LUISS Guido Carli
LIBERA UNIVERSITA' INTERNAZIONALE DEGLI STUDI SOCIALI

DEPARTMENT OF ECONOMICS AND BUSINESS

CASMEF Working Paper Series

THE EQUITY RISK PREMIUM: EMPIRICAL EVIDENCE FROM EMERGING MARKETS

Michael Donadelli *Lorenzo Prosperi*

Working Paper No. 1
January 2012

Arcelli Centre for Monetary and Financial Studies
Department of Economics and Business
LUISS Guido Carli
Viale Romania 32, 00197, Rome -- Italy
http://casmef.luiss.edu

The Equity Risk Premium: Empirical Evidence from Emerging Markets*

Michael Donadelli† LUISS

Lorenzo Prosperi‡ TSE

Feb, 2012

Keywords
Stock Market Returns, Equity Premium Puzzle, Equity Risk Premium
JEL Codes
C13, G12, G15, E44

Abstract

The analysis of the Equity Risk Premium (ERP) and the research efforts aimed at solving the Equity Premium Puzzle (Mehra and Prescott 1985), are still widely discussed in the economic and financial literature. The purpose of this paper is to show that differences in the ERP between developed and emerging markets lead to many empirical asset pricing issues. Using data from both markets, we first provide an ex-post simple time series analysis on the ERP. Compared to developed markets, and in line with existing literature, we find that emerging markets compensate investors with higher returns. We observe that the time varying nature of the ERP in emerging economies, relates mainly to economic cycles, shocks and other macro phenomena (i.e. global financial market integration). Basic statistics also show that during the last decade the ERP shrunk, especially in advanced economies. To improve investigations on the higher emerging markets' equity premium, a standard global asset pricing model is adopted. On one hand, we mainly find that the one-factor model does not fully predict emerging markets' equity premia. On the other hand, we discover that the inclusion of liquidity conditions and time-varying components provides reasonable explainations for the behaviour of equity premia in these "young" markets. Our final findings mainly suggests that global business cycle and financial integration process are crucial in determining the risk associated to emerging markets' investments.

*We are indebted to Nicola Borri. We thank Federico Silvestri for providing helpful research assistance and comments. This paper has benefited from discussions with and comments from Giuseppe Ragusa and Paolo Vitale. All errors in this paper are the authors' responsability.

†LUISS Guido Carli, Department of Economics and Finance, Viale Romania, 32, 00197 Rome, Italy. Email: mdonadelli@luiss.it

‡Toulouse School of Economics, Manufacture des Tabacs, 21 alle de Brienne, 31000 Toulouse, France. Email:Lorenzo.Prosperi@sip.univ-tlse1.fr

Contents

1 Introduction

Usually investing in equities generates higher returns, thus provides investors a returns that exceed the risk free rate of return. The latter is often represented by a "riskless bond" (i.e. 10 year Treasury Bond). The difference between this two classes of securities represents the well-known equity risk premium (ERP). The concept of the ERP provides an intuitive measure of the extent by which agents in an economy need to be compensated for the riskiness of the productive assets of that economy. More precisely the ERP represents the "insurance" that investors require in holding a portfolio composed by risky assets. The ERP is probably one of the most important and frequently used inputs in various financial and economic models. It is a key component in asset pricing, corporate finance and other financial fields. While the meaning and the usefulness of the ERP is unambiguous, attempts to empirically estimate the ERP have faced a number of problems. Most empirical studies report results on ERP estimations based mostly on United States, sporadically on other advanced economies and rarely on emerging economies. The above mentioned problems depend mainly on the lack of data in "younger" or "exotic" equity markets. For example, data on U.S. stock market is available from 1871. In contrast, time series data on emerging stock markets is mostly available from the 80's. Focusing on U.S. market, an important theoretical result in economic literature shows that the average long-term ERP exceeds its desirable level and it does not reflects what equilibrium theory predicts. Mehra and Prescott (1985) and Mehra (2003) show that for the United States in the period 1889-1978 the ERP has been in excess of 6% per annum. Bernartzi and Thaler (1995) and Campbell and Cochrane (1999) claim that higher ERP is a necessary condition to induce agents to invest into the stock markets.

What about emerging markets' ERP? Given that emerging markets are perceived to be more risky, investors might be compendated for bearing such extra risk. In line with this last statement, Salomon and Grootveld (2003) find that equity risk premium in emerging markets is significantly higher than in developed markets. They also claim that the extent to which emerging stock markets reward investors varies through time. An ex-post country-by-country and macro-areas empirical analysis on equity premia are the heart of our study. ERP are estimated for a basket of emerging stock markets, next they are compared with those generated by developed markets.

In line with literature's results, ours confirm both the declining equity premium in mature markets and the presence of higher equity premia in emerging economies. As expected emerging markets' allocation are compensated for bearing the extra risk (i.e. investors receive higher average excess returns). The time-varying nature of ERP is also confirmed. According to the asset pricing theory framework, we also show that higher expected returns are often associated with large risk exposures. In understanding why emerging markets' ERP are so high, a standard asset pricing approach is adopted. By using a simple one factor model we aim to find reasonable explainations for such extra emerging premium. Following recent literature on returns predictability,[1] a country-by-country examination of model's restriction is implemented. For example, Harvey (1995) finds that an analysis of the predictability of the returns reveals that emerging market returns are most likely than developed countries to be influenced by local information. Jones (2002) finds that liquidity and transaction cost variables have more predictive power than dividend yields for U.S. stock returns. Not surprisingly, we find that a standard one-factor model is too poor in explaining the higher emerging mar-

[1] See Harvey C. R. (1995) and Bekaert et al. (2007) among others.

kets' ERP.
It is largely accepted that one possible reason for this failure is the implicit assumption of complete integration of world capital markets. Our basic statistics shows (i.e. correlation matrix) how global integration is far from completness. We also show that such lack in global integration, albeit with less force, holds also in more recent years. Even if there is strong evidence that emerging markets are still different from mature markets, a sub-sample analysis suggests that financial markets globalization took place. As a results model's validity in emerging markets tend to be accepted over the sub-sample Jan 2000 - Dec 2010. Following a growing consensus that systemic variation in liquidity matters for expected returns, we examine this issue for a set of markets where liquidity ought to be particularly important (i.e. emerging markets).[2] On this issue, Amihud and Mendenlson (1986), Brennan and Subrahmanyam (1996), Datar, Naik and Radcliffe (1998), Chordia, Roll and Anshuman (2001), Chordia, Roll and Subrahmanyam (2002) try to quantify the role of liquidity in U.S. expected stock returns. Pastor and Stambaugh (2003) find that expected stock returns are related cross-sectionally to the sensitivities of returns to fluctuations in aggregate liquidity. Accounting for liquidity (i.e. S&P IFCI indeces are used as dependent variables), we first show that, in most emerging equity markets, the one-factor model is no more violated, in the sense that we can not reject the null hypothesis that Jensen's alpha is different from zero, as CAPM suggests. Next, our analysis is devoted to the identification of time-varying components in pricing the risk associated to emerging countries' ERP. Our simple statistical analysis suggests that correlation between new markets and world market increased in the last decade as a result of the global financial integration. We test this hypothesis using two types of proxies for financial integration process: local market liquidity and trade. Our estimates suggest that a positive relation between financial integration process and market betas exists. This implies that, as this process continues, emerging markets become riskier. Moreover, this results suggests also that local factor, such as liquidity, are strongly influenced by global economic cycle, as a consequence previous analysis[3] based on liquidity measures should be reinterpreted.
The rest of the paper is structured as follows. Section 2 is devoted to data set description and to a basic and standard ex-post time series analysis of the ERP of 32 different countries. Following the main purpose of this paper, characteristic distributions of 13 developed markets are compared with those of 19 emerging ones. Section 3 mostly reproduces the analysis developed in section 1 for 6 macro-areas equally weighted portfolios (i.e. Asia, Africa & Middle East, Latin America, Eastern Europe, Developed, Emerging). Section 4, based on standard asset pricing theory, is aimed at capturing the behaviour of equity risk premia across countries. Differences in estimation results between developed and emerging markets are emphasized. Standard asset pricing model are estimated, trying to explain equity premia patterns and to understand reasons for models' invalidity. Section 5, accounting directly for liquidity and trade (i.e. sum of imports and exports), aims to focus on the role of global integration in predicting emerging markets' ERP.

[2]Models linking liquidity to expected returns are proposed by Amihud and Mendenlson (1986), Constantidines (1986), Grossman and Miller (1988), Heaton and Lucas (1996), Vayanos (1998), Lo, Mamaysky and Wang (2001), Holmstonm and Tirole (2002), Huang (2002), O'Hara (2003) and Bekaert, Harvey and Lundblad (2007).

[3]See Bekaert, Harvey and Lundblad (2007), Harvey (1995) and Pastor and Stambaugh (2003).

2 Data Description and Preliminary Analysis

We use, both for developed and emerging equity markets, the Morgan Stanley Capital International (MSCI) Total Return Index. All returns are monthly total returns denominated in US dollars.[4] Data on the risk-free rate are from the Fama & French database. Table 1 illustrates the list of countries for which we employ the related MSCI Indices. Globally our analysis will be focusing on 12 developed markets and 19 emerging markets. The latter list should represent a reasonable sample of investable markets on which global investors tend to concentrate. For the developed markets we restrict our analysis to the largest world's economies, such as the G7 members. Equity market data for all developed markets are avalaible from December 1969. Data on emerging markets are not avalaible from December 1969 and only for some of them we have data from December 1987 (i.e. Argentina, Brazil, Chile, Indonesia, Malaysia, Mexico, Philippines, Korea and Turkey). As time progresses, equity data will be available also for other emerging countries. Note that from December 1994 we have equity data for all listed emerging countries.

Developed Economies	Emerging Markets			
G7 and Others	Asia	Latina America	Africa and Middle East	Eastern Europe
Australia	China	Argentina	Egypt	Czech Republic
Canada	India	Brazil	Morocco	Hungary
France	Indonesia	Chile	South Africa	Poland
Germany	Malaysia	Colombia		Russia
Italy	Philippines	Mexico		Turkey
Japan	Korea			
Netherlands				
Norway				
Singapore				
Spain				
Switzerland				
United Kingdom				
United States				

Table 1: MSCI Indices: Developed Capital Markets and Emerging Capital Markets

The choice of a proxy for the risk-free asset has been much debated in literature. A desirable risk-free proxy should free of default risk, be traded in liquidity markets, and have a duration similar to that of the risky investment. For these reasons the 10 year Treasury Bond is often used in empirical studies of the ERP in the United States. It is also largely accepted in literature that the use of the rate that prevails on the money market is a feasible alternative and a suitable compromise for economies where a long-term treasury is not liquid or may not even exist. According to the purpose of this paper and to literature's habit we use as proxy for the risk-free rate, the one-month Treasury Bill rate, where data are available from July 1926 (from Ibbotson Associates).[5] Note that local currencies equity risk premium should be the purest one, but this would lead to less interesting results for international investors. We evaluate US$ returns in developed and emerging markets versus US$ risk-free rates of return. As soos as portfolios will be rebalanced, investors will be involved in currency

[4]The MSCI Total Return Index measure the price performance of markets with the income from constituent dividend payments. The MSCI Daily Total Return (DTR) Methodology reinvests an index constituents dividends at the close of trading on the day the security is quoted ex-dividend (the ex-date)

[5]The one-month Treasury bill rate time series has been downloaded from the Fama & French data library

transactions. So instead of being dependable on one variable, the market return, they depend on an extra stochastic variable, the currency. Note also that data on money market (i.e. local currency risk-free rate proxy) are not largerly available for emerging markets. According to the nature of this paper, which aim to capture excess returns' path across worlwide equity markets, ERP are simply computed by using US dollar equity returns and US dollar risk-free rate of return (i.e. one-moth T-bill).

The ERP is defined as the return on equity minus the risk-free rate of return. According to our data set, the one-month Treasury bill rate has been subtracted to the MSCI Total Return Index monhtly rate. Formally:

$$ERP_t = R^e_{t,t+1} - R^f_t \tag{1}$$

Equity risk premia have been calculated firstly using the largest available data set, both for emerging and developed markets, where the former presents a shorter sample. In order to perform an homogeneous analysis across countries a common sample has been used, thus equity premia will be compared over such common sample, starting in Jan 1988 and ending in Dec 2010. In what follows some ERP standard statistics are illustrated. ERP distributional characteristics are well represented in the following pages. This section is mainly devoted to explore reasons why the emerging markets equities have high expected excess returns and to capture the main differences between such "young" markets and developed markets. The higher returns and more volatile nature of emerging market returns is evident. The declining nature of the equity premia, especially in advanced economies, is well captured by our statistics. Compared to the whole sample, which statistics are represented in Table 2 for developed markets (i.e Jan 1970 - Dec 2010) and in Table 5 for emerging ones (i.e Jan 1988 - Dec 2010), the equity premia in the sub-sample (i.e. Jan 2000 - Dec 2010) are lower in most markets. This trend is well established both in advanced and emerging markets. For example, US market displays a 0.43% average monthly ERP over the whole sample and an unpleasant -0.02% over the sub-sample, while Argentina and Brasil jump respectively from a 2.28% and 2.50% to a 1.30% and 1.83%. Also the Japanese market moves from a positive equity premium (0.52%) over the whole sample to a negative one (-0.13%). In line with other empirical studies (Salomons and Grootveld 2003) our results confirm the higher emerging markets' equity premia. On annual basis emerging markets display an ERP ranging from a minimum of 3.41% (China) to a maximum of 29.96% (Brazil). A different range is instead defined by developed markets where we have a minimun of -1.59% (Japan) and a maximum of 10.63% (Norway). These numbers are in line with those found by empirical estimates based on United States' ERP in the 80's and 90's. Equity premium's estimates in United States are found to be around 4% for the last two centuries (Siegel 1998) and around 7% for the 1926-1999 period (Center for Research in Security Prices). Numbers that partially prove the advanced economies persistency in offer lower equity premia and that strongly confirm the emerging markets' willingness to offer higher compensation for risk. A confirmation of this last statement is provided by data represented in Table 3 and Table 5, where the ERP for the USA market is negative (-0.27% on annual basis)[6] while for the Chinese and Indian markets is largerly positive, moving respectivley to a 10.85% and 16.50% on annual basis over the last decade. Not surprisingly correlations between Chinese and Indian stock returns and USA stock return over this last decade are low, respectively equal to 0.17 and 0.12, implying a weak degree of co-movement

