economic and financial risk dimensions are measured using five factors each. The ICRG scale for each factor is calibrated in such a way that a high score indicates low risk and a low score indicates high risk. Finally, the ICRG system brings the political, economic, and financial risk scores of a country together to compute a composite risk score for the country. The composite risk score is based on equally weighting

[18] Erb, Harvey, and Viskanta (1995, 1996a, 1996b, 1998) examine many providers of country risk data, such as Bank of America World Information Services, Business Environment Risk Intelligence, Control Risks Information Services, the Economist Intelligence Unit, Euromoney, Institutional Investor, S&P Rating Group, the ICRG, Coplin-O'Leary Rating System, and Moody Investors Services, and concluded that only the ICRG composite, political, financial, and economic risk scores contain information that explain index returns.

the political, economic, and financial risk scores. Girard and Omran (2007) suggest that (i) the risk score includes information that cannot be aggregated in a composite measure, and (ii) some risk factors have a greater bearing on business or investments than others. Thus, the factors should be differentially weighted to allow greater weight for the factors that have a greater bearing on business. Since this is not the case with the ICRG composite risk rating, I use the 22 primary ICRG risk factors (12 political and five each of economic and financial) in preference to the ICRG composite measures.

I investigate whether the investable premium loads into the country risk factors by examining the following WLS regression:

$$wIP_t = w\alpha + w\sum_{i=1}^{k} \lambda_i \tilde{Z}_{i,t} + \varepsilon_t \,, \tag{5}$$

where IP is a vector of monthly investable premiums, $\tilde{Z}_i$ is a vector of common risk score factors for each return; and λ_i is a vector of risk premiums associated with the risk factors.

Most likely, some risk variables are highly correlated with each other, making their simultaneous use redundant. To eliminate this problem of endogeneity, I use a Principal Component Analysis (PCA) to create a grouping or factor that captures the essence of these variables.

Table 5 presents the results from the factor analysis. The Kaiser-Meyer-Olkin test (KMO) value for the sample is very high (0.778), and Barlett test of sphericity is significant at the 1% level, indicating that the factor analysis is an appropriate technique for my data. The number of common factors is found using a VARIMAX rotation. I find six newly extracted factors that are numbered from one to six. The eigenvalues represent the proportion of total variance in all the variables that are accounted for by that factor. To decide the number of factors to retain, I use the Kaiser criterion which consists of dropping the eigenvalues less than one. Unless a factor extracts at least as much as the equivalent of one original variable, I drop it. The "% of variance"

represents values expressed as a percentage of the total. For instance, factor one accounts for 17.52% of the variance, factor two for 15.37%, and so on. The "Cumulated %" contains the extracted cumulative variance and shows that the six dominant factors whose eigenvalues are more than one sum up to 67.65% of the total variance. These factors can be considered as the six major risk factors that characterize the 29 emerging market countries.

Insert Table 5 about here

I also show the loading of each risk score variable within each factor. Interpretation and naming of the factors are not straightforward as they depend on the particular combination of observed variables that correlate highly with each factor. To minimize the subjective nature of the PCA, I only consider individual risk score loadings with "good" correlations. Comrey and Lee (1992) define a "good" correlation as a loading greater than 0.5 (or smaller than -0.5) — that is, a 25% overlapping variance.

Each factor's composite score is determined by taking into account the risk scores that load highly on it. Accordingly, each factor's score is computed using a summated scale methodology where selected loading within each factor is added to determine a factor score. Since risk scores are not on a standardized scale, I have to ensure that each risk score selected for the composition of a risk factor is standardized so that equal importance is given to all risk scores in the summation process. The factor is finally computed using the logarithm of the sum.

Table 5 shows that the factors form coherent groups of associated variables that describe risk in the 29 emerging markets. The factor loadings are positive and interpreted according to rules of the normal ICRG scale where a high value indicates a low risk and a low value indicates a high risk. Each of the six constructs is briefly reviewed below.

The first factor (17.52% of the variance) consists of a mix of political (government stability and investment profile), financial (exchange rate stability), and economic (budget balance, current account to GDP, growth in real GDP, and inflation) risk ratings. The second factor (15.37% of the variance) is composed of four political and one economic ratings: bureaucracy quality, corruption, democratic accountability, military involvement in politics, and GDP per capita. The third factor (12.19% of the variance) takes into account issues of debt servicing, trade, and the longevity of the laws passed or initiated. The fourth factor (9.45% of the variance) consists of ethnic and religious tensions. The fifth factor (6.63% of the variance) takes into account external and internal conflicts. The sixth factor grouping (6.49% of the variance) consists of three variables related to social and economic tensions, as well as foreign debt dependency.

I use equation (5) to identify the significant factors that explain investable premiums and compare the results of three models at an aggregate level and on a country basis: model (1) uses the ICRG composite risk rating, model (2) uses the ICRG composite political, economic, and political risk ratings, and model (3) uses the six factors constructed with the PCA.

One can argue either way on the sign of the relation between investable premiums and country risk ratings. Intuitively, foreign investors would require a higher risk premium for investing in the capital market of a country with low economic, financial, and political risk ratings. However, the developing countries with higher financial, economic, and political risk ratings could experience the largest percentage price increase for their stocks since they have made greater progress than less developed countries in initiating and implementing economic, financial, and political reforms. Thus, they would be in the position of being price makers in times of excess demand for emerging markets' equity.

In Table 6, I report the coefficients, standard errors, standardized coefficients, and variance inflation factor for each model, all countries together.