[6]Mehra & Prescott (1985) found, on annual basis, a ERP of 6.18% over the period 1889-1978

between tha Asian markets and the US market. Is it enough to conclude that emerging markets compensate investors for bearing that higher risk? To provide a exhaustive answer, further analysis on distributional characteristics is required. Thus, we further investigate data properties (i.e. ERP time series), measuring skewness and kurtosis. If the data are normally distributed, then these measures should be equal respectively to 0 and 3. According to existing literature investors exhibit decreasing absolute risk aversion, thus they tend to have a preference for positive skewness. The presence of negative skewness over the common sample Jan 1988 - Dec 2010 is confirmed for all developed markets, except for Japan. The observation that the ERP for developed markets in negatively skewed is also observed by Salomons and Grootveld (2003) and by Bekaert et al. (1998). On the contrary skewness for emerging markets is mostly positive. Among 19 emerging markets, only ERP for Chile, Colombia, Czech Republic, Hungary, Mexico and South Africa is negatively skewed. As an implication the ERP seems to be not normally distributed. Our statistics confirm the non-normality of the distribution of the ERP. The null hypothesis of normal distribution of the ERP is rejected at 5% significance level in most markets.[7] Do investors prefer negative or positive skewness? As suggested by Scott and Horvath (1980) rational investors should prefer positive skewness. They claim, that, a-priori, investors would prefer an asset or portfolio with high probability of a return greater than the expected value compared to an investment with a high probability that its return will be less than the expected value. Risk averting investors prefer positive skewness over no skewness and over negative skew in the distribution of returns or wealth. Therefore in presence of negative skewness investors will ask compensation for bearing such risk. Following this reasoning and according to our results we should expect to have higher ERP in developed markets, but our ex-post analysis suggests the opposite. In fact, ex-post equity premia in emerging markets are higher than in developed ones. A risk alert in finance is commonly given by standard deviation. According to this risk measure it is easy to recognize that emerging markets are much more volatile than "old" markets. Standard deviation for emerging markets moves from a minimum of 5.66% (Morocco) to a maximum 16.96% (Turkey) while the same risk measure for developed markets has been in a range between 4.32% (USA) and 7.74% (Norway). As measure of risk, the standard deviation has one major drawback. Standard deviations measure uncertainty or variability of returns but in some cases this does not capture the true value of risk. As a matter of fact, this risk measure is symmetric, large positive outcomes are treated as equally risky as large negative ones. Grootveld and Hallerbach (1999) claim that, in practice, positive outliers should be regarded as a bonus and not as risk. Especially in the presence of non-symmetric distributions it is better to look at some measure of downside risk.

[7] Over the common sample we have normal distribution only in the following markets: Italy, Colombia and India.

	Australia	Canada	France	Germany	Italy	Japan	Netherlands	Norway	Singapore	Spain	Switzerland	UK	USA
Obs.	493	493	493	493	493	493	493	493	493	493	493	493	493
Mean	0.59%	0.57%	0.61%	0.58%	0.32%	0.52%	0.71%	0.82%	0.86%	0.57%	0.63%	0.59%	0.43%
Std. Dev.	7.09%	5.79%	6.62%	6.37%	7.42%	6.30%	5.63%	8.01%	8.42%	6.78%	5.36%	6.49%	4.52%
Skewness	-0.6862	-0.5237	-0.1360	-0.2911	0.1606	0.2159	-0.4892	-0.3728	0.3659	-0.1591	-0.1368	1.1602	-0.4147
Kurtosis	7.3653	5.2473	4.3333	4.3412	3.7889	3.6294	5.1915	4.4723	8.4806	4.6518	4.1948	13.9392	4.6752
Median	0.60%	0.77%	0.78%	0.53%	0.15%	0.41%	0.82%	0.78%	0.78%	0.64%	0.62%	0.49%	0.80%
Max	24.70%	21.25%	26.13%	23.59%	30.43%	23.66%	24.98%	24.98%	52.57%	26.16%	23.88%	55.71%	16.98%
Min	-44.96%	-27.09%	-24.26%	-24.49%	-23.75%	-19.95%	-25.26%	-33.51%	-41.79%	-27.71%	-18.09%	-21.98%	-21.67%
J. Bera	430.1384	126.2770	38.0361	43.9096	14.9023	11.9694	118.3178	55.9518	628.0041	58.1273	30.8596	2568.7260	71.7827
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0006)	(0.0025)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Table 2: Distributional characteristics of the monthly ERP of Developed Markets (Sample: Dec 1969 - Dec 2010)

	Australia	Canada	France	Germany	Italy	Japan	Netherlands	Norway	Singapore	Spain	Switzerland	UK	USA
Obs.	132	132	132	132	132	132	132	132	132	132	132	132	132
Mean	1.04%	0.83%	0.28%	0.35%	0.19%	-0.20%	0.31%	1.18%	0.68%	0.67%	0.48%	0.18%	-0.02%
Std. Dev.	6.63%	6.58%	6.50%	7.51%	6.88%	5.21%	6.69%	8.52%	7.06%	7.40%	4.86%	5.07%	4.76%
Skewness	-0.5993	-0.6505	-0.4544	-0.4186	-0.3811	-0.0520	-0.7890	-0.8529	-0.7227	-0.3963	-0.4050	-0.3361	-0.5023
Kurtosis	4.6599	4.9776	3.7983	4.2229	3.8493	2.8833	4.6813	5.4855	6.2967	4.1575	3.3177	4.4957	3.6173
Median	1.33%	1.48%	0.68%	0.53%	0.69%	-0.53%	0.55%	1.49%	0.72%	1.23%	0.92%	0.20%	0.63%
Max	17.78%	21.25%	15.64%	23.59%	19.15%	13.40%	14.39%	21.46%	24.85%	22.08%	11.70%	13.86%	9.59%
Min	-25.66%	-27.09%	-22.56%	-24.49%	-23.75%	-14.93%	-25.26%	-33.51%	-29.14%	-25.42%	-12.42%	-19.11%	-17.25%
J. Bera	23.06	30.82	8.05	12.08	7.16	0.13	29.24	49.98	71.27	10.82	4.16	14.79	7.65
	(0.0000)	(0.0000)	(0.0179)	(0.0024)	(0.0278)	(0.9350)	(0.0000)	(0.0000)	(0.0000)	(0.0045)	(0.1247)	(0.0006)	(0.0219)

Table 3: Distributional characteristics of the monthly ERP of Developed Markets (Sample: Jan 2000 - Dec 2010)

	Australia	Canada	France	Germany	Italy	Japan	Netherlands	Norway	Singapore	Spain	Switzerland	UK	USA
Obs.	276	276	276	276	276	276	276	276	276	276	276	276	276
Mean	0.81%	0.72%	0.72%	0.71%	0.41%	-0.13%	0.70%	0.89%	0.73%	0.73%	0.75%	0.46%	0.55%
Std. Dev.	6.04%	5.65%	5.98%	6.65%	7.02%	6.35%	5.61%	7.74%	7.26%	6.89%	5.03%	4.90%	4.32%
Skewness	-0.3595	-0.6560	-0.2466	-0.4244	-0.0177	0.2450	-0.8576	-0.6801	-0.2176	-0.2808	-0.2394	-0.1047	-0.5887
Kurtosis	4.3224	5.7845	3.9341	4.7132	3.4836	3.7328	5.3431	5.0831	5.6113	4.2925	3.7519	3.9557	4.0402
Median	0.71%	1.20%	0.75%	1.03%	0.59%	-0.53%	1.02%	1.14%	0.79%	0.83%	0.70%	0.26%	0.98%
Max	17.78%	21.25%	20.74%	23.59%	21.42%	23.66%	14.39%	21.46%	25.41%	22.08%	15.99%	14.40%	11.04%
Min	-25.66%	-27.09%	-22.56%	-24.49%	-23.75%	-19.95%	-25.26%	-33.51%	-29.14%	-25.42%	-16.03%	-19.11%	-17.25%
J. Bera	26.05	108.96	12.83	42.04	2.70	8.94	96.97	71.18	80.60	22.84	9.14	11.01	28.38
	(0.0000)	(0.0000)	(0.0016)	(0.0000)	(0.2587)	(0.0115)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0104)	(0.0041)	(0.0000)

Table 4: Distributional characteristics of the monthly ERP of Developed Markets (Sample: Jan 1988 - Dec 2010)

	Argentina	Brazil	Chile	China	Colombia	Czech Rep.	Egypt	Hungary	India	Indonesia
Obs.	276	276	276	216	216	192	192	192	216	276
Mean	2.28%	2.50%	1.50%	0.28%	1.61%	1.22%	1.68%	1.50%	1.06%	1.68%
Std. Dev.	15.82%	15.19%	7.08%	10.74%	9.49%	8.62%	9.65%	11.12%	9.03%	14.81%
Skewness	1.7428	0.3283	-0.2357	0.5427	-0.0893	-0.2864	0.5230	-0.2661	0.0608	1.6358
Kurtosis	11.9553	7.3113	4.6299	5.1929	3.5448	4.2503	5.1285	5.6918	3.6752	12.5365
Median	1.75%	2.31%	1.35%	0.29%	2.28%	1.68%	0.81%	1.91%	1.33%	1.03%
Max	95.05%	79.95%	21.65%	46.44%	30.30%	29.58%	42.55%	45.74%	36.68%	93.79%
Min	-41.76%	-67.19%	-29.53%	-27.52%	-28.24%	-29.52%	-32.52%	-43.43%	-28.56%	-40.95%
J. Bera	1061.99	218.72	33.11	53.88	2.96	15.13	44.99	60.23	4.24	1168.95
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.2279)	(0.0005)	(0.0000)	(0.0000)	(0.1203)	(0.0000)

	Malaysia	Mexico	Morocco	Philippines	Poland	Russia	South Africa	Korea	Turkey
Obs.	276	276	192	276	216	192	216	276	276
Mean	0.78%	1.80%	0.95%	0.72%	1.90%	2.41%	1.15%	0.92%	2.03%
Std. Dev.	8.52%	9.24%	5.66%	9.33%	14.55%	16.56%	8.11%	11.23%	16.96%
Skewness	0.5116	-0.5006	0.2126	0.3439	2.3032	0.1870	-0.5176	0.9975	0.6662
Kurtosis	8.5758	4.5943	4.3903	5.1879	20.3044	4.8958	4.1630	8.2829	4.7815
Median	0.89%	2.13%	0.97%	0.46%	1.99%	2.48%	1.36%	-0.42%	0.93%
Max	49.66%	28.47%	23.58%	43.07%	117.07%	60.69%	21.14%	70.17%	72.61%
Min	-30.61%	-34.68%	-15.55%	-29.63%	-35.25%	-59.66%	-30.94%	-31.68%	-41.63%
J. Bera	369.56	40.76	16.9085	60.4893	2885.9590	29.8721	21.8187	366.72	56.91
	(0.0000)	(0.0000)	(0.0002)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Table 5: Distributional characteristics of the monthly ERP of Emerging Markets (Sample: Jan 1988 - Dec 2010)

	Argentina	Brazil	Chile	China	Colombia	Czech Rep.	Egypt	Hungary	India	Indonesia
Obs.	132	132	132	132	132	132	132	132	132	132
Mean	1.30%	1.83%	1.27%	0.90%	2.65%	1.91%	1.56%	1.08%	1.38%	1.74%
Std. Dev.	12.29%	10.80%	6.32%	8.62%	9.46%	8.55%	10.10%	10.51%	9.31%	11.02%
Skewness	0.0874	-0.4106	-0.5410	-0.4856	-0.3286	-0.1843	0.2504	-0.6067	-0.1040	-0.3443
Kurtosis	5.5236	3.7218	5.4726	3.2514	3.2642	4.2772	4.7633	4.9693	4.1935	3.9497
Median	1.79%	1.93%	1.63%	1.53%	3.25%	1.68%	1.41%	1.91%	2.00%	2.37%
Max	52.77%	28.37%	20.03%	19.62%	24.61%	29.58%	42.55%	27.29%	36.68%	30.53%
Min	-41.76%	-32.13%	-25.70%	-22.82%	-28.24%	-29.52%	-32.52%	-43.43%	-28.56%	-39.56%
J. Bera	35.19	6.57	40.07	5.54	2.76	9.72	18.48	29.43	8.07	7.57
	(0.0000)	(0.0374)	(0.0000)	(0.0628)	(0.2516)	(0.0078)	(0.0001)	(0.0000)	(0.0177)	(0.0227)

	Malaysia	Mexico	Morocco	Philippines	Poland	Russia	South Africa	Korea	Turkey
Obs.	132	132	132	132	132	132	132	132	132
Mean	0.84%	1.19%	0.85%	0.54%	1.05%	1.66%	1.26%	1.14%	1.38%
Std. Dev.	5.79%	7.41%	6.11%	8.00%	10.35%	11.19%	8.01%	9.74%	15.12%
Skewness	-0.2497	-0.6999	0.1590	-0.1276	-0.1049	-0.1620	-0.4623	0.0136	-0.0978
Kurtosis	3.3333	4.5614	4.1060	3.1627	3.4631	3.9665	3.1559	3.1057	3.3747
Median	1.14%	1.91%	0.82%	0.35%	1.35%	2.40%	1.80%	0.92%	2.92%
Max	16.08%	17.23%	23.58%	19.25%	28.59%	37.09%	17.55%	26.98%	44.49%
Min	-17.55%	-30.76%	-15.55%	-24.41%	-33.93%	-35.36%	-26.26%	-26.20%	-41.63%
J. Bera	1.98	24.19	7.28	0.50	1.42	5.71	4.84	0.07	0.98
	(0.3710)	(0.0000)	(0.0262)	(0.7773)	(0.4913)	(0.0574)	(0.0891)	(0.9678)	(0.6118)

Table 6: Distributional characteristics of the monthly ERP of Emerging Markets (Sample: Jan 2000 - Dec 2010)