Insert Table 6 about here

Table 6 shows that composite risk (model one) is significantly related to IP. Economic, financial, and political risks (model two) have significant and similar bearings on IP. For example, a one standard difference on economic, financial, and economic ratings leads to a 0.004 to 0.005 standard difference on IP. Model three has the highest r-squared and indicates that IP is significantly related to all six country risk factors. Standardized coefficients indicate that country risk factor five (internal and external conflicts) is the most important driver of IP. Factors three, two, six, one, and four follow in order of importance. The sign associated with each factor is somewhat consistent with my expectation: there is a negative relation between investable premiums and four of the six factors.[19] It is worth noting that the variance inflation factors for each independent variable in model three are extremely low, indicating that the estimation of model three is not likely affected by multicollinearity. This is not the case for model two where variance inflation factors are close or above two, indicating that there exists information overlap between composite economic, financial, and political risk ratings. This observation is in line with Girard and Omran (2007) who suggest that the risk score includes information that cannot be arbitrarily aggregated in composite measures.

[19] Factors one and four are positively related to investable premiums. The "Real GDP growth risk rating" is one of the largest loadings of factor one. Since a country with a high real GDP growth has a higher rating, there is an expected direct relation between factor one and IP. However, rapid economic growth will certainly lead to more volatility in GDP growth, translating into a more volatile capital market and quite possibly a higher investable premium. Factor four is heavily weighted in "debt servicing rating." While less foreign debt increases a country's debt servicing rating, it can also be perceived as a lack of infrastructure to facilitate foreign investment in a country. For instance, Cholifihani (2008) finds that more (foreign) debt servicing will boost economic growth in the short run in Indonesia.

Since the 29 emerging markets are quite heterogeneous in size, growth opportunities, return characteristics, and risk ratings, I also examine how each risk factor compares in each of the 29 markets. Results (available from the author) indicate that in all 29 markets, the six-factor model has the highest r-square, which confirms our finding from Table 6 that model three explains IP better. In addition, all six factors are consistently priced in all countries.

Thus, findings in Table 6 suggest that the observed investable premiums across countries are justified by political, economic, and financial risk components. Consequently, the investable premium seems to account for much more than segmentation and capital control. Indeed, it also includes compensation for other risks to which foreign investors are more sensitive than local investors – investment opportunities, economic growth, inflation, political, economic and social tensions, corruption, etc.

6. Conclusion

This study adds to the understanding of the return-generating process in emerging markets by exposing the presence of an investable premium in emerging equity markets segmented by foreign investment restrictions.

First, more investable stocks tend to have higher returns than less investable stocks in emerging markets. Sorting on investable weight, investable stocks outperform less investable stocks in 27 (26) of 29 emerging markets, with foreign investment restrictions in upstate (downstate) during the 1988-2006 period. The difference between average returns on global portfolios of high and low investability stocks is 0.48% per month ($t = 6.12$).

Second, the investable premium is found to be at least as important as other fundamental factors (i.e., size, value, and momentum premiums) in the way it impacts investable stock returns. In addition, the importance of the investable premium is found to increase over time. Thus,

the investable premium is not only pervasive but also quantitatively relevant for the pricing of stocks traded in emerging markets.

Finally, a PCA is employed to whittle down from 22 political, economic, and financial country risk factors to six factors that explain the investable premium. Regressions then enable the selection of several economic, financial, and political risk factors that best explain the investable premium. In sum, a portfolio of more investable securities bears a premium when compared to a portfolio of less investable stocks, reflecting a compensation for local economic, financial, and political risk factors.

Ignoring the investable premium could lead to an erroneous understanding of the return-generating process of stocks traded in emerging capital markets.

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Table 1
Descriptive statistics (1988:12-2006:12)

In this table, "all firms" are all stocks available from 1988:12 to 2006:12 in the Emerging Market Data Bank for the 29 markets. The final selection of stocks is obtained after deleting entries with unrealistic return figures (absolute returns in the top 0.1% tail of the distributions of all firm-month return observations unmatched by Datastream), missing information, negative "book-to-market" values, or stocks with less than two years of data. The unadjusted EMDB "investable weight" is used as a measure of investability. At the beginning of each month, stocks with available ranking information are sorted into three portfolios (top 30%, middle 40%, bottom 30%) based on investable weight provided by the EMDB. The top 30% makes up the "more investable" category, and the "less investable group consists of the bottom 30%. Grouping often changes throughout the study—for example, a stock might have an investable weight of 10% in 1990 and 90% in 2006. All statistics are reported for two categories of investablity: "More inv." (more investable firms) and "Less inv." (less investable firms). "# of stocks retained" are the final selection of all, more, and less investable stocks after deletions. "Average investability" is the percentage of foreign ownership authorized for each stock. "Size" is the average market capitalization of stocks. ***, ** and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Period covered	# of stocks retained			Average investability			Average return		Average standard deviation		Average stock beta		Average size ($1,000,000)		Average price to book	
Countries		All firms	More inv.	Less inv.	All	More inv.	Less inv.	More inv.	Less inv.	More inv.	Less inv.	More inv.	Less inv.	More inv.	Less inv.	More inv.	Less inv.
Argentina	88:12-06:12	52	26	40	0.63	0.84	0.19	3.50%	1.26%	28.43%	18.61%	1.02	1.07	627.13	484.29	2.03	1.36
Brazil	89:05-06:12	178	100	114	0.54	0.94	0.13	3.75%	5.92%	28.95%	27.68%	1.14	0.94	1184.25	1627.36	1.26	1.31
Chile	88:12-06:12	80	59	56	0.41	0.70	0.16	1.52%	1.18%	12.95%	11.41%	1.03	0.94	929.78	791.33	2.14	2.15
China	92:12-06:12	472	168	214	0.29	0.86	0.00	6.17%	1.23%	15.63%	15.55%	0.93	1.11	1567.89	1238.03	1.87	2.24
Colombia	91:02-06:12	45	19	28	0.38	0.97	0.00	-0.10%	1.64%	19.81%	13.59%	1.08	0.95	544.93	135.34	1.60	1.19
Czech Rep.	93:12-06:12	78	19	33	0.25	0.70	0.04	1.63%	0.08%	17.84%	13.37%	0.98	0.63	1144.77	342.06	1.50	0.85
Egypt	97:03-06:12	96	43	60	0.26	0.70	0.00	-1.87%	-0.20%	14.37%	13.51%	0.83	0.50	637.84	98.76	3.91	2.46
Hungary	92:12-06:12	29	16	26	0.53	0.95	0.13	2.15%	1.42%	15.75%	17.09%	0.91	0.72	1129.55	398.89	2.13	1.67
India	92:11-06:12	253	161	160	0.15	0.29	0.01	1.79%	1.45%	17.63%	14.56%	1.05	1.03	1284.59	538.30	5.36	5.73
Indonesia	90:10-06:12	163	71	112	0.40	0.69	0.05	1.79%	2.97%	25.61%	26.29%	1.19	1.01	742.94	269.98	6.35	28.69
Israel	96:12-06:12	96	58	50	0.56	0.89	0.21	1.17%	0.84%	11.13%	12.08%	1.03	0.99	1361.72	807.06	2.43	1.79
Jordan	88:12-06:12	84	18	27	0.17	0.52	0.00	-2.01%	0.12%	6.78%	7.52%	0.78	0.74	357.73	30.76	1.84	2.09
Korea	92:01-06:12	423	194	248	0.56	0.93	0.41	2.84%	3.12%	26.96%	21.10%	1.05	1.11	1741.12	1980.50	3.61	25.95
Malaysia	88:12-06:12	275	178	162	0.66	0.88	0.30	0.58%	-0.81%	19.13%	23.39%	1.40	1.22	622.56	1319.57	3.63	2.61
Mexico	88:12-06:12	155	64	105	0.64	0.95	0.11	2.05%	1.80%	39.22%	11.64%	0.92	0.93	2006.89	963.73	1.74	1.47
Morocco	97:02-06:12	24	13	18	0.40	0.76	0.01	1.15%	1.14%	9.10%	7.12%	1.08	1.00	895.42	287.28	2.85	2.95
Pakistan	91:03-06:12	145	44	85	0.32	0.95	0.00	-2.12%	-0.54%	17.42%	17.06%	1.03	0.80	183.95	31.18	6.21	1.83
Peru	92:12-06:12	66	36	45	0.38	0.91	0.00	1.65%	1.08%	18.85%	14.11%	0.97	0.98	498.20	111.81	2.74	1.48
Philippines	88:12-06:12	101	53	80	0.29	0.67	0.02	0.98%	0.21%	19.63%	18.68%	1.24	1.28	749.08	396.94	2.13	28.67
Poland	95:02-06:12	66	38	39	0.67	0.90	0.34	1.01%	0.64%	13.22%	16.09%	0.91	0.81	540.63	790.43	2.48	1.87
Russia	97:03-06:12	81	37	55	0.42	0.82	0.06	8.47%	3.49%	57.98%	31.63%	0.90	0.94	5778.64	7028.61	3.19	2.24
Slovakia	97:03-06:12	23	5	16	0.33	0.91	0.01	7.94%	-1.28%	29.96%	15.67%	1.00	1.88	165.01	13.78	28.37	7.00
South Af.	92:12-06:12	190	108	124	0.74	0.96	0.43	1.06%	0.67%	12.37%	14.28%	1.01	0.93	1746.09	2000.30	4.46	10.27
Sri Lanka	92:12-06:12	71	17	21	0.31	0.91	0.00	-4.57%	-0.81%	11.67%	13.26%	1.16	0.77	72.88	19.34	1.89	1.78
Taiwan	91:01-06:12	166	64	72	0.53	0.89	0.39	0.12%	0.02%	15.68%	10.95%	1.14	0.97	2029.18	2817.01	1.86	1.90
Thailand	88:12-06:12	177	87	112	0.27	0.47	0.06	1.06%	0.12%	24.67%	20.20%	1.10	1.15	705.50	356.71	4.80	2.37
Turkey	89:10-06:12	106	72	65	0.62	0.86	0.25	2.98%	3.10%	23.45%	23.62%	0.98	1.01	224.54	231.09	4.74	30.93
Venezuela	90:01-06:12	30	19	25	0.44	1.00	0.02	1.36%	1.32%	21.90%	21.86%	1.05	0.86	404.07	242.44	1.75	4.38
Zimbabwe	93:06-06:12	59	17	12	0.12	0.35	0.00	-14.04%	1.47%	28.94%	20.16%	0.81	0.87	0.22	0.02	4.41	0.71
All		3,782	1,804	2,204	0.42	0.80	0.11	1.45%	1.13%	27.07%	25.55%	1.02	0.97	1030.25	874.24	3.91	6.20
t-statistics for difference in means								4.96***		5.95***		32.50***		72.34***			2.51**

Table 2
Average monthly return of HML-beta, HML-BP, SMB, MOM, and IP--1988:12 to 2006:12

In this table, I examine the means of five premiums for all countries and by countries in "all states", "upstate", and "downstate" [if the equally-weighted country risk premium is positive (negative) the state is "up" ("down")]: beta sorted high minus low (HML-Beta), book-to-price ratio sorted high minus low (HML-BP), size-sorted small minus big (SMB), momentum sorted winners minus losers (MOM), and investable weight sorted high minus low (IP). IP is constructed as a characteristic-adjusted return difference between top and bottom portfolios based on investability index. For a given month, the characteristic-adjusted return is computed using the residuals of the following time-series OLS regression model representative of the four-factor model:

$$\mathrm{Ret}_t = \beta_0 + \beta_1 Rm_t + \beta_2 HML_t + \beta_3 SMB_t + \beta_4 MOM_t + \varepsilon_t \ ,$$

where Ret_t is the monthly risk premium for a firm, Rm_t is the monthly local market risk premium, HML is the value premium, SMB is the size premium, and MOM is the momentum premium. For each country and each month, if the tier sorting yields a portfolio with less than five stocks, the observation is discarded for that month. Newey-West heteroskedasticity and autocorrelation corrected standard errors of HML-Beta, HML-BP, SMB, MOM, and IP are used to compute the *t*-statistics. ***, ** and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: All states