In Table 7 and 8 we report the downside standard deviation or semideviation for each equity market. It is well known that, in portfolio theory, semideviation considers the fluctuations in returns (or excess return) below the mean, providing an effective measure of downside risk for a portfolio. Such a measure should help investors in seeing how much loss can be expected from a portfolio. Values in Table 7 and 8 show that emerging markets, compared to developed markets, contain more downside risk. Note that in some emerging markets, semideviation is twice that of a developed markets. For example, among emerging markets, Russia and Turkey display annualised semideviation respectively equal to 136.89% and 132.94%; and among developed markets, Australia and USA display annualised semideviation respectively equal to 52.75% and 53.17%. The difference in the range under which downside risk measures change between "young" and "mature" markets is evident. Note that dowside risk across developed markets is fairly stable. On a monthly basis it moves from a value of 4.40% (Australia) to a value of 5.64% (Singapore), while across emerging markets it is more variable, as it moves from a value of 3.92% (Morocco) to a value of 11.41% (Russia).[8] We would also like to stress the fact that the differences between standard deviations and semi-standard deviations in emerging markets are much higher than in developed markets, indicating that in riskier markets large positive outcomes are more likely to happen. Economists and financial practitioners have long recognized that investors care differently about downside losses versus upside gains. Agents who place greater weight on downside risk demand additional compensation for holding stocks with high sensitivities to downside market movements. As pointed out by Estrada (2000), dowside risk revails the true risk associated within emerging markets, thus investors in general are rewarded with higher return, but if things go wrong, the damage can be severe and detrimental to performance. The structure of the emerging markets' excess return distribution is largely unstable. Distributional characteristics of ERP in Table 5 and Table 6 strongly confirm this behavior. The same argument, mostly due to the chosen period, can be partially sustained also for advanced economies. Financial literature supports the idea that the global business cycle is the main force behind the time varying nature of the ERP in emerging markets, as well as in mature markets. On this issue, Salomons and Grootveld (2003) emphasize the fact that emerging economies are heavily exposed to the global business cycles and that investors might see emerging markets as a "leveraged play" on the global cycle (i.e. high beta markets).[9] Compared to the whole sample, our statistics show that in many emerging markets, such as Argentina, Brazil, Egypt, Hungary, Poland, Russia and Turkey, the ERP decreases over the "crisis" sample (i.e. Jan 2007 - Dec 2010). On the contrary, Asian markets show higher ERP over this sub-sample.[10]

As expected financial markets located in emerging economies have also been driven by the global economic downturn. Following advanced economies, over these last three years they also collapsed. As above mentioned only asian financial markets follow a different path. In the last decade, and especially in more recent years, global financial markets have become much more integrated, even if located in complety different geographic zones. Table 16 in appendix A provides the full country-by-country correlation

[8] To measure the cross-country varying component of the dowside risk we computed the standard deviation both for emerging markets and developed markets. The former present a sd close to zero while the latter, as expected, a sd close to 2%.

[9] A deeply discussion and analysis on this issue is reported in Section 5.

[10] China, India and Indonesia moved from their respectively entire sample equity premia 0.28%, 1.06% and 1.68% to the following ones: 1.07%, 1.35% and 2.13%.

Country	Standard Deviation	Sharpe Ratio	Dowside Risk	Country	Standard Deviation	Sharpe Ratio	Dowside Risk
Australia	6.04%	0.135	4.40%	Norway	7.74%	0.114	5.90%
Canada	5.65%	0.127	5.06%	Singapore	7.26%	0.101	5.64%
France	5.98%	0.120	5.11%	Spain	6.89%	0.105	5.48%
Germany	6.64%	0.107	5.45%	Switzerland	5.03%	0.149	4.69%
Italy	7.02%	0.059	5.46%	United Kingdom	4.90%	0.094	4.58%
Japan	6.35%	-0.021	5.11%	United States	4.32%	0.128	4.43%
Netherlands	5.61%	0.124	5.10%				

Table 7: Developed Markets Equity Risk Premia Risk Measures (Sample: Jan 1988 - Dec 2010)

Country	Standard Deviation	Sharpe Ratio	Dowside Risk	Country	Standard Deviation	Sharpe Ratio	Dowside Risk
Argentina	15.82%	0.144	9.56%	Malaysia	8.52%	0.091	5.90%
Brazil	15.19%	0.164	10.37%	Mexico	9.24%	0.194	6.86%
Chile	7.08%	0.211	5.05%	Morocco	5.66%	0.167	3.92%
China	10.74%	0.026	7.25%	Philippines	9.33%	0.077	6.38%
Colombia	9.49%	0.169	6.80%	Poland	14.55%	0.131	8.82%
Czech Republic	8.61%	0.142	6.29%	Russia	16.56%	0.145	11.41%
Egypt	9.65%	0.174	6.39%	South Africa	8.11%	0.142	6.04%
Hungary	11.12%	0.135	8.10%	Korea	11.23%	0.082	7.22%
India	9.03%	0.118	6.38%	Turkey	16.96%	0.120	11.08%
Indonesia	14.81%	0.113	9.13%				

Table 8: Emerging Markets Equity Risk Premia Risk Measures (Sample: Jan 1988 - Dec 2010)

matrix computed using the sub-sample Jan 2008 - Dec 2010. Not surprisingly correlations between "geographically" different stock markets increased. For example, over the larger sample (i.e. Jan 1995 - Dec 2010) correlations between US and Argentina, India, Russia are respectively 0.1, 0.05 and -0.01, while over the "crisis sample" they moves to 0.39, 0.29 and 0.36. In the next section a similar analysis will be performed accounting for macro-area equally weighted portfolios.

3 The Equity Risk Premia: A Macro-Areas Analysis

To further investigate the differences in equity risk premia across heterogenous markets we construct six different time series, each of them composed by countries belonging to the same macro-area. We basically build six equally weighted portfolios (i.e. equally weighted excess returns) for developed, emerging and other four macro-area stock markets (i.e. Asia, Latin America, Eastern Europe and Africa & Middle East).[11] In what follows we will show that the equally weighted portofolios for developed and emerging markets display distributional characteristics similar to previous single-country ERP series. Following Salomons and Grootveld (2003) this procedure reduces the impact of country specific issues.

	Developed Markets	Asia	Latin America	Eastern Europe	Africa	Emerging Markets
Obs.	276	276	276	276	216	276
Mean	0.62%	0.97%	2.07%	2.40%	1.41%	1.67%
Std. Dev.	4.91%	7.56%	8.18%	15.66%	6.03%	6.77%
Skewness	-0.7322	0.0546	-0.3127	0.5106	-0.2059	-0.6069
Kurtosis	5.3499	4.7868	4.7612	5.4574	4.8496	5.2787
Median	1.00%	0.95%	2.26%	3.18%	1.56%	2.17%
Max	13.76%	27.64%	27.74%	72.61%	21.82%	20.40%
Min	-23.02%	-26.52%	-31.72%	-52.22%	-23.15%	-29.67%
J. Bera	88.17	36.85	40.17	81.44	32.32	76.66
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Table 9: Distributional characteristics of equally weighted portfolios monthly excess returns (Sample: Jan 1988 - Dec 2010)

Distributional characteristics are shown in Table 9. "New" Emerging markets portoflios show both higher ERP and volatility than the developed one. This provides further confirmation that the emerging markets compensate investors for bearing higher risk. ERP data for all six portfolios are not normally distributed. Developed, Africa, Latin America and Emerging equity premia show negative skewness. Following Scott and Horvath (1980), in presence of negative skewness, investors in developed markets should be compensated in bearing such risk, but our ex-post analysis reports the opposite result. Table 9 well illustrates that the developed equally weighted portfolio holds the worst performance over the common sample (i.e. 0.62% on monthly

[11] The six different equally weighted portfolios have been designed as follows:

- Developed (all): equally weighted ERP portfolios composed by Australia, Canada, France, Germany, Italy, Japan, Netherlands, Norway, Singapore, Spain, Switzerland, UK and United States
- Emerging (all): equally weighted ERP portfolios composed by Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Morocco, Philippines, Poland, Russia, Republic of South Africa, Korea and Turkey
- Asia: equally weighted ERP portfolios composed by China, India, Indonesia, Malaysia, Philippines and Korea
- Latin America: equally weighted ERP portfolios composed by Argentina, Brazil, Chile, Colombia and Mexico
- Eastern Europe: equally weighted ERP portfolios composed by Czech Republic, Hungary, Poland, Russia and Turkey
- Africa & Middle East: equally weighted ERP portfolios composed by Egypt, Morocco and Repuplic of South Africa

Note that in case of missing data, mainly due to data availability, a zero weight has been used. Once data became available we added one more asset or country (i.e. equally weighted) to our portfolio.

basis and 7.3% on annual basis). This poor performance is also confirmid over largest sample Jan 1970 - Dec 2010 where it provides a premium equal to 0.61% (i.e. 7.2% on annual basis). For analysis' completeness we have also downloaded the MSCI World Total Return Index.[12] Since it is mostly composed by the same countries included in our developed equally weighted portfolio, we have that its average ex-post ERP over the common sample Jan 1988 - Dec 2010 is still quite low (i.e. 4.46% on annual basis) and equal to 4.91% over the whole sample Jan 1970 - Dec 2010. The more volatile nature of our "exotic" portfolios is also evident.

Country Equally Weighted Portfolios	Standard Deviation	Sharpe Ratio	Dowside Risk	Statistic (ξ)
Developed	4.91%	0.126	3.72%	
Asia	7.56%	0.128	5.35%	0.1450 (0.9999)
Latin America	8.18%	0.253	5.92%	13.0236 (0.0232)
Eastern Europe	15.66%	0.154	10.54%	2.0872 (0.8370)
Africa & Middle East	6.03%	0.234	4.37%	8.3060 (0.0401)
Emerging	6.77%	0.246	5.06%	12.1729 (0.8781)

Table 10: Equally Weighted Portfolios: Equity Risk Premia Risk Measures (Sample: Jan 1988 - Dec 2010)

In comparing these portfolios a test for equivalence on their Sharpe ratios is performed and analyzed. Formally we are required to test the following:

$$H_0 : \ S_{develped} = S_{emerging}$$

$$H_1 : \ S_{develped} \neq S_{emerging}$$

where the statistic is defined as:

$$\xi = T \, \frac{S^2_{emerging} - S^2_{developed}}{1 + S^2_{developed}} \rightarrow \chi^2(N)$$

Table 10 shows, for each portfolio, the statistic ξ and, its associated p-value, the latter reported in parentheses. On the basis of our equally weighted portfolios the null hypothesis of equivalence between the Sharpe ratios is not rejected at 5% significance level for Asia, Eastern Europe and Emerging, while it is rejected for Latin America and Africa & Middle East. Analogous results are obtained by performing the test over the sub-sample Jan 2000 - Dec 2010. In this case the Sharpe ratios of the

[12]The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of May 27, 2010 the MSCI World Index consisted of the following 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.
Source: MSCI website

two portfolios, one composed by Latin America markets and the other composed by Africa & Middle East markets, are statistically different from those of the portfolio composed by developed markets.[13] From a statistical point of view our tests suggest that, in terms of Sharpe ratios, the developed market portfolio is equivalent to the emerging market portfolios (i.e. Asia, Eastern Europe and Emerging). Does it make sense ? Is it reasonable that investors are indifferent between investing their money in developed or in emerging markets ? Based on simple distributional characteristics we recognize that these portfolios are quite far to be equivalent. They are equivalent only in statistical sense. As pointed out above we have that only two out of six equally weighted portfolios are not equivalent in a statistical sense (i.e. Latin America and Africa & Middle East). By computing Sharpe ratios for these aggregate portfolios (i.e. adjusting the ERP for standard deviation) we can easily notice the huge difference in emerging markets ratios respect to the mature market one. Note that Sharpe ratios of the non-equivalent portfolios are double than the developed one. From an investment point of view these portfolios cannot be treated by a practitioner in the same way. It should also be noticed that the correlation between emerging and developed portfolio's returns is very low. Table 10 shows that correlation between Developed and Asia (or Eastern Europe) is just equal to 0.12 (0.07).

Our main results show that paths followed by emerging markets' equity premia

Correlations	Developed	Emerging	Asia	Africa	Eastern Eu	Latina America
Developed	1.00					
Emerging	0.14	1.00				
Asia	0.12	0.87	1.00			
Africa	0.19	0.67	0.56	1.00		
Eastern Eu	0.07	0.84	0.57	0.48	1.00	
Latina America	0.13	0.88	0.67	0.51	0.68	1.00

Table 11: Macro-Areas Equity Returns: Correlation Matrix (Sample: Jan 1988 - Dec 2010)

are largerly different by those followed by developed markets. Even if in the last decade globally integrated financial markets development improved financial trasmission across different countries, correlation measures over the sample Jan 2000 - Dec 2010 confirm that emerging markets' performances are still quite far from fitting those of developed markets.[14]

In line with other empirical studies we find that the ERP in emerging markets are significantly higher than in developed markets. Results confirm both, the ERP time varying nature and its recent declining. The latter phenomenon mostly capture the mature markets' ERP behaviour (i.e. United States and EU Countries) within the

[13]The only difference respect to the entire sample is on the equivalence between Africa & Middle East and Developed where we reject the null at 10% significance level, instead of 5%.