Country	Beg.	HML-Beta	SMB	HML-BP	MOM	IP
Argentina	9,106	2.13%	-0.31%	-6.97%***	0.69%	0.92%
Brazil	9,001	4.97%*	-1.71%	-2.92%**	-5.64%**	4.35%
Chile	8,812	0.47%	-1.39%***	-1.53%***	0.73%	-0.31%
China	9,307	1.29%	-1.21%	-2.72%***	0.08%	2.05%***
Colombia	9,102	1.21%*	-1.89%***	- 2.17%***	0.48%	0.73%*
Czech Republic	9,403	-0.25%	-1.41%**	-2.10%***	1.52%**	-0.78%
Egypt	9,703	2.27%***	-2.42%***	-3.37%***	-0.47%	0.91%***
Hungary	9,301	1.42%*	-2.05%**	-3.03%***	1.36%*	0.02%
India	9211	0.17%	-1.94%***	-2.47%***	-0.03%	-0.57%*
Indonesia	9010	1.42%	-2.02%*	-3.55%***	-0.93%	0.07%
Israel	9703	0.12%	-0.89%*	-1.34%**	0.49%	-0.07%
Jordan	8812	1.21%***	-1.69%***	-2.53%***	1.00%**	0.68%***
Korea	9201	1.03%	-1.92%**	-2.89%***	-0.47%	-0.54%
Malaysia	8812	0.32%	-1.45%*	-1.96%**	-0.65%	0.05%
Mexico	8812	1.40%*	-1.61%**	-2.40%***	0.93%	1.21%**
Morocco	9702	1.08%***	-0.53%	-1.40%***	0.91%**	0.28%
Pakistan	9103	1.21%	-1.81%***	-2.68%***	-0.40%	0.56%
Peru	9301	1.16%*	-0.64%	-3.23%***	0.43%	-0.13%
Philippines	8812	0.86%	-1.89%**	-3.28%***	-1.20%	-0.08%
Poland	9502	1.02%	-2.86%***	-3.31%***	0.87%	0.09%
Russia	9703	3.96%**	-0.39%	-2.53%	-5.95%***	1.68%***
South Africa	9301	0.29%	-1.45%**	-1.48%***	0.53%	-0.30%***
Sri Lanka	9302	0.70%	-1.99%***	-2.46%***	-0.04%	0.03%
Taiwan	9101	0.55%	-1.49%*	-2.79%***	-0.50%	1.00%
Thailand	8812	1.31%	-2.82%***	-3.56%***	0.80%	-0.47%
Turkey	8910	2.09%*	-2.79%**	-3.72%***	-0.33%	-0.38%
Venezuela	9001	0.84%	-2.42%**	-3.41%***	-1.65%	0.90%
Zimbabwe	9308	1.49%	-4.06%**	-4.92%***	0.64%	2.31%***
All countries	8812	1.28%***	-1.75%***	-2.88%***	0.24%***	0.48%***

Panel B: State-dependent decomposition

				Up-state					Down-state		
Country	Beg.	HML-Beta	SMB	HML-BP	MOM	IP	HML-Beta	SMB	HML-BP	MOM	IP
Argentina	9106	5.22%***	1.35%***	-7.08%***	-0.14%	1.29%***	2.63%***	-2.39%***	-6.83%***	1.74%***	-0.53%*
Brazil	9001	10.94%***	-2.70%***	-2.08%***	-8.87%***	8.02%**	-3.01%***	-0.35%	-4.07%***	-1.21%**	-1.09%***
Chile	8812	0.87%*	-1.43%***	-1.78%***	0.49%	0.13%***	-0.61%*	-1.33%***	-1.18%***	1.07%***	-0.88%***
China	9307	3.11%***	-1.30%	-4.04%***	-0.10%	7.04%***	-1.53%***	-1.11%**	-1.25%***	0.27%	-6.82%***
Colombia	9102	3.82%***	-2.76%***	-1.18%	1.29%	1.81%***	-1.98%***	-0.75%**	-3.46%***	-0.56%	-0.39%
Czech Republic	9403	1.54%	-3.45%***	-1.83%***	0.94%	1.15%***	-2.82%***	1.38%**	-2.47%***	2.32%***	-3.69%***
Egypt	9703	3.56%***	-3.80%***	-4.72%***	0.52%	3.85%***	-1.15%**	-0.93%*	-1.89%***	-1.54%***	-1.32%***
Hungary	9301	0.49%	-4.10%***	-4.77%***	1.38%***	1.72%***	-1.05%*	0.80%	-0.61%	1.34%**	-2.42%***
India	9211	1.67%***	-1.06%	-0.64%*	-0.66%	0.13%***	-2.26%***	-2.91%***	-4.48%***	0.67%*	-1.48%***
Indonesia	9010	6.46%***	-1.63%***	-2.30%***	-1.82%***	1.25%***	-2.16%***	-2.43%***	-4.88%***	0.02%	-0.85%**
Israel	9703	1.80%	-1.01%*	-1.77%*	0.68%	0.32%**	-1.95%**	-0.67%	-0.59%	0.17%	-0.20%
Jordan	8812	2.10%***	-2.61%***	-4.01%***	1.98%*	0.75%***	-0.58%*	-0.65%**	-0.87%***	-0.11%	0.50%
Korea	9201	2.47%***	-2.07%***	-2.75%***	-0.86%	1.78%***	-0.78%**	-1.78%***	-3.04%***	-0.10%	-1.03%***
Malaysia	8812	3.76%***	0.84%	-0.52%	-1.46%***	1.00%**	-2.39%***	-4.51%***	-3.89%***	0.45%	-1.44%***
Mexico	8812	4.01%***	-2.33%***	-2.33%***	1.27%*	1.38%***	-2.71%***	-0.45%	-2.52%***	0.39%	-0.33%***
Morocco	9702	1.21%***	-0.42%	-1.74%***	0.87%	0.42%***	-0.79%	-0.69%	-0.90%	0.97%*	0.09%
Pakistan	9103	3.69%***	-2.33%***	-1.62%***	-0.19%	3.47%***	-0.91%***	-1.19%***	-3.94%***	-0.65%**	-1.51%***
Peru	9301	2.72%	-0.38%	-2.79%***	1.04%	0.08%***	-1.03%*	-1.03%*	-3.89%***	-0.48%	-0.63%
Philippines	8,812	5.05%***	-1.40%***	-2.50%***	-2.51%***	0.48%***	-1.88%***	-2.41%***	-4.09%***	0.15%	-0.94%***
Poland	9,502	2.70%***	-5.05%***	-4.20%***	1.02%*	0.56%***	-1.07%*	0.04%	-2.12%***	0.67%	-0.58%
Russia	9,703	3.11%***	-0.62%	-1.04%***	-6.46%***	2.30%	3.05%**	-0.01%	-4.93%***	-5.14%***	-1.31%***
South Africa	9,301	0.51%	-1.80%***	-1.75%***	0.58%	0.68%	-0.58%	-0.93%*	-1.09%*	0.44%	-1.72%***
Sri Lanka	9,302	2.82%***	-2.29%***	-2.24%***	0.17%	1.92%**	-1.44%***	-1.61%***	-2.73%***	-0.30%	-1.81%***
Taiwan	9,101	2.08%***	-0.71%*	-2.87%***	-0.29%	2.92%***	-1.07%***	-2.39%***	-2.70%***	-0.75%*	-1.20%*
Thailand	8,812	6.67%***	-2.17%***	-3.70%***	0.36%	-0.81%***	-3.80%***	-3.58%***	-3.40%***	1.32%***	-0.08%
Turkey	8,910	4.84%***	-3.39%***	-3.68%***	0.10%	-1.99%***	-1.17%***	-2.15%***	-3.76%***	-0.79%*	1.49%***
Venezuela	9,001	2.38%***	-2.84%***	-2.62%***	-0.89%	4.33%***	-2.24%***	-1.98%***	-4.25%***	-2.45%***	-2.57%***
Zimbabwe	9,308	5.24%***	-4.48%***	-4.60%***	1.34%***	4.19%**	1.84%***	-3.43%***	-5.40%***	-0.40%	-0.10%
All Countries	**8,812**	**3.39%*** **	**-2.00%*** **	**-2.76%*** **	**0.37%*** **	**1.33%*** **	**-1.19%*** **	**-1.41%*** **	**-3.04%*** **	**0.09%*** **	**-1.02%*** **

Table 3
Relative impact of local market risk premiums, HML, SMB, MOM, and IPs on security risk premiums

Model 1: $wRet_t = w\beta_0 + w\beta_5 IP_t + \varepsilon_t$

Model 2: $wRet_t = w\beta_0 + w\beta_1 Rm_t + w\beta_5 IP_t + \varepsilon_t$

Model 3: $wRet_t = w\beta_0 + w\beta_1 Rm_t + w\beta_2 HML_t + w\beta_3 SMB_t + w\beta_5 IP_t + \varepsilon_t$

Model 4: $wRet_t = w\beta_0 + w\beta_1 Rm_t + w\beta_2 HML_t + w\beta_3 SMB_t + w\beta_4 MOM_t + w\beta_5 IP_t + \varepsilon_t$

Results of WLS regressions between stocks risk premiums (Ret) and five risk factors for the overall period (1988:12-2006:12). The table only reports the standardized coefficients for all stocks and ten portfolios sorted by investable weight. Rm is the local market risk premium, HML is the value premium, SMB is the size premium, MOM is the momentum premium, and IP is the investable premium. Standardized coefficients are the coefficients obtained after standardizing the variables, and they indicate that an increase in one standard difference on one of the factors affects "beta" standard difference in Ret, holding constant the other predictors in the model. Standard errors are Newey-West heteroskedasticity and autocorrelation corrected. ***, ** and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: All stocks portfolio

	Model	Rm	SMB	HML	MOM	IP	Number of Months	Adj.R^2
All stocks	1					0.119***	244,311	0.06
	2	0.610***				0.115***	244,311	0.41
	3	0.606***	0.066***	0.005		0.125***	244,311	0.43
	4	0.605***	0.057***	-0.001	-0.036***	0.106***	244,311	0.43

Panel B: Stocks sorted by investability tiers

	Model	Rm	SMB	HML	MOM	IP	Number of Months	Adj.R^2
"Less investable" tier	1					-0.117***	59,234	0.04
	2	0.453***				-0.132***	59,234	0.22
	3	0.438***	0.296***	0.001		-0.123***	59,234	0.30
	4	0.434***	0.239***	-0.034***	-0.147***	-0.127***	59,234	0.31
Middle tier	1					-0.059***	116,098	0.03
	2	0.622***				-0.044***	116,098	0.39
	3	0.628***	0.188***	-0.066***		-0.028***	116,098	0.41
	4	0.615***	0.161***	-0.068***	-0.114***	-0.031***	116,098	0.42
"More investable" tier	1					0.197***	68,977	0.08
	2	0.613***				0.194***	68,977	0.46
	3	0.613***	0.080***	-0.004		0.209***	68,977	0.46
	4	0.629***	0.066***	-0.010*	-0.042***	0.186***	68,977	0.46