[14]Equity returns correlations among different macro areas have been computed over the sub-sample Jan 2000 - Dec 2010. Here below our results:

Correlations	Developed	Emerging	Asia	Africa	Eastern Eu	Latina America
Developed	1.00					
Emerging	0.22	1.00				
Asia	0.18	0.91	1.00			
Africa	0.23	0.82	0.73	1.00		
Eastern Eu	0.16	0.89	0.72	0.65	1.00	
Latina America	0.20	0.92	0.77	0.70	0.77	1.00

last two decades.[15] The non-normal distribution of equity risk premium in emerging markets suggests that investors should focus more on dowside risk instead of standard deviation. The summary statistics along macro-areas also provide a number of differences between emerging markets and developed markets. We can definitely state that emerging markets tend to provide higher average excess returns and volatility than developed markets. As pointed out above, such result can be partially justified by the low correlation between emerging and developed markets. In appendix A we provide the full country-by-country correlation matrix. For example, the average correlation between the US mothly returns and all the emerging returns is close to zero (i.e. 0.05). Over the analized sample, monthly returns in Indonesia, Malaysia and Russia are negative correlated with US monthly returns. On the contrary the correlation among single developed markets is quite high (i.e. close to 1). Literature suggests that the low correlations between returns in emerging markets and developed markets might respresent profitable investment opportunities, while other studies document the importance of low correlation between developed and emerging markets in generating substantial benefits from international diversification. Barriers to foreign investment flows on emerging markets in order to preserve the control of national companies, the asymmetric information on securities in emerging markets, strong controls of exchange and the lack in free trade of emerging markets with international markets can be viewed as factors explaining the low correlations and consequently the importance of emerging markets in international portfolio diversification strategies. Errunza (1983) suggests that diversification in emerging markets could offer substantial investment gains. He found that over the small period from 1976 to 1980 returns on emerging markets were relatively high and exhibited low correlations with returns on markets in developed countries, providing international investors with the chance to capture excess risk premia. Stone (1992) also shows the benefits from investing in emerging markets. He claims that the low correlation between emerging markets, taken as a whole, and US equity markets improves diversification; and reduces the risk of portfolio returns. Divecha, Drach and Stefek (1992) points out that emerging markets have become more accessible to the global investor, mainly due to a drop in existing barriers to foreign direct investment (FDI). They find that while emerging markets are more volatile than developed markets, they also tend to be relatively uncorrelated with each other and with developed markets. As a consequence modest investment in the emerging markets leads to lower, rather than higher, portfolio risk for the global investor.[16] Harvey (1995) also shows that the average correlation between emerging and developed markets was only 14% over the period Mar 1986 Jun 1992, meaning that portfolio diversification could be feasible and beneficial. Figure 2 in appendix A confirms the large fluctuations in emerging markets' performances (i.e. high volatility markets). In 4.2 we see, that accounting for barriers to foreign investment flows and liquidity, a distortionary effect on the estimates of the coefficient of the basic CAPM takes place. It should be also evident the effect of the globalization on the path followed by these markets. During the last decade they followed a path quite close to those of developed markets. Note that the large drop in emerging equity markets in recent years is mainly due to shocks to global financial markets, as consequence of the collapse of Lehman Brothers in mid-September 2008. Focusing on the recent global markets integration, the stock market liberalization, intended as structural change,

[15] See Jagannathan, R. et al. (2000) for an accurate and complete discussion on the declining US equity premium

[16] See also Errunza and Padmanabhan (1988), Speidell and Sappenfield (1992) and Wilcox (1992).

plays a crucial role. Bekaert (1995), Stulz (1999) and Henry (2000) claim that in more liberalised and integrated markets, that cost of capital is lower bacause the removal of investment barriers allows for risk sharing. As a consequence the integration process might lower the required equity premium and increase the correlation between emerging and developed markets. Our data support the study of Bekaert (1995) in which he illustrates that many of the capital market liberalisations occurred in the early 1990s. This topic will be addressed in detail in section 5.

4 Understanding Emerging Markets Equity Risk Premia

4.1 A Simple One-Factor Model

Our empirical analysis of the CAPM is based on the standard formulation put forward by Lintner and Sharpe.[17] The capital asset pricing model developed by Sharpe (1964), Lintner (1964) and Black (1972) stipulate that the expected return on a stock is determined by the risk-free interest rate and a risk premium. Early empirical tests of the model generally supported its main prediction as beta being the only factor in explaining the cross sectional variation across stock. Our aim is now to replicate this simple model using our data on 32 different countries and 6 equally weighted portolios over a couple of specific sub-samples. As in Black, Jensen and Scholes (1972) we can consider the following linear regression suggested by the CAPM:

$$z_{i,t} = \alpha_i + \beta_i z_{M,t} + \epsilon_{i,t} \tag{2}$$

where $t = 1, 2, ..., T$. Excess equity market return of country i and world equity market excess returns are respectively denoted by $z_{i,t}$ and $z_{M,t}$. It is well known that the "real" market portfolio is not observable, therefore a proxy is used. This means that usually we consider the return on a stock-market index, such as the "FTSE all share" or the "S&P500". Our preliminary analysis is based on the Fama & French market risk factor.[18] The same analysis is then implemented by using another proxy for the market portfolio. In this case the MSCI World Total Return Index is used. If Sharpe and Lintners standard CAPM applies, in equation 2 the following holds:

$$\alpha_i = 0. \tag{3}$$

In other words, a first simple way to check if the CAPM holds is to run a test of significance on the intercept of this linear regression, proceeding asset by asset. The coefficient α_i is referred to as Jensen's alpha, a value extensively employed in finance to

[17] Formally, the Sharpe-Lintner version of the CAPM:

$$E(R_i) = R_f + \beta_{i,M}[E(R_M) - R_f]$$

where

$$\beta_{i,M} = \frac{cov(R_i, R_M)}{Var(R_M)}$$

being R_M the return of the market portfolio and R_f the return of the risk-free asset. In terms of excess returns:

$$E(z_i) = \beta_{i,M} E(z_M)$$

where $E(z_M)$ is the excess returns of the market portfolio.

[18] The market factor, or simply excess return on the market, is the value-weight return on all NYSE, AMEX, and NASDAQ stocks (from CRSP) minus the one-month Treasury bill rate (from Ibbotson Associates). Source: Fama & French Data Library.

Country MSCI	Period	α	β	R-Squared (R^2)	Period	α	β	R-Squared (R^2)
Australia	01/70-12/10	0.0020	0.8684**	0.3316	01/00-12/10	0.0095**	1.0663**	0.6502
		(0.4565)	(0.0000)			(0.0065)	(0.0000)	
Canada	01/70-12/10	0.0012	0.9721**	0.6201	01/00-12/10	0.0076*	1.1333**	0.7383
		(0.4428)	(0.0000)			(0.0107)	(0.0000)	
France	01/70-12/10	0.0024	0.7863**	0.3125	01/00-12/10	0.0010	1.1133**	0.7351
		(0.3373)	(0.0000)			(0.7442)	(0.0000)	
Germany	01/70-12/10	0.0024	0.7367**	0.2946	01/00-12/10	0.0022	1.3002**	0.7468
		(0.3311)	(0.0000)			(0.5031)	(0.0000)	
Italy	01/70-12/10	0.0002	0.6178**	0.1536	01/00-12/10	0.0000	1.0563**	0.6003
		(0.9572)	(0.0000)			(0.9914)	(0.0000)	
Japan	01/70-12/10	0.0030	0.4968**	0.1369	01/00-12/10	-0.0026	0.677**	0.4120
		(0.2525)	(0.0000)			(0.4714)	(0.0000)	
Netherlands	01/70-12/10	0.0035	0.8058**	0.4464	01/00-12/10	0.0017	1.1523**	0.7017
		(0.0719)	(0.0000)			(0.6042)	(0.0000)	
Norway	01/70-12/10	0.0038	0.9184**	0.2927	01/00-12/10	0.0095*	1.2984**	0.5919
		(0.2157)	(0.0000)			(0.0446)	(0.0000)	
Singapore	01/70-12/10	0.0043	0.9625**	0.2875	01/00-12/10	0.0055	1.0453**	0.5264
		(0.1859)	(0.0000)			(0.2057)	(0.0000)	
Spain	01/70-12/10	0.0024	0.6702**	0.2175	01/00-12/10	0.0043	1.1317**	0.5929
		(0.3800)	(0.0000)			(0.2992)	(0.0000)	
Switzerland	01/70-12/10	0.0034	0.6311**	0.3060	01/00-12/10	0.0034	0.72**	0.5293
		(0.0982)	(0.0000)			(0.2586)	(0.0000)	
United Kingdom	01/70-12/10	0.0022	0.799**	0.3347	01/00-12/10	0.0003	0.8683**	0.7156
		(0.3542)	(0.0000)			(0.8930)	(0.0000)	
United States	01/70-12/10	-0.0001	0.945**	0.9640	01/00-12/10	-0.0015	0.9348**	0.9594
		(0.7713)	(0.0000)			(0.0743)	(0.0000)	
Argentina	01/88-12/10	0.0162	1.144**	0.1023	01/00-12/10	0.0125	1.0894**	0.1962
		(0.0759)	(0.0000)			(0.1977)	(0.0000)	
Brazil	01/88-12/10	0.0165*	1.4417**	0.1764	01/00-12/10	0.017**	1.5738**	0.5314
		(0.0496)	(0.0000)			(0.0093)	(0.0000)	
Chile	01/88-12/10	0.0105**	0.7476**	0.2180	01/00-12/10	0.0119**	0.7825**	0.3835
		(0.0061)	(0.0000)			(0.0067)	(0.0000)	
China	01/93-12/10	-0.0029	1.1405**	0.2382	01/00-12/10	0.0087	1.0782**	0.3906
		(0.6507)	(0.0000)			(0.1428)	(0.0000)	
Colombia	01/93-12/10	0.0127*	0.7021**	0.1152	01/00-12/10	0.0264**	0.8834**	0.2176
		(0.0401)	(0.0000)			(0.0004)	(0.0000)	
Czech Republic	01/95-12/10	0.0073	0.8616**	0.2306	01/00-12/10	0.0183**	1.0279**	0.3619
		(0.1889)	(0.0000)			(0.0026)	(0.0000)	
Egypt	01/95-12/10	0.0126	0.7476**	0.1380	01/00-12/10	0.0152	0.8194**	0.1644
		(0.0543)	(0.0000)			(0.0617)	(0.0000)	
Hungary	01/95-12/10	0.0067	1.4644**	0.3995	01/00-12/10	0.0099	1.4386**	0.4683
		(0.2866)	(0.0000)			(0.1423)	(0.0000)	
India	01/93-12/10	0.0055	0.9445**	0.2314	01/00-12/10	0.0127*	1.1804**	0.4028
		(0.3098)	(0.0000)			(0.0445)	(0.0000)	
Indonesia	01/88-12/10	0.0100	1.1834**	0.1250	01/00-12/10	0.0168*	1.1335**	0.2641
		(0.2354)	(0.0000)			(0.0438)	(0.0000)	
Malaysia	01/88-12/10	0.0034	0.7646**	0.1575	01/00-12/10	0.0081	0.5338**	0.2123
		(0.4800)	(0.0000)			(0.0733)	(0.0000)	
Mexico	01/88-12/10	0.0107*	1.2629**	0.3651	01/00-12/10	0.0113**	1.2387**	0.6971
		(0.0171)	(0.0000)			(0.0020)	(0.0000)	
Morocco	01/95-12/10	0.0087*	0.1651	0.0195	01/00-12/10	0.0085	0.3422**	0.0778
		(0.0357)	(0.0534)			(0.1024)	(0.0012)	
Philippines	01/88-12/10	0.0021	0.8927**	0.1792	01/00-12/10	0.0050	0.7453**	0.2166
		(0.6897)	(0.0000)			(0.4219)	(0.0000)	
Poland	01/93-12/10	0.0114	1.4715**	0.2159	1/00-12/10	0.0097	1.4099**	0.4633
		(0.1985)	(0.0000)			(0.1446)	(0.0000)	
Russia	01/95-12/10	0.0146	1.71**	0.2451	01/00-12/10	0.016*	1.4378**	0.4104
		(0.1651)	(0.0000)			(0.0350)	(0.0000)	
South Africa	01/93-12/10	0.0058	1.0723**	0.3712	01/00-12/10	0.0116*	1.1319**	0.5038
		(0.1912)	(0.0000)			(0.0198)	(0.0000)	
Korea	01/88-12/10	0.0021	1.1498**	0.2056	01/00-12/10	0.0095	1.402**	0.5218
		(0.7358)	(0.0000)			(0.1091)	(0.0000)	
Turkey	01/88-12/10	0.0132	1.3017**	0.1152	01/00-12/10	0.0134	1.9222**	0.4040
		(0.1759)	(0.0000)			(0.1923)	(0.0000)	
Asia	01/88-12/10	0.0039	0.992**	0.3369	01/00-12/10	0.0102*	1.0136**	0.5476
		(0.2932)	(0.0000)			(0.0126)	(0.0000)	
Latin America	01/88-12/10	0.0146**	1.0671**	0.3328	01/00-12/10	0.0159**	1.1157**	0.5875
		(0.0004)	(0.0000)			(0.0002)	(0.0000)	
Eastern Europe	01/88-12/10	0.0154	1.523**	0.1850	01/00-12/10	0.0174*	2.0206**	0.5880
		(0.0743)	(0.0000)			(0.0203)	(0.0000)	
Africa & Middle East	01/93-12/10	0.0106*	0.6585**	0.2526	01/00-12/10	0.0115**	0.7586**	0.3665
		(0.0034)	(0.0000)			(0.0091)	(0.0000)	
Emerging	01/88-12/10	0.0108**	1.0279**	0.4508	01/00-12/10	0.0128**	1.1142**	0.6754
		(0.0005)	(0.0000)			(0.0002)	(0.0000)	
Developed	01/70-12/10	0.0054*	0.1345**	0.0174	01/00-12/10	0.0045	0.2055*	0.0328
		(0.0122)	(0.0033)			(0.3612)	(0.0378)	

*, ** Significantly different from zero at the 5% and 1% levels, respectively

Table 12: One Factor Model: Estimation Results (Fama & French Market Factor)