Panel C: Stocks sorted by country

Portfolio	Model	Rm	SMB	HML	MOM	IP	Number of months	Adj.R^2
Argentina	1					0.019*	4,023	0.03
	2	0.617***				0.024**	4,023	0.38
	3	0.615***	0.161***	-0.139***		0.026*	4,023	0.41
	4	0.579***	0.143***	-0.151***	-0.114***	0.036***	4,023	0.42
Brazil	1					0.128***	11,876	0.04
	2	0.567***				0.125***	11,876	0.40
	3	0.570***	0.018	0.001		0.126***	11,876	0.40
	4	0.569***	0.015	-0.001	-0.037	0.109**	11,876	0.40
Chile	1					0.121***	6,073	0.02
	2	0.619***				0.116***	6,073	0.39
	3	0.613***	0.118***	0.008		0.119***	6,073	0.40
	4	0.612***	0.115***	0.007	-0.014	0.129***	6,073	0.40
China	1					0.319***	8,189	0.10
	2	0.501***				0.464***	8,189	0.33
	3	0.496***	0.210***	0.013		0.376***	8,189	0.37
	4	0.492***	0.216***	-0.006	-0.051***	0.406***	8,189	0.38
Colombia	1					0.180***	1,438	0.03
	2	0.740***				0.076***	1,438	0.57
	3	0.717***	0.044	0.062**		0.135***	1,438	0.58
	4	0.715***	0.055	0.051*	-0.055***	0.155***	1,438	0.58

Table 3, Panel C (continued)

	Model	Rm	SMB	HML	MOM	IP	Number of months	Adj.R^2
Czech Republic	1					0.240***	950	0.06
	2	0.566***				0.096***	950	0.36
	3	0.592***	0.195***	0.012		0.217***	950	0.38
	4	0.590***	0.197***	0.006	-0.021***	0.217***	950	0.38
Egypt	1					0.360***	2,030	0.13
	2	0.428***				0.126***	2,030	0.26
	3	0.422***	0.167***	-0.005		0.234***	2,030	0.27
	4	0.424***	0.156***	-0.036	-0.076***	0.221***	2,030	0.28
Hungary	1					0.339***	1,379	0.12
	2	0.488***				0.214***	1,379	0.34
	3	0.525***	0.124***	0.013		0.223***	1,379	0.35
	4	0.519***	0.134***	0.008	-0.059***	0.232***	1,379	0.36
India	1					-0.030***	12,789	0.00
	2	0.588***				-0.096***	12,789	0.34
	3	0.562***	0.070***	0.053***		-0.026***	12,789	0.35
	4	0.562***	0.064***	0.041***	-0.026***	-0.031***	12,789	0.35
Indonesia	1					0.166***	5,742	0.03
	2	0.665***				-0.041**	5,742	0.44
	3	0.591***	0.163***	0.091***		0.048***	5,742	0.49
	4	0.591***	0.174***	0.048***	-0.072***	0.042***	5,742	0.50
Israel	1					-0.030**	4,759	0.00
	2	0.631***				-0.025**	4,759	0.40
	3	0.633***	0.082***	0.023*		-0.035***	4,759	0.41
	4	0.630***	0.075***	0.015	-0.033***	-0.031***	4,759	0.41
Jordan	1					0.248***	909	0.06
	2	0.507***				0.166***	909	0.31
	3	0.490***	0.134***	-0.056*		0.272***	909	0.32
	4	0.489***	0.127***	-0.071**	-0.042	0.270***	909	0.32
Korea	1					-0.081***	23,385	0.01
	2	0.607***				0.011**	23,385	0.37
	3	0.612***	0.172***	0.016**		0.069***	23,385	0.40
	4	0.609***	0.164***	0.013*	-0.028***	0.070***	23,385	0.40
Malaysia	1					0.405***	18,572	0.16
	2	0.675***				0.177***	18,572	0.57
	3	0.575***	0.136***	0.130***		0.058***	18,572	0.60
	4	0.562***	0.136***	0.075***	-0.113***	0.042***	18,572	0.60
Mexico	1					0.155***	8,841	0.06
	2	0.627***				0.133**	8,841	0.40
	3	0.649***	0.158***	0.038**		0.149***	8,841	0.41
	4	0.645***	0.154***	0.028	-0.076***	0.155***	8,841	0.41
Morocco	1					0.139***	1,125	0.02
	2	0.774***				0.138**	1,125	0.61
	3	0.760***	0.102***	-0.029		0.112***	1,125	0.61
	4	0.760***	0.104***	-0.024	0.017	0.113***	1,125	0.61
Pakistan	1					0.441***	2,063	0.19
	2	0.680***				0.185***	2,063	0.53
	3	0.665***	0.084***	0.081***		0.150***	2,063	0.55
	4	0.669***	0.068**	0.084***	-0.038***	0.142***	2,063	0.55
Peru	1					0.153***	2,111	0.05
	2	0.590***				0.121*	2,111	0.35
	3	0.551***	0.138***	-0.018		0.130***	2,111	0.37
	4	0.552***	0.143***	-0.034	-0.032	0.149***	2,111	0.37
Philippines	1					0.218***	4,077	0.05
	2	0.623***				0.178***	4,077	0.42
	3	0.517***	0.138***	0.110***		0.136***	4,077	0.48
	4	0.479***	0.133***	0.066***	-0.141***	0.134***	4,077	0.49
Poland	1					0.074***	3,171	0.01
	2	0.626***				-0.037***	3,171	0.39
	3	0.661***	0.149***	-0.024		-0.011	3,171	0.40
	4	0.656***	0.139***	-0.038*	-0.039**	-0.012	3,171	0.40
Russia	1					-0.061***	1,853	0.00
	2	0.575***				-0.010	1,853	0.33
	3	0.581***	0.200***	0.017		0.158***	1,853	0.40
	4	0.566***	0.158***	0.047*	-0.154***	0.179***	1,853	0.41

Table 3, Panel C (continued)

	Model	Rm	SMB	HML	MOM	IP	Number of Months	Adj.R^2
Slovakia	1					-0.157**	259	0.03
	2	0.398***				-0.078	259	0.18
	3	0.398***	-0.484	0.062		-0.492*	259	0.19
	4	0.596***	0.130***	0.009	-0.018**	0.004	259	0.36
South Africa	1					0.181***	10,036	0.03
	2	0.583***				0.011	10,036	0.34
	3	0.596***	0.137***	0.008		0.006	10,036	0.36
	4	0.392***	-0.671	0.059	-0.248	-0.441	10,036	0.19
Sri Lanka	1					0.484***	608	0.24
	2	0.702***				0.239***	608	0.67
	3	0.700***	0.104***	-0.017		0.301***	608	0.67
	4	0.700***	0.107***	-0.027	-0.022	0.305***	608	0.67
Taiwan	1					-0.026**	9,562	0.02
	2	0.622***				-0.024***	9,562	0.39
	3	0.628***	0.175***	0.085***		0.007	9,562	0.45
	4	0.626***	0.172***	0.072***	-0.026***	0.005	9,562	0.45
Thailand	1					-0.173***	9,442	0.03
	2	0.644***				-0.080***	9,442	0.44
	3	0.616***	0.157***	0.025**		0.036***	9,442	0.45
	4	0.612***	0.114***	-0.032***	-0.112***	0.007	9,442	0.46
Turkey	1					-0.051***	6,638	0.00
	2	0.739***				0.017**	6,638	0.54
	3	0.764***	0.137***	-0.005		-0.011	6,638	0.56
	4	0.757***	0.123***	-0.013	-0.041***	-0.007	6,638	0.56
Venezuela	1					0.453***	1,213	0.21
	2	0.662***				0.209***	1,213	0.58
	3	0.683***	0.159***	0.020		0.238***	1,213	0.61
	4	0.686***	0.152***	0.024	-0.028	0.236***	1,213	0.61
Zimbabwe	1					0.091**	468	0.08
	2	0.703***				0.118***	468	0.50
	3	0.716***	0.062	0.032		0.179***	468	0.51
	4	0.707***	0.063	0.015	-0.043	0.177***	468	0.51

Table 4
Relative impact of local market risk premiums, HML, SMB, MOM, and IPs on stocks risk premiums per period (1988-1995 and 2000-2006)

Model 1: $w\mathrm{Ret}_t = w\beta_0 + w\beta_5 IP_t + \varepsilon_t$

Model 2: $w\mathrm{Ret}_t = w\beta_0 + w\beta_1 Rm_t + w\beta_5 IP_t + \varepsilon_t$

Model 3: $w\mathrm{Ret}_t = w\beta_0 + w\beta_1 Rm_t + w\beta_2 HML_t + w\beta_3 SMB_t + w\beta_5 IP_t + \varepsilon_t$

Model 4: $w\mathrm{Ret}_t = w\beta_0 + w\beta_1 Rm_t + w\beta_2 HML_t + w\beta_3 SMB_t + w\beta_4 MOM_t + w\beta_5 IP_t + \varepsilon_t$

Results of WLS regressions between investable stocks risk premiums (Ret) and five risk factors for two sub-periods (1988:12-1995:12 and 2000:01-2006:12). This table only reports the standardized coefficients for all stocks and ten portfolios sorted by investable weight. Rm is the local market risk premium, HML is the value premium, SMB is the size premium, MOM is the momentum premium, and IP is the investable premium. Standardized coefficients are the coefficients obtained after standardizing the variables, and they indicate that an increase in one standard deviation on one of the factors affects the "beta" standard difference in Ret, holding constant the other predictors in the model. Standard errors are Newey-West heteroskedasticity and autocorrelation corrected. ***, ** and * indicate significance at the 1%, 5%, and 10% levels, respectively.

		Earlier period: 1988-1995							Later period: 2000-2006						
	Model	Rm	SMB	HML	MOM	IP	n	Adj.R^2	Rm	SMB	HML	MOM	IP	n	Adj.R^2
All stocks															
	1					0.089***	58,197	0.06					0.127***	114,067	0.08
	2	0.637***				0.105***	58,197	0.41	0.609***				0.123***	114,067	0.40
	3	0.657***	0.155***	-0.032***		0.109***	58,197	0.43	0.609***	0.032***	0.007		0.125***	114,067	0.43
	4	0.651***	0.141***	-0.039***	-0.057***	0.105***	58,197	0.43	0.608***	0.029***	0.007	-0.033***	0.124***	114,067	0.43
"Less inv." tier	1					-0.251***	10,592	0.06					-0.046***	31,181	0.03
	2	0.542***				-0.306***	10,592	0.35	0.432***				-0.066***	31,181	0.19
	3	0.550***	0.146***	-0.004		-0.227***	10,592	0.37	0.430***	0.226***	0.008***		-0.045***	31,181	0.24
	4	0.544***	0.130***	-0.011	-0.053***	-0.221***	10,592	0.37	0.423***	0.187***	0.016***	-0.269***	-0.099***	31,181	0.25
Middle tier	1					-0.198***	36,085	0.04					-0.010***	47,271	0.03
	2	0.633***				-0.100***	36,085	0.43	0.553***				-0.031***	47,271	0.31
	3	0.644***	0.128***	-0.112***		-0.081***	36,085	0.45	0.552***	0.198***	-0.042***		-0.023***	47,271	0.33
	4	0.629***	0.123***	-0.114***	-0.103***	-0.079***	36,085	0.46	0.550***	0.180***	-0.032***	-0.147***	-0.053***	47,271	0.34
"More inv." tier	1					0.187***	11,518	0.07					0.206***	35,613	0.09
	2	0.633***				0.156***	11,518	0.43	0.572***				0.204***	35,613	0.45
	3	0.668***	0.209***	-0.014*		0.154***	11,518	0.46	0.572***	0.036***	-0.001		0.206***	35,613	0.45
	4	0.656***	0.196***	-0.019**	-0.079***	0.158***	11,518	0.47	0.571***	0.031***	0.001	-0.042***	0.217***	35,613	0.45

Table 5
Risk factor determination through factor analysis – data reduction of 22 risk scores