Country MSCI	Period	α	β	R-Squared (R^2)	Period	α	β	R-Squared (R^2)
Australia	01/70-12/10	0.0017	1.0402**	0.4097	01/00-12/10	0.0099**	1.1581**	0.7365
		(0.5040)	(0.0000)			(0.0011)	(0.0000)	
Canada	01/70-12/10	0.0015	1.0169**	0.5843	01/00-12/10	0.0081**	1.1569**	0.7387
		(0.3747)	(0.0000)			(0.0069)	(0.0000)	
France	01/70-12/10	0.0015	1.0839**	0.5114	1/00-12/10	0.0014	1.2205**	0.8482
		(0.4667)	(0.0000)			(0.5310)	(0.0000)	
Germany	01/70-12/10	0.0016	1.0132**	0.4798	01/00-12/10	0.0027	1.3912**	0.8209
		(0.4529)	(0.0000)			(0.3275)	(0.0000)	
Italy	01/70-12/10	-0.0008	0.9327**	0.3015	01/00-12/10	0.0004	1.1774**	0.7161
		(0.7639)	(0.0000)			(0.9082)	(0.0000)	
Japan	01/70-12/10	0.0013	0.9769**	0.4560	1/00-12/10	-0.0023	0.7611**	0.5000
		(0.5373)	(0.0000)			(0.4829)	(0.0000)	
Netherlands	01/70-12/10	0.0029	1.0369**	0.6365	01/00-12/10	0.0022	1.2741**	0.8237
		(0.0645)	(0.0000)			(0.3952)	(0.0000)	
Norway	01/70-12/10	0.0034	1.1135**	0.3705	01/00-12/10	0.0101*	1.4343**	0.6935
		(0.2378)	(0.0000)			(0.0151)	(0.0000)	
Singapore	01/70-12/10	0.0039	1.1525**	0.3549	01/00-12/10	0.0059	1.1305**	0.5912
		(0.2004)	(0.0000)			(0.1437)	(0.0000)	
Spain	01/70-12/10	0.0015	0.9573**	0.3820	01/00-12/10	0.0047	1.2582**	0.7037
		(0.5308)	(0.0000)			(0.1804)	(0.0000)	
Switzerland	01/70-12/10	0.0027	0.872**	0.5031	1/00-12/10	0.0036	0.8305**	0.6761
		(0.1217)	(0.0000)			(0.1417)	(0.0000)	
United Kingdom	01/70-12/10	0.0015	1.0744**	0.5210	01/00-12/10	0.0007	0.9662**	0.8509
		(0.4731)	(0.0000)			(0.7048)	(0.0000)	
United States	01/70-12/10	0.0005	0.9107**	0.7709	1/00-12/10	-0.0011	0.9429**	0.9373
		(0.6393)	(0.0000)			(0.2804)	(0.0000)	
Argentina	01/88-12/10	0.0197*	0.8440**	0.0563	01/00-12/10	0.0129	1.1461**	0.2085
		(0.0352)	(0.0001)			(0.1793)	(0.0000)	
Brazil	01/88-12/10	0.0192*	1.5077**	0.1950	01/00-12/10	0.0177**	1.6777**	0.5799
		(0.0204)	(0.0000)			(0.0045)	(0.0000)	
Chile	01/88-12/10	0.0123**	0.6703**	0.1771	01/00-12/10	0.0123**	0.8305**	0.4149
		(0.0017)	(0.0000)			(0.0044)	(0.0000)	
China	01/93-12/10	-0.0020	1.1230**	0.2174	01/00-12/10	0.0091	1.1878**	0.4551
		(0.7646)	(0.0000)			(0.1045)	(0.0000)	
Colombia	01/93-12/10	0.0129*	0.7851**	0.1356	01/00-12/10	0.0267**	0.9835**	0.2590
		(0.0350)	(0.0000)			(0.0003)	(0.0000)	
Czech Republic	01/95-12/10	0.0084	0.9501**	0.2563	01/00-12/10	0.0187**	1.1038**	0.4008
		(0.1203)	(0.0000)			(0.0015)	(0.0000)	
Egypt	01/95-12/10	0.0136*	0.8456**	0.1614	01/00-12/10	0.0155*	0.9781**	0.2250
		(0.0359)	(0.0000)			(0.0480)	(0.0000)	
Hungary	01/95-12/10	0.0088	1.5800**	0.4250	01/00-12/10	0.0104	1.5552**	0.5254
		(0.1516)	(0.0000)			(0.1010)	(0.0000)	
India	01/93-12/10	0.0061	0.9871**	0.2380	1/00-12/10	0.0132*	1.2456**	0.4307
		(0.2618)	(0.0000)			(0.0331)	(0.0000)	
Indonesia	01/88-12/10	0.0128	1.0948**	0.1081	1/00-12/10	0.0173*	1.2489**	0.3078
		(0.1329)	(0.0000)			(0.0330)	(0.0000)	
Malaysia	01/88-12/10	0.0047	0.8332**	0.1891	01/00-12/10	0.0083	0.5831**	0.2432
		(0.3158)	(0.0000)			(0.0611)	(0.0000)	
Mexico	01/88-12/10	0.0138**	1.1383**	0.2998	01/00-12/10	0.0118**	1.2438**	0.6748
		(0.0035)	(0.0000)			(0.0018)	(0.0000)	
Morocco	01/95-12/10	0.0086*	0.263**	0.0452	1/00-12/10	0.0086	0.4274**	0.1165
		(0.0347)	(0.0031)			(0.0906)	(0.0001)	
Philippines	01/88-12/10	0.0038	0.9113**	0.1887	01/00-12/10	0.0053	0.7906**	0.2340
		(0.4551)	(0.0000)			(0.3897)	(0.0000)	
Poland	01/93-12/10	0.0117	1.6544**	0.2570	01/00-12/10	0.0103	1.5308**	0.5244
		(0.1734)	(0.0000)			(0.1018)	(0.0000)	
Russia	01/95-12/10	0.0171	1.8278**	0.2559	1/00-12/10	0.0166*	1.514**	0.4370
		(0.1002)	(0.0000)			(0.0256)	(0.0000)	
South Africa	01/93-12/10	0.0061	1.192**	0.4320	01/00-12/10	0.012*	1.2212**	0.5631
		(0.1472)	(0.0000)			(0.0101)	(0.0000)	
Korea	01/88-12/10	0.0039	1.2965**	0.2642	01/00-12/10	0.0100	1.4546**	0.5393
		(0.5090)	(0.0000)			(0.0840)	(0.0000)	
Turkey	01/88-12/10	0.0155	1.3811**	0.1311	1/00-12/10	0.0141	1.9993**	0.4196
		(0.1058)	(0.0000)			(0.1625)	(0.0000)	
Asia	01/88-12/10	0.0059	1.0000**	0.3461	01/00-12/10	0.0106**	1.0867**	0.6043
		(0.1099)	(0.0000)			(0.0057)	(0.0000)	
Latin America	01/88-12/10	0.0171**	0.9686**	0.2772	01/00-12/10	0.0163**	1.1788**	0.6297
		(0.0001)	(0.0000)			(0.0000)	(0.0000)	
Eastern Europe	01/88-12/10	0.0181*	1.6237**	0.2126	01/00-12/10	0.0182*	2.1366**	0.6312
		(0.0320)	(0.0000)			(0.0105)	(0.0000)	
Africa & Middle East	01/93-12/10	0.0106**	0.7645**	0.3206	01/00-12/10	0.0118*	0.8688**	0.4616
		(0.0020)	(0.0000)			(0.0038)	(0.0000)	
Emerging	01/88-12/10	0.0129**	1.0054**	0.4359	01/00-12/10	0.0132**	1.1958**	0.7471
		(0.0000)	(0.0000)			(0.0000)	(0.0000)	
Developed	01/70-12/10	0.0054*	0.1553**	0.0200	01/00-12/10	0.0045	0.2602**	0.0504
		(0.0125)	(0.0017)			(0.3490)	(0.0096)	

*, ** Significantly different from zero at the 5% and 1% levels, respectively

Table 13: One Factor Model: Estimation Results (MSCI World Total Return Index).

evaluate the performance of asset and fund managers. It indicates whether on average the observed returns on an asset (or portfolio of assets) are larger (or smaller) than the value consistent with the CAPM. To verify the CAPM, hence to have information on excess equity market returns, we need to run a test of significance of the coefficient α_i ($\alpha_i = 0$ vs $\alpha_i \neq 0$). Tables 12 and 13 provide two sets of estimates for the linear index model. The left-hand side of each table contains estimates based on the full sample while the right-hand side reports estimates for the most recent sub-period. As mentioned our preliminary analysis has been implemented by borrowing the Fama & French market factor. We report estimation results for two different periods, the largest dataset available for each equity market and the common subperiod (i.e the last decade). Following Harvey (1995) we also replicate the univariate analysis using a different market factor, the excess return on the MSCI World market portfolio. Estimation results suggest that the market factor is crucial in explaining the excess returns on country equity indeces. All our betas are statistically significant. Note that using the MSCI World as market risk factor, hence running our regressions ove the common sub-sample Jan 2000 - Dec 2010, we obtain the same result (i.e. β's are statistically different from zero). Looking across countries, the one factor pricing model is sporadically rejected. Intercepts are statistically different from zero in Brazil, Chile, Colombia, Mexico, Marocco, Latin America, Africa & Middle East, Emerging and Developed. Based on these emerging stock markets the CAPM does not hold. Then, using the MSCI World as market risk factor, similar results are obtained by.[19]

	F&F Market Factor		MSCI World	
Statistic	CHI-test	F-test	Chi-test	F-test
Global	54.2544	1.2716	75.8296	1.7773
	(0.0083)	(0.1847)	(0.0000)	(0.0166)
Developed	25.6747	1.7655	39.1554	2.6925
	(0.0188)	(0.0565)	(0.0002)	(0.0024)
Emerging	32.2757	1.4413	38.2071	1.7062
	(0.0291)	(0.0357)	(0.0056)	(0.0451)

Table 14: Multivariate Regressions: Testing CAPM (sample: Jan 2000 - Dec 2010).

Typically, empirical studies on the index model are performed by employing data on a group of assets or indeces. In this way, rather than conducting tests on individual assets, as above demostrated, we run tests which investigate whether the CAPM holds for the group of assets or indeces as a whole. This is considered a superior method to test the validity of the CAPM in that the resulting test possesses larger statistical power. Our aim is to jointly estimate a system of regressions. So that, we are required to run a test on the significance of the N assets' alphas. Assuming jointly normal distribution we simple test jointly (i.e. all alphas together) the null hypothesis of $\alpha = 0$. Following Black, Jensen and Scholes (1972) and Gibbons, Ross and Shanken (1989) we provide empirical estimates for three different portofolios. The first composed by emerging equity indeces, the second composed by developed equity indeces and the third contains all indeces. Statistics are computed and reported in Table 14.[20] The multivariate intercept restrictions of Gibbons, Ross and Shanken (1989) adjusted for

[19] Intercepts are statistically different from zero also in Argentina and Eastern Europe.

[20] Formally, the Chi-test and the F-test are the following:

- $\xi_0 \equiv T\left(1+\frac{z_M^2}{\hat{\sigma}_M^2}\right)^{-1}\hat{\alpha}'\hat{\sum}^{-1}\hat{\alpha} \xrightarrow{d} \chi^2(N)$

conditional heteroskedasticity and tested on the 32 worlwide equity markets, on the 13 developed equity markets and on the 19 emerging markets, over the sample Jan 2000 - Dec 2010 provides convincing evidence against the null hypothesis that the intercepts are equal to zero. What emerges from our simple analysis is not only that the intercepts are statistically different from zero, but more importantly, that the sign of these intercepts is always positive. As noticed by Harvey (1999), such result would imply that these countries' returns greatly exceeded expected level of performances.
The last columns of Table 12 and Table 13 report the R^2s of our regressions. The degree of explanatory power is greater in developed markets. Using a single world market factor, 36 out of 38 of the regression display R^2 exceeding 10%. Notice also that results on the goodness of the fit of the model are slighlty different across different samples. Over the sample Jan 2000 - Dec 2010 the R^2s are higher in all markets. A detailed analysis of of R^2s path is developed is section 5. Over the sub-sample all developed countries have R^2s that exceed 50% using macro information (i.e. global risk factor). A significant improvement is then gained by all emerging stock markets. In line with Harvey (1991) we find that most of the variation, especially in recent years, is being driven by global information variables. For completeness the well known Fama & French multifactor model has been tested. Estimations are reported in Table 20 of the appendix. As expected, we find that the two extra factor are not useful in explaining equity risk premia in emerging markets.[21] In the standard pricing model betas are assumed to be linear function of the world information, thus constant over time . In reality, the time variation in the betas does not provide "safe" results in equity returns predictability. On this issue, the rest of the paper provides appealing results. In what follows we try to capture equity premia patterns in emerging markets, taking into account "local factors", such as liquidity and trade.

4.2 The Role of Liquidity

Literature[22] suggests that, in completely segmented markets (i.e. isolated markets) where a one-factor model characterizes asset returns, expected returns are priced with respect to the covariance with the national market portfolio rather than the world market portfolio. In completely integrated capital markets with purchasing power parity, the covariance with the world portfolio determines the cross-section of expected returns, therefore a standard one-factor asset pricing model might be sufficient. According to our results it should be reasonable to assume that some of the emerging markets are segmented and not fully global integrated. Harvey (1995) claims that the degree and effect of the segmentation in not obvious. In a fully segmented capital market, covariance with a global risk factor might be important. It is unlikely that the national economy is completely independent of the world economy. While our estimates strongly confirm the influence of a global risk factor affecting "isolated markets" (i.e. all world market betas are statistically different from zero at 5% confidence level), the model per se does not hold. In a fashion two- factor specification (i.e. accounting for foreign exchange) Harvey (1995) shows that foreign exchange risk factor has some explanatory power, supporting the idea that emerging markets are not fully integrated

- $\xi_1 \equiv \frac{T-N-1}{N}\left(1+\frac{z_M^2}{\hat{\sigma}_M^2}\right)^{-1}\hat{\alpha}'\hat{\sum}^{-1}\hat{\alpha} \quad \stackrel{d}{\rightarrow} \quad F(N, T-N-1)$

[21] Recall that the SMB (i.e. small minus big) and the HML (i.e. high minus low) represent the USA based two extra factor of the Fama & French multifactor model for asset pricing.

[22] See Harvey (1995).

into world capital markets. He also demostrates that such two-factors linear model is still violated. He claims that the main reason for the unconditional CAPM's failure is that the conditional risk exposures are constant over time, suggesting that exposures may be time varying. Focusing first on the fact that local information variables play a much important role in predicting emerging market returns, in what follows, a simple tranformation of the one-factor model is adopted. It is largerly accepted that liquidity measures are significant in predicting equity returns, especially in isolated markets. We show that liquidity accounts for model's validity. In finding reasonable explainations for differences in emerging equity markets the one factor model analysis has been replicated by using, as dependent variable, a specific equity index. For each emerging market the S&P IFCI is downloaded.[23] Similar to the MSCI method for calculating country equity indeces, the IFC uses a subset of the stocks trading in the emerging market. Stocks are selected for inclusion in the index based on size , liquidity and industry. Furthermore share counts used in index calculations are reduced to reflect any limits or restrictions on investments by foreign investors or entities. [24]

The inclusion of this new emerging markets equity index (i.e. S& P IFCI) provides slightly different results than those previously obtained. Note that accounting for the most liquid and investable stocks in emerging markets, thus replacing the original MSCI Total Return Index dependent variable with the S&P IFCI, we find all alphas statistically equal to zero. In line with our previous analysis, such result, confirms the tendency of emerging equity markets to compensate, via abnormal returns, investors for bearing higher risk (i.e. liquidity risk). Once we account for all stocks, thus we include "illiquid asset" in the equity index, then the market require to be compensated (i.e. positive and statistically different from zero alphas are found). Looking now across emerging equity markets, the world CAPM is no more rejected. Table 15, which adopts the F& F market factor, shows the presence of positive and statistically different from zero alphas in only one emerging equity market, Colombia. Over the sub-sample Jan 2000 - Dec 2010 estimates are slighlty different and also Brazil, Czech Republic, Mexico and South Africa display statistically significant positive alphas. Table 16 replicates the analysis using the MSCI World as market factor. Estimates provide similar results. A joint test on the significance of the alphas, based on 18 emerging equity markets, is reported in Table 17. We find that, in contrast with the previous section, the null of having all alphas jointly equal to zero is not rejected. In line with recent literature, here above, we partially prove how less liquid (i.e. less traded) stocks outperform more traded and popular ones. Liquidity is mostly inteded as the ability to engage in rapidly trading a large number of securities at a low cost with little impact on market prices.