This table shows the factor analysis and component matrix. The extraction method is the PCA. The rotation method is Varimax with Kaiser Normalization. Rotation converged in seven iterations. Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.778, and Bartlett's Test of Sphericity Approximate Chi-Square is 2,201,411 (df=210, significant at 99.99 percentile). I select individual risk scores with a cut-off at 0.5. The selected scores are further averaged to determine each factor's composite score. Each risk rating is defined as follows: Government stability is the risk associated with a government's ability to carry out its declared program(s) and its ability to stay in office. Socioeconomic conditions is the risk associated with general public satisfaction with the government's economic policies. Investment profile is the risk associated with expropriation, taxation, repatriation of capital, and labor costs. Internal conflict is the risk associated with political violence and its impact on governance. External conflict is the risk to both the incumbent government and inward investment. Corruption risk is the risk associated with corruption within the political system. Military in politics is the risk associated with military involvement in politics. Religious tensions is the risk associated with the domination of a single religious group or the suppression of religious freedom. Law and order is the risk associated with the weakness and partiality of a legal system, and the lack of observance of the law. Ethnic tensions is the risk associated with tensions within a country attributable to racial, nationality, or language divisions. Democratic accountability is the risk associated with a government that is not responsive to its people. Foreign debt as a % of GDP is the risk associated with gross foreign debt in a given year, converted into U.S. dollars. Foreign debt service as a % of exports of goods and services is the risk associated with foreign debt service per year, in $U.S. Current account as a % of exports of goods and services is the risk associated with the annual current account deficit, in $U.S. Net international liquidity as months of import is the risk associated with the total estimated official reserves for a given year, in $U.S. Exchange rate stability is the risk associated with the appreciation/depreciation of a currency against the $U.S. (against the DM for the US). GDP per head is the risk associated with a low GDP per head for a given year, converted into $U.S. Real GDP growth is the risk associated with a % increase or decrease in the estimated GDP, at constant 1990 prices. Annual inflation rate is the risk associated with annual inflation rate (the unweighted average of the Consumer Price Index). Budget balance as a % of GDP is the risk associated with a government budget deficit for a given year in the national currency. Current account as a % of GDP is the risk associated with the current account balance deficit for a given year, converted into $U.S.

Factor loadings	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Eigenvalue	3.85	3.38	2.68	2.08	1.46	1.43
% of variance	17.52	15.37	12.19	9.45	6.63	6.49
Cumulative %	17.52	32.89	45.08	54.53	61.16	67.65
Factor loadings						
Current account as % of GDP	0.85	-0.22	0.10	0.10	-0.15	-0.10
GDP growth	0.80	-0.28	0.03	0.04	-0.01	0.04
Investment profile	0.75	0.29	-0.06	0.11	-0.02	0.05
Exchange rate stability	0.70	-0.05	0.22	-0.07	0.12	0.23
Budget balance	0.59	0.14	0.10	0.45	-0.22	0.06
Inflation	0.59	0.04	0.38	0.05	0.15	0.27
Government stability	0.58	-0.20	0.26	0.29	0.08	-0.29
Democratic accountability	0.07	0.81	-0.25	0.06	-0.02	-0.22
GDP per head	-0.11	0.76	0.02	0.24	-0.21	0.25
Bureaucracy quality	-0.06	0.72	0.30	-0.02	-0.20	-0.02
Military in politics	0.13	0.66	0.11	0.11	0.43	-0.24
Corruption	-0.39	0.60	0.20	0.17	0.22	-0.12
Debt service	0.23	0.05	0.80	-0.05	-0.04	0.12
Law & order	-0.05	0.08	0.65	0.31	-0.02	0.09
Current account as % of XGS	0.43	-0.07	0.58	-0.08	-0.20	-0.18
Religious tensions	0.07	0.17	-0.09	0.77	0.08	0.26
Ethnic tensions	0.10	0.02	0.24	0.77	0.04	-0.05
External conflict	-0.10	-0.14	-0.10	0.34	0.86	0.00
Internal conflict	0.08	0.14	0.42	0.50	0.56	0.08
International liquidity	0.31	-0.28	0.05	0.08	-0.09	0.61
Socioeconomic conditions	0.17	0.42	0.45	0.15	0.04	0.52
Foreign debt	-0.03	-0.07	0.49	0.30	0.09	0.50

Table 6
Cross-sectional weighted regressions between monthly investable premiums and country risk factors (1988:12-2006:12)

$$wIP_t = w\alpha + w\sum_{i=1}^{k} \lambda_i \tilde{Z}_{i,t} + \varepsilon_t$$

This table shows the coefficients (COEF), standard errors (St. Error), standardized coefficients (SCOEF), variance inflation factor (VIF) and the adjusted R^2 for equation (3) under each model. Model 1 includes ICRG composite risk; model 2 includes loads on ICRG economic, financial, and political risk ratings; and model 3 uses the six factors obtained from the PCA in Table 5. Regressions are estimated using a weighted least-squared technique to correct for heteroskedasticity. In addition, standard errors are calculated using the Newey-West heteroskedasticity and auto-correlation consistent (HAC) covariance matrix to correct for the presence of autocorrelation and heteroskedasticity. Factors 1 through 6 are obtained from Table 7 by averaging selected factor loadings. Standardized coefficients are the coefficients obtained after standardizing the variables, and they indicate that an increase in one standard deviation on one of the factors affects "beta" standard difference in Ret, holding constant the other predictors in the model. VIF is the variance inflation factor (a value above 2 is usually associated with multicollinearity). ***, ** and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Model		Intercept	Comp. risk	Econ. risk	Fin. risk	Pol. risk	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Adj. R^2
	Coef	-0.005	0.010**										0.003
1	St.Error	0.003	0.004										
	SCoef		0.003										
	VIF		1.000										
	Coef	-0.007**		0.060***	-0.03***	-0.02***							0.031
2	St.Error	0.003		0.005	0.004	0.005							
	SCoef			0.061	-0.047	-0.040							
	VIF			2.141	1.958	2.448							
	Coef	-0.016***					0.03***	-0.02***	-0.19***	0.03***	-0.43***	-0.05***	0.073
3	St.Error	0.005					0.007	0.003	0.012	0.008	0.027	0.009	
	SCoef						0.053	-0.057	-0.071	0.049	-0.090	-0.053	
	VIF						1.281	1.166	1.312	1.308	1.219	1.302	