[23]Note that Colombia S&P IFCI is not available.

[24]The S&P Global BMI is a comprehensive, rules-based index designed to measure global stock market performance. The index covers all publicly listed equities with floatadjusted market values of US$ 100 million or more and annual dollar value traded of at least US$ 50 million in all included countries. The S&P Global BMI is made up of the S&P Developed BMI and the S&P Emerging BMI indices.The S&P IFCI, Standard & Poors leading investable, emerging market index, is a liquid and investable subset of the S&P Emerging BMI index.The S&P Global BMI index covers all publicly listed equities available to institutional investors with float-adjusted market values of US$ 100 million or more. At the annual reconstitution, index constituents are removed if their float adjusted market capitalization falls below US$ 75 million. The S&P/IFCI index requires that, at the annual reconstitution, a stock must have floatadjusted market capitalization of US$ 200 million. During the annual reconstitution, index constituents that fall below US$ 200 million, but remain above US$ 150 million, remain in the index. The S&P Global BMI and S&P IFCI are designed to include the most liquid and investable stocks in developed and emerging markets.
Source: Standard&Poor's

Country IFCI	Period	α	β	R^2	Period	α	β	R^2
Argentina	01/89-12/10	0.0165	1.1832**	0.0721	01/00-12/10	0.0057	1.2247**	0.2557
		(0.1711)	(0.0000)			(0.5544)	(0.0000)	
Brazil	01/89-12/10	0.0144	1.5214**	0.1780	01/00-12/10	0.0149*	1.5882**	0.5499
		(0.1155)	(0.0000)			(0.0193)	(0.0000)	
Chile	01/89-12/10	0.0085*	0.7469**	0.2212	01/00-12/10	0.0095*	0.7747**	0.3842
		(0.0308)	(0.0000)			(0.0278)	(0.0000)	
China	01/93-12/10	-0.0016	1.152**	0.2406	01/00-12/10	0.0078	1.1308**	0.4394
		(0.8072)	(0.0000)			(0.1638)	(0.0000)	
Czech Republic	01/94-12/10	0.0026	0.9661**	0.2145	01/00-12/10	0.0151*	1.0371**	0.3738
		(0.6733)	(0.0000)			(0.0111)	(0.0000)	
Egypt	01/97-12/10	0.0052	0.6977**	0.1341	01/00-12/10	0.0114	0.7748**	0.1465
		(0.4615)	(0.0000)			(0.1666)	(0.0000)	
Hungary	01/93-12/10	0.0041	1.4909**	0.3411	01/00-12/10	0.0068	1.4477**	0.4715
		(0.5294)	(0.0000)			(0.3111)	(0.0000)	
India	01/93-12/10	0.0020	0.9107**	0.2214	01/00-12/10	0.0091	1.1513**	0.4088
		(0.7080)	(0.0000)			(0.1366)	(0.0000)	
Indonesia	10/90-12/10	-0.0007	1.2444**	0.1827	01/00-12/10	0.0120	1.1469**	0.2649
		(0.9252)	(0.0000)			(0.1525)	(0.0000)	
Malaysia	01/89-12/10	0.0001	0.8605**	0.1844	01/00-12/10	0.0051	0.596**	0.2608
		(0.9844)	(0.0000)			(0.2457)	(0.0000)	
Mexico	01/89-12/10	0.0063	1.2378**	0.3848	01/00-12/10	0.0078*	1.2289**	0.6832
		(0.1516)	(0.0000)			(0.0352)	(0.0000)	
Morocco	03/97-12/10	0.0059	0.1984**	0.0294	01/00-12/10	0.0062	0.3634**	0.0901
		(0.1879)	(0.0271)			(0.2244)	(0.0005)	
Philippines	01/89-12/10	-0.0022	0.982**	0.2044	01/00-12/10	0.0029	0.7409**	0.2303
		(0.6882)	(0.0000)			(0.6251)	(0.0000)	
Poland	01/93-12/10	0.0099	1.4448**	0.2219	01/00-12/10	0.0065	1.3603**	0.4568
		(0.2485)	(0.0000)			(0.3169)	(0.0000)	
Russia	03/97-12/10	0.0106	1.6738**	0.2970	01/00-12/10	0.0145	1.3937**	0.3840
		(0.2987)	(0.0000)			(0.0617)	(0.0000)	
South Africa	01/93-12/10	0.0047	1.0228**	0.3349	01/00-12/10	0.0104*	1.0601**	0.4482
		(0.2996)	(0.0000)			(0.0452)	(0.0000)	
Korea	02/92-12/10	0.0001	1.3188**	0.2480	01/00-12/10	0.0069	1.4665**	0.5395
		(0.9907)	(0.0000)			(0.2450)	(0.0000)	
Turkey	09/89-12/10	0.0120	1.2663**	0.1095	01/00-12/10	0.0091	1.9121**	0.4204
		(0.2426)	(0.0000)			(0.3570)	(0.0000)	

*, ** Significantly different from zero at the 5% and 1% levels, respectively

Table 15: One Factor Model: Estimation Results (IFCI vs Fama & French Market Factor).

Country IFCI	Period	α	β	R^2	Period	α	β	R^2
Argentina	01/89-12/10	0.0200	0.8491**	0.0372	01/00-12/10	0.0056	1.2808**	0.2679
		(0.1027)	(0.0023)			(0.5564)	(0.0000)	
Brazil	01/89-12/10	0.0177*	1.5897**	0.1948	01/00-12/10	0.0155*	1.6854**	0.5945
		(0.0493)	(0.0000)			(0.0103)	(0.0000)	
Chile	01/89-12/10	0.0104**	0.6839**	0.1859	01/00-12/10	0.0098*	0.828**	0.4214
		(0.0091)	(0.0000)			(0.0193)	(0.0000)	
China	01/93-12/10	-0.0004	1.085**	0.2010	01/00-12/10	0.0083	1.1763**	0.4565
		(0.9537)	(0.0000)			(0.1348)	(0.0000)	
Czech Republic	01/94-12/10	0.0034	1.0998**	0.2556	01/00-12/10	0.0155**	1.1091**	0.4105
		(0.5719)	(0.0000)			(0.0073)	(0.0000)	
Egypt	01/97-12/10	0.0053	0.8205**	0.1710	01/00-12/10	0.0116	0.9358**	0.2053
		(0.4359)	(0.0000)			(0.1419)	(0.0000)	
Hungary	01/93-12/10	0.0047	1.6164**	0.3775	01/00-12/10	0.0074	1.5636**	0.5281
		(0.4575)	(0.0000)			(0.2458)	(0.0000)	
India	01/93-12/10	0.0025	0.9725**	0.2377	01/00-12/10	0.0095	1.2444**	0.4586
		(0.6398)	(0.0000)			(0.1027)	(0.0000)	
Indonesia	10/90-12/10	0.0009	1.3349**	0.2018	01/00-12/10	0.0125	1.2802**	0.3169
		(0.9009)	(0.0000)			(0.1240)	(0.0000)	
Malaysia	01/89-12/10	0.0021	0.8775**	0.1922	01/00-12/10	0.0053	0.6408**	0.2895
		(0.6808)	(0.0000)			(0.2157)	(0.0000)	
Mexico	01/89-12/10	0.0095*	1.1329**	0.3230	01/00-12/10	0.0083*	1.2331**	0.6605
		(0.0376)	(0.0000)			(0.0305)	(0.0000)	
Morocco	03/97-12/10	0.0058	0.2847**	0.0560	01/00-12/10	0.0063	0.4461**	0.1304
		(0.1893)	(0.0021)			(0.2044)	(0.0000)	
Philippines	01/89-12/10	0.0003	0.9223**	0.1807	01/00-12/10	0.0032	0.7825**	0.2467
		(0.9527)	(0.0000)			(0.5864)	(0.0000)	
Poland	01/93-12/10	0.0101	1.6468**	0.2714	01/00-12/10	0.0070	1.4819**	0.5204
		(0.2217)	(0.0000)			(0.2495)	(0.0000)	
Russia	03/97-12/10	0.0114	1.8221**	0.3247	01/00-12/10	0.0151*	1.4714**	0.4110
		(0.2510)	(0.0000)			(0.0475)	(0.0000)	
South Africa	01/93-12/10	0.0049	1.1597**	0.4054	01/00-12/10	0.0108*	1.1614**	0.5165
		(0.2532)	(0.0000)			(0.0264)	(0.0000)	
Korea	02/92-12/10	0.0011	1.4776**	0.2956	01/00-12/10	0.0075	1.5223**	0.5582
		(0.8690)	(0.0000)			(0.1980)	(0.0000)	
Turkey	09/89-12/10	0.0137	1.4742**	0.1474	01/00-12/10	0.0098	1.9844**	0.4347
		(0.1734)	(0.0000)			(0.3119)	(0.0000)	

*, ** Significantly different from zero at the 5% and 1% levels, respectively

Table 16: One Factor Model: Estimation Results (IFCI vs MSCI World Total Return Index).

	F&F Market Factor		MSCI World	
Statistics	Chi-test	F-test	Chi-test	F-test
Emerging (All)	21.6283	1.0286	25.9749	1.2353
	(0.2489)	(0.4343)	(0.1003)	(0.2458)

Table 17: Multivariate Regressions (S&P IFCI): Testing CAPM (sample: Jan 2000 - Dec 2010).

Being thus largerly accepted that liquidity is important for asset pricing (i.e. it affects average equity premia), in section 5, accounting directly for liquidity, a multi-factor pricing model is implemented.

5 The Importance of Global Integration in Emerging Markets Asset Pricing

5.1 Do Liquidity Measures Matter ?

We have showed that the time-varying nature of the equity premia and the stock market liquidity cannot be underestimated. In section 1 we provide results in which simple ERP distributional characteristics, such as mean and standard deviation, change across different sub-samples. Table 12 and 13 illustrates how estimated betas over the last decade are higher than those estimated over the full sample. Figure 1 and 2 provide plotes of the market betas from the single factor estimation using a standard rolling-window procedure.[25] Figures report also the dynamic of the R^2 and the difference in GDP growth between Emerging Areas and USA. A betas' increasing path suggests us how global financial integration, in the last decade, has exacerbated emerging markets exposure to global risk factor. We might expect that the use of additional factor for emerging market equity premia explainations could be unprofitable. In what follow we show that local factors, such as liquidity and trade, are strongly influenced by global business cycle.

The main purpose of this section is to test how global integration, especially within financial markets, has significantly reduced the effect of "local" factors in predicting emerging markets' stock prices. It follows that a simple two-factor local model does not provide significant improvements in ERP predictability. Nevertheless our results also suggest that liquidity positively influences the risk associated to some of the analysed emerging markets. A counterintuitive result takes place. One would expect that, as soon as liquidity increases, counterparts for transactions are easy to find. As a consequence the overall risk should be lower.

At the same time we have to consider the fact that liquidity can not anymore considered, mainly due to financial integration process, as a local factor per se, i.e. liquidity in a specific market is strongly influenced by global liquidity, once market are integrated. Hence, in our opinion, liquidity can be seen as a proxy for the status of the financial integration process. An increase in liquidity can be seen as an increase in cross-country correlation and this leads to an increase in the exposure to global risk. In contrast to previous results, we prove that illiquidity in emerging markets over the last decade is insufficient to explain why in those markets compensate investors with higher returns. A reasonable explaination comes from the ERP time-varying exposure to global risk factors. Analysis developed in Section 3 and 4 is replicated including a "local" liquidity factor. Different measures of liquidity have been proposed in literature. For example, bid-ask spread, market depth, trading volume, price impact per dollar traded and other sophisticated proxies have been employed to study the liquidity or illiquidity effects. Most studies on one particular dimension of liquidity. Amihud and Mendelson (1986) focus on bid-ask spreads related to trading costs. They find that, if a security is less liquid and hence it is most costly to trade, then that security should provide a higher return as compensation. Focusing on the trading

[25] All country-by-country betas rolling-window estimations are reported in the appendix.

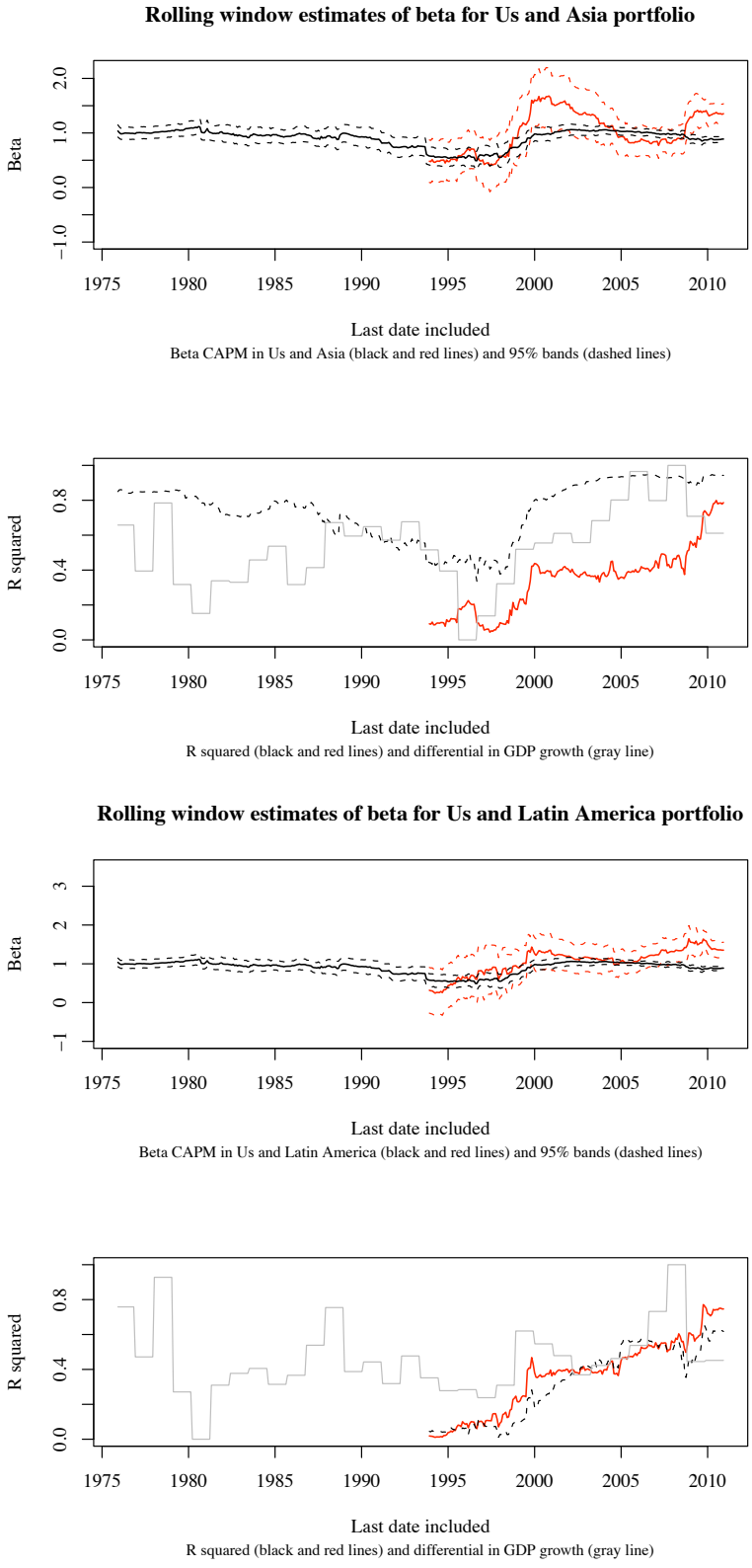

Figure 1: Rolling-Window Estimations(a)

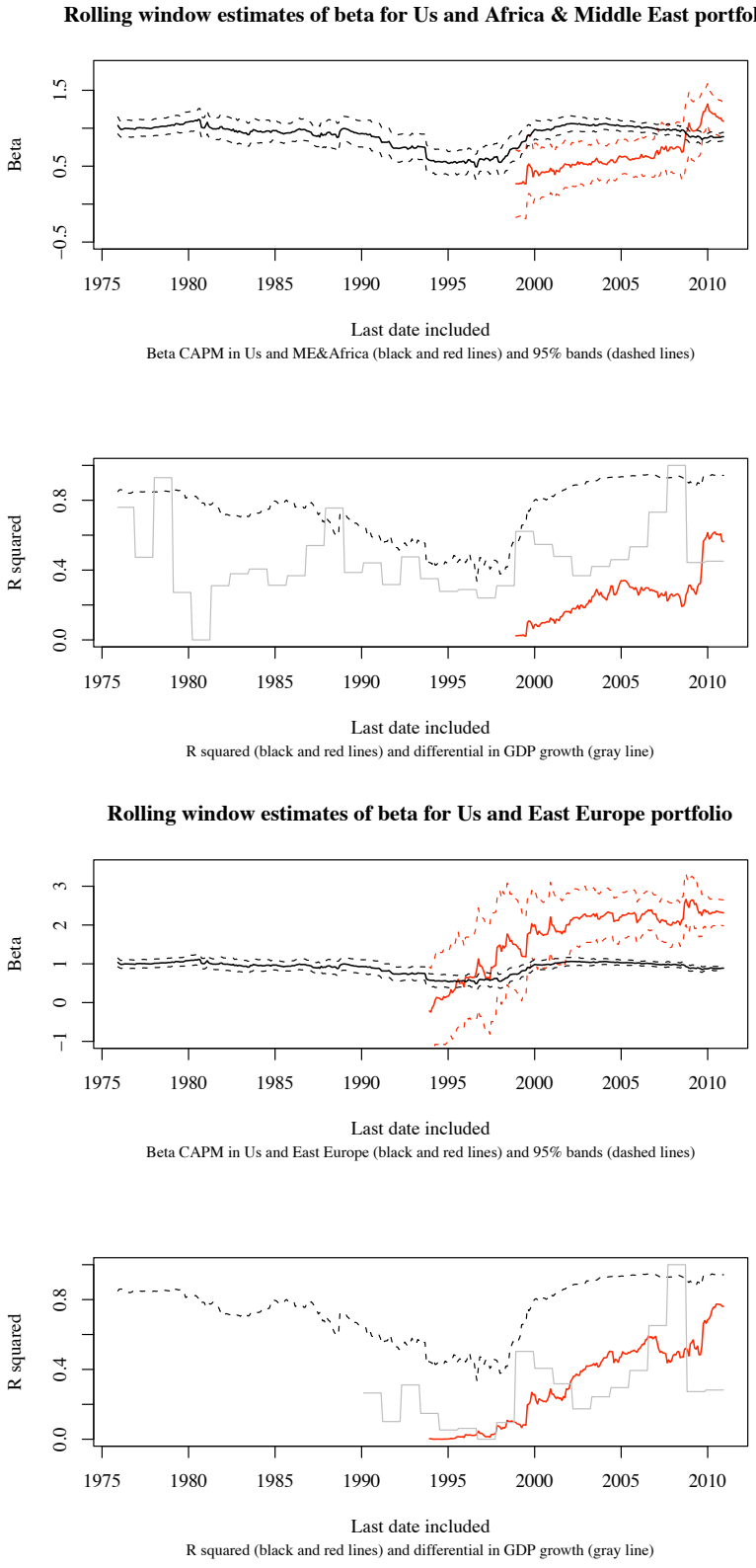

Figure 2: Rolling-Window Estimations (b)

quantity, Datar, Naik and Radcliffe (1998) support the predictions of the Amihud and Mendelson's model. A number of studies then have focused on market-wide liquidity measures, particularly in the context of incorporeting liquidity into asset pricing model. Chordia et al. (2000) proxy liquidity by trading volume and turnover, measured at the firm level. They find that stock with more volatile liquidity have lower expected returns. Pastor and Stambaugh (2003) focus on the price impact dimension of liquidity. They create a measure that essentially tries to associate lower liquidity with stronger lower volume related return reversals. They create "liquidity betas" and find that stocks with higher such betas (i.e. higher sensitivity to aggregate liquidity shocks), offer higher expected returns. Bekaert, Harvey and Lundblad (2005) examine a measure of liquidity that captures the proportion of zero daily firm returns. averaged over a month, in the context of emerging markets. They find that this liquidity measure significantly predicts future returns, whereas alternative measures such as turnover do not. Thus, existing literature indicates that the concept of liquidity is a complex one. As reviewed above, there are many possible ways to construct or retrieve liquidity measures. Is is common sense often to use as liquidity proxies those measures related to trading volume. A common feature of stock is that if trading volume is low, then an investor may require an expected return premium for holding a stock that does not trade very frequently. To improve our knowledge on emerging markets equity premia patterns, a specific liquidity proxy to measure liquidity will be used. Therefore our simple one-factor model will be enhanced through the inclusion of one extra factor. From an operational point of view, we estimate a simple two-factor model, where the second factor is the specific market turnover-by-volume.[26] Accounting for liquidity, our model is:

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t}) + \gamma_i TbV_{t-1} + \epsilon_{i,t} \tag{4}$$

where TbV_{t-1} represents the one-period lagged turnover-by-volume and $(R_{m,t} - R_{f,t})$ is the usual market factor. Note that once we include a lagged volume factor in a multifactor return pricing model, for istance to build up a portfolio, this approach may underestimate the fact that future may not turn out to be like the past.

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t}) + \delta_i[(R_{m,t} - R_{f,t}) \cdot TbV_{t-1}] + \epsilon_{i,t} \tag{5}$$

Country-by-country estimations of models described by equation 4 and 5 are performed. Compared to the above analysis, where the most liquid indices (i.e. S&P IFCI) are used as dependent variables, here we try to show that the impact of local factors, thus a liquidity proxy is used as explanatory variables, may influence the price of our assets (i.e. MCSI Total Return Indeces).[27] Since equation 4 turns out to be not robust in predicting ERP, mainly due to the fact that it does not consider the ERP time-varing nature, Table 18 only reports results based on equation 2 (left-hand side) and equation 4 (right-hand side). Due to lack in data availability, country-by-country samples are not homogeneous. Our samples are in line with availability in turnover-by-volume data. Firstly, we might emphasize that in shorter sub-samples, as showed in section 4, the World CAPM turns out to be valid in most emerging markets. We find that only 8 markets out of 13 have statisitcally different from zero alphas.

[26] Due to lack in data availability, turnover-by-volume time series across emerging markets refer to different samples.

[27] Note that we also test our 4 portfolios containing emerging markets: Asia, Eastern Europe, Latin America, Emerging Market (all).

	$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t})$				$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t}) + \delta_i[(R_{m,t} - R_{f,t}) \cdot TbV_{t-1}]$					
Country	Period	α	β	$\bar{R}^2$	Period	α	β	δ	β	$\bar{R}^2$
Argentina	08/93-01/11	0.0072	1.2351**	0.2344	08/93-01/11	0.0079	0.4977.	0.0000**	1.1834	0.2625
		(0.3017)	(0.0000)			(0.2469)	(0.0845)	(0.0029)		
Brazil	02/99-01/11	0.0207**	1.7205**	0.5521	02/99-01/11	0.0179**	1.996**	0.0000	1.7969	0.5178
		(0.0012)	(0.0000)			(0.0074)	(0.0000)	(0.1417)		
Chile	01/90-01/11	0.011**	0.7128**	0.2043	01/90-01/11	0.011**	0.6169**	0.0000	0.7012	0.2052
		(0.0060)	(0.0000)			(0.0062)	(0.0000)	(0.2569)		
China	02/93-01/11	-0.0019	1.1229**	0.2137	02/93-01/11	-0.0020	1.1185**	0.0000	1.1216	0.2101
		(0.7727)	(0.0000)			(0.7643)	(0.0000)	(0.9703)		
Colombia	02/92-01/11	0.0129*	0.7851**	0.1316	02/92-01/11	0.0134*	0.4927**	0.0000**	0.6677	0.1596
		(0.0350)	(0.0000)			(0.0253)	(0.0038)	(0.0048)		
Czech Rep.	02/94-01/11	0.0084	0.9501**	0.2523	02/94-01/11	0.011*	0.5145**	0.0000*	0.8799	0.2713
		(0.1203)	(0.0000)			(0.0439)	(0.0167)	(0.0158)		
Egypt	01/95-01/11	0.0136*	0.8456**	0.1570	01/95-01/11	0.0134*	0.5781**	0.0000*	0.7225	0.1778
		(0.0359)	(0.0000)			(0.0357)	(0.0013)	(0.0169)		
Hungary	07/91-01/11	0.0088	1.58**	0.4219	07/91-01/11	0.0102	0.814**	0.0000**	1.2738	0.4507
		(0.1516)	(0.0000)			(0.0903)	(0.0025)	(0.0011)		
India	02/95-01/11	0.0058	1.0432**	0.2719	02/95-01/11	0.0050	0.4116**	0.0000**	0.8731	0.3322
		(0.3026)	(0.0000)			(0.3597)	(0.0294)	(0.0000)		
Indonesia	02/90-01/11	0.0049	1.2343**	0.1749	02/90-01/11	0.0047	1.0327**	0.0000	1.1605	0.1763
		(0.5151)	(0.0000)			(0.5335)	(0.0000)	(0.1225)		
Malaysia	01/90-01/11	0.0035	0.8426**	0.1861	01/90-01/11	0.0035	0.7623**	0.0000	0.8223	0.1841
		(0.4774)	(0.0000)			(0.4842)	(0.0000)	(0.5229)		
Mexico	01/90-01/11	0.0113*	1.204**	0.3547	01/90-01/11	0.0115**	1.0897**	0.0000	1.1812	0.3537
		(0.0148)	(0.0000)			(0.0136)	(0.0000)	(0.4382)		
Morocco	07/93-01/11	0.0086*	0.263**	0.0402	07/93-01/11	0.0088*	0.299*	-0.0001	0.2420	0.0358
		(0.0347)	(0.0031)			(0.0324)	(0.0222)	(0.7061)		
Philippines	01/90-01/11	0.0018	0.9393**	0.1987	01/90-01/11	0.0019	0.955**	0.0000	0.9341	0.1955
		(0.7357)	(0.0000)			(0.7221)	(0.0000)	(0.8862)		
Poland	03/94-01/11	-0.0007	1.529**	0.3526	03/94-01/11	0.0009	1.3394**	0.0000	1.4440	0.3463
		(0.9169)	(0.0000)			(0.8979)	(0.0000)	(0.2026)		
Russia	02/98-01/11	0.0152	1.866**	0.3425	02/98-01/11	0.0129	1.8483**	0.0000	1.8467	0.3214
		(0.1357)	(0.0000)			(0.2150)	(0.0000)	(0.9555)		
South Africa	02/96-01/11	0.0061	1.192**	0.4294	02/96-01/11	0.0072.	0.9211**	0.0000.	1.0911	0.4353
		(0.1472)	(0.0000)			(0.0891)	(0.0000)	(0.0724)		
Korea	01/90-01/11	0.0029	1.3471**	0.2773	01/90-01/11	0.0031	1.1742**	0.0000	1.3098	0.2779
		(0.6433)	(0.0000)			(0.6204)	(0.0000)	(0.2730)		
Turkey	01/90-01/11	0.0126	1.5088**	0.1711	01/90-01/11	0.0101	1.2612**	0.0000**	1.5266	0.1952
		(0.1788)	(0.0000)			(0.2764)	(0.0000)	(0.0039)		
Asia	01/90-01/11	0.0030	1.051**	0.4015	01/90-01/11	0.0032	0.8244**	0.0000**	0.9817	0.4163
		(0.4061)	(0.0000)			(0.3786)	(0.0000)	(0.0072)		
Eastern Europe	01/94-01/11	0.0110	2.1075**	0.4677	01/94-01/11	0.0107	2.0707**	0.0000	2.1107	0.4675
		(0.1249)	(0.0000)			(0.1340)	(0.0000)	(0.6262)		
Latin America	08/94-01/11	0.0077*	1.1768**	0.5076	08/94-01/11	0.0076*	1.0294**	0.0000	1.1632	0.5108
		(0.0415)	(0.0000)			(0.0433)	(0.0000)	(0.1239)		
Emerging Markets	01/95-01/11	0.007*	1.2134**	0.6434	01/95-01/11	0.0069*	1.2518**	0.0000	1.2131	0.6381
		(0.0208)	(0.0000)			(0.0247)	(0.0000)	(0.3364)		

., *, ** Significantly different from zero at the 10%, 5% and 1% levels, respectively

Table 18: Multy-Factor Model (Liquidity): Estimation Results.

Results also show relatively high $\bar{R}^2$ values, ranging from a minimum of 0.0402 (i.e. Morocco) to a maximum of 0.6434 (i.e. Emerging Markets). Accounting for liquidity and considering the time-varying nature of the ERP, slightly stronger results are found. On one side, model's validity is not confirmed in all emerging markets. Our two-factor model displays positive and statistically different from zero alphas in 9 markets (i.e. Brazil, Chile, Colombia, Czech Republic, Egypt, Mexico, Morocco, Eastern Europe and Emerging Markets). On the other side, even if we recognize that turnover-by-volume does not add so much information (R^2 increase very slightly), the related coefficients δ_i's are significative in 9 markets and in aall the cases are positive. As pointed out by Pastor and Stambaugh (2003), the estimates of the liquidity measure γ_i are typically negative, more precisly, the effect of liquidity on the equity premia should be negative. Interestinlgy enough, we find that, estimates of the liquidity measures, where statistically significant, are positive. In our opinion this counterintuitive result is well explained by the fact that local liquidity is strongly influenced by global liquidity that increases as financial market integration proceeds. In this manner our results are influenced by an omitted variable bias. We have to conclude that another measure for the status of financial integration is required. In what follow we replicate our multy-factor analysis accounting for macro-local factor, the total trade (i.e. market openness).

5.2 A Global Macro Perspective

Over tha last 25 years, an astonishing global economic integration has taken place as a result of reductions in transaction costs and the removal of relevant obstacles to international trade and investment. Such a environment has helped emerging economies integrate within the global economy. It is well known that an important role has been played by growing amounts of foreign direct investments in emerging countries, mainly connected to production offshoring by highly industrialised economies. According to this globalised scenario, emerging financial markets cannot condidered completly segmented. The influence in local factors in explaining emerging financial markets' movements lost power. To prove such local factors' weakness, a macro variable in introduced in our estimations. The sum of export and import denotes the total trade of an economy with the rest of the world. Country-by-Country estimations are performed by meaning of equation 6. Accounting for trade we recognize that results are quite similar to those found in the "liquidity-model". The model is not confirmed in all markets. For example, Brazil, Chile, Colombia, Emerging Markets (all), Latin America and Middle East & Africa, display positive and statistically different from zero alphas. Moving from the one-factor model to the two-factor model, we find that improvements in $\bar{R}^2$ are very small, less than 1% on average. The one-factor model is violated in 8 emerging markets. Trade, so as liquidity, matters only in 10 markets (i.e. Argentina, Colombia, Czech Republic, Egypt, Hungary, India, Morocco, South Africa, Emerging Markets (all) and Africa & Middle East) out of 24. As illustrated below, the estimates of the trade measure φ_i, where statistically significant, are positive.

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t}) + \varphi_i[(R_{m,t} - R_{f,t}) \cdot Trade_{t-1}] + \epsilon_{i,t} \qquad (6)$$

While Harvey (1995) find that it is more likely that the emerging markets' returns are influenced by local than rather information variables (i.e. implying higher ERP), we find that global factors matter. Positive correlations between business cycles suggest that local information are affected by global risk factors. The decreasing power of local

	$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t})$				$R_{i,t} - R_{f,t} = \alpha_i + \beta_{i,m}(R_{m,t} - R_{f,t}) + \varphi_i[(R_{m,t} - R_{f,t}) \cdot Trade_{t-1}]$					
Country MSCI	Period	α	β	$\bar{R}^2$	Period	α	β	φ	$\hat{\beta}$	$\bar{R}^2$
Argentina	01/90-01/11	0.0135.	1.0577**	0.1213	01/90-01/11	0.0138.	0.5275	0.0001.	0.9959	0.1286
		(0.0937)	(0.0000)			(0.0845)	(0.1325)	(0.0801)		
Brazil	01/90-01/11	0.0166*	1.5673**	0.2368	01/90-01/11	0.0167*	1.5114**	0.0000	1.5582	0.2339
		(0.0383)	(0.0000)			(0.0381)	(0.0000)	(0.8305)		
Chile	01/90-01/11	0.011**	0.7128**	0.2043	01/90-01/11	0.0110**	0.6074**	0.0000	0.7035	0.2032
		(0.0060)	(0.0000)			(0.0060)	(0.0001)	(0.4174)		
China	01/90-01/11	-0.0020	1.123**	0.2138	01/90-01/11	-0.0018	1.0248**	0.0000	1.0931	0.2111
		(0.7646)	(0.0000)			(0.7829)	(0.0000)	(0.6076)		
Colombia	01/90-01/11	0.0129*	0.7851**	0.1316	01/90-01/11	0.0139*	0.1252	0.0002**	0.6277	0.1546
		(0.0350)	(0.0000)			(0.0212)	(0.6618)	(0.0097)		
Czech Rep.	05/93-01/11	0.0084	0.9501**	0.2523	05/93-01/11	0.0092.	0.3949.	0.0000**	0.8318	0.2809
		(0.1203)	(0.0000)			(0.0848)	(0.0770)	(0.0039)		
Egypt	01/90-01/11	0.0136*	0.8456**	0.1570	01/90-01/11	0.0144*	0.3526	0.0001*	0.6740	0.1754
		(0.0359)	(0.0000)			(0.0247)	(0.1700)	(0.0232)		
Hungary	07/93-01/11	0.0088	1.58**	0.4219	07/93-01/11	0.0095	1.1441**	0.0000.	1.4988	0.4283
		(0.1516)	(0.0000)			(0.1196)	(0.0001)	(0.0800)		
India	06/90-01/11	0.0061	0.9871**	0.2344	06/90-01/11	0.0072	0.3775.	0.0000**	0.8022	0.2825
		(0.2618)	(0.0000)			(0.1720)	(0.0538)	(0.0001)		
Indonesia	01/90-01/11	0.0055	1.2201**	0.1717	01/90-01/11	0.0056	0.8423**	0.0000	1.1710	0.1746
		(0.4672)	(0.0000)			(0.4560)	(0.0092)	(0.1687)		
Malaysia	01/90-01/11	0.0035	0.8426**	0.1861	01/90-01/11	0.0036	1.0128**	0.0000	0.8521	0.1847
		(0.4774)	(0.0000)			(0.4737)	(0.0001)	(0.4458)		
Mexico	01/93-01/11	0.0046	1.3068**	0.4277	01/93-01/11	0.0044	1.4501**	0.0000	1.3229	0.4257
		(0.3140)	(0.0000)			(0.3453)	(0.0000)	(0.5995)		
Morocco	01/98-01/11	0.0065	0.3193**	0.0633	01/98-01/11	0.0066	-0.0129	0.0001.	0.2934	0.0741
		(0.1593)	(0.0009)			(0.1502)	(0.9532)	(0.0957)		
Phillipines	01/90-01/11	0.0018	0.9393**	0.1987	01/90-01/11	0.0017	0.8457**	0.0000	0.9318	0.1927
		(0.7357)	(0.0000)			(0.7496)	(0.0066)	(0.7546)		
Poland	07/93-01/11	0.0051	1.5734**	0.3398	07/93-01/11	0.0053	1.4794**	0.0000	1.5562	0.3371
		(0.4485)	(0.0000)			(0.4358)	(0.0000)	(0.6871)		
Russia	01/94-01/11	0.0171	1.8278**	0.2520	01/94-01/11	0.0162	2.2525**	0.0000	1.9036	0.2540
		(0.1002)	(0.0000)			(0.1204)	(0.0000)	(0.2235)		
South Africa	01/90-01/11	0.0061	1.192**	0.4294	01/90-01/11	0.0066	0.8601**	0.0000.	1.1310	0.4355
		(0.1472)	(0.0000)			(0.1144)	(0.0000)	(0.0702)		
Korea	01/90-01/11	0.0029	1.3471**	0.2773	01/90-01/11	0.0029	1.2916**	0.0000	1.3420	0.2746
		(0.6433)	(0.0000)			(0.6437)	(0.0000)	(0.8063)		
Turkey	01/92-01/11	0.0122	1.7593**	0.2274	01/92-01/11	0.0121	1.7781**	0.0000	1.7623	0.2240
		(0.1963)	(0.0000)			(0.1986)	(0.0000)	(0.9557)		
Emerging Markets	01/90-01/11	0.01**	1.0816**	0.5315	01/90-01/11	0.0104**	0.8155**	0.0000**	1.0453	0.5461
		(0.0006)	(0.0000)			(0.0003)	(0.0000)	(0.0025)		
Latin America	01/93-01/11	0.0089*	1.1568**	0.4824	01/93-01/11	0.0092*	0.9766**	0.0000	1.1317	0.4824
		(0.0154)	(0.0000)			(0.0124)	(0.0000)	(0.3162)		
Asia	06/90-01/11	0.0025	1.0756**	0.4158	06/90-01/11	0.0028	0.9143**	0.0000	1.0550	0.4179
		(0.5023)	(0.0000)			(0.4524)	(0.0000)	(0.1322)		
Middle East & Africa	01/98-01/11	0.0091*	0.843**	0.4286	01/98-01/11	0.0094*	0.4803**	0.0000*	0.8079	0.4448
		(0.0165)	(0.0000)			(0.0124)	(0.0060)	(0.0201)		
Eastern Europe	01/94-01/11	0.0109	2.1047**	0.4674	01/94-01/11	0.0109	2.1003**	0.0000	2.1041	0.4647
		(0.1244)	(0.0000)			(0.1258)	(0.0000)	(0.9861)		

., *, ** Significantly different from zero at the 10%, 5% and 1% levels, respectively

Table 19: Multy-Factor Model (Trade): Estimation Results.

information is mostly due to the fact that emerging markets are globally integrated (i.e. no-segmented). Our results also show that the ERP time-varying exposure is in line with the degree of integration of emerging markets. Positive estimates of the trade measures φ_i imply that to an increase in the level of trade corresponds an increase in the ERP. The estimates of liquidity and trade measures force us to conclude that systemic risk weighs more than country specific risk. As noticed by Salomons and Grootveld (2003), global business cycle is the main force behind the time-varying nature of the ERP in emerging markets. Based on a higher degree of market's openness, emerging economies are heavily exposed with the global business cycles. They also claim that investors see such markets as leveraged play on the global cycle, or simply high betas economies. The emerging markets' attitute to be influenced by global economic cycles is largely supported by our results. On one side, we show that local factor present weakness in explaining higher ERP, especially in the last decade. On the other side, the exposure to global risk factors makes these markets even more risky. In line with our values, Harvey (1995) find that most of the variation is given by global information variables. The presence of high betas ,then, leads to higher equity premia required by international investors to suffer such extra source of risk.

6 Conclusion

In this paper we deeply study the ex-post behaviour of the ERP across countries. On a country-by-country level, we first examine the distributional characteristcs of the ERP. What emerges is that emerging markets tend to compensate investors with a return higher than that of developed markets. In section 4.1, for each country, a standard one-factor model (i.e. CAPM) is estimated. Empirical tests show that the model is rejected in most of the emerging countries and in aggregate. The result is interpreted by arguing that low levels of liquidity and the presence of financial barriers to foreign investments may induce investors to require an extra premium for buying emerging market's stocks. We prove that liquidity matters by estimating the CAPM using S&P IFCI capital index which contains the most liquid and investable assets. Adopting the S&P IFCI as dependent variable, instead of the MSCI, the CAPM holds in most emerging markets.

We show and confirm that risk measures and ERP tend to change over different sample periods. Investigations on such phenomenom are made via alternative empirical procedures. In section 4.1 we firstly find that countries' betas are higher, as soon as the estimation periods is reduced to the last decade. Secondly, plotting CAPM's betas rolling windows estimates for different macro-area portfolios we prove the existence of an upward trend in the coefficient's estimates, or simply, an increasing exposure to global risk factor. According to an increase in the cross-country correlation, our results suggest that global financial integration process in emerging countries can strongly influence estimation values. In order to find empirical evidence of the latter hypothesis, we finally present a modified CAPM where time varying beta is explained by the variability of trade, as measure of market openness. Even if this model does not hold for each emerging country (this could be explained in most of the cases by low sample sizes) we find a positive and significative estimate of the coefficient associated to the interaction process.

In line with Henry (2000), we find that emerging markets' ERP increase in presence of stock market liberalisation. Our results do not support the standard international asset pricing model's hypothesis of a fall in the cost of capital (i.e. cost of equity or

country stock price index) once a country opens its stock market to foreign investors. To conclude, our findings mainly suggest that accounting for global business cycle and financial integration process, is crucial in determining and evaluating the risk associated to emerging markets' investments.

7 Appendix

7.1 Developed vs Emerging: Some Empirical Facts

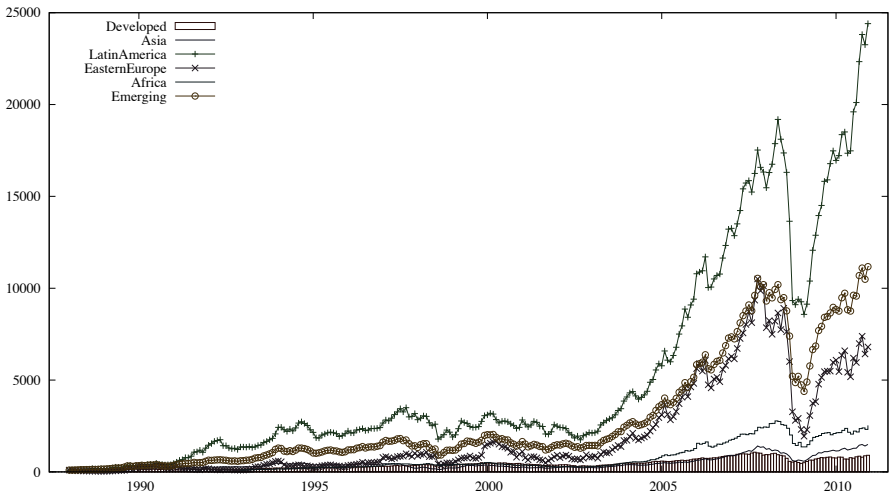

Figure 3: Equity Markets Performances (Jan 1988 - Dec 2010)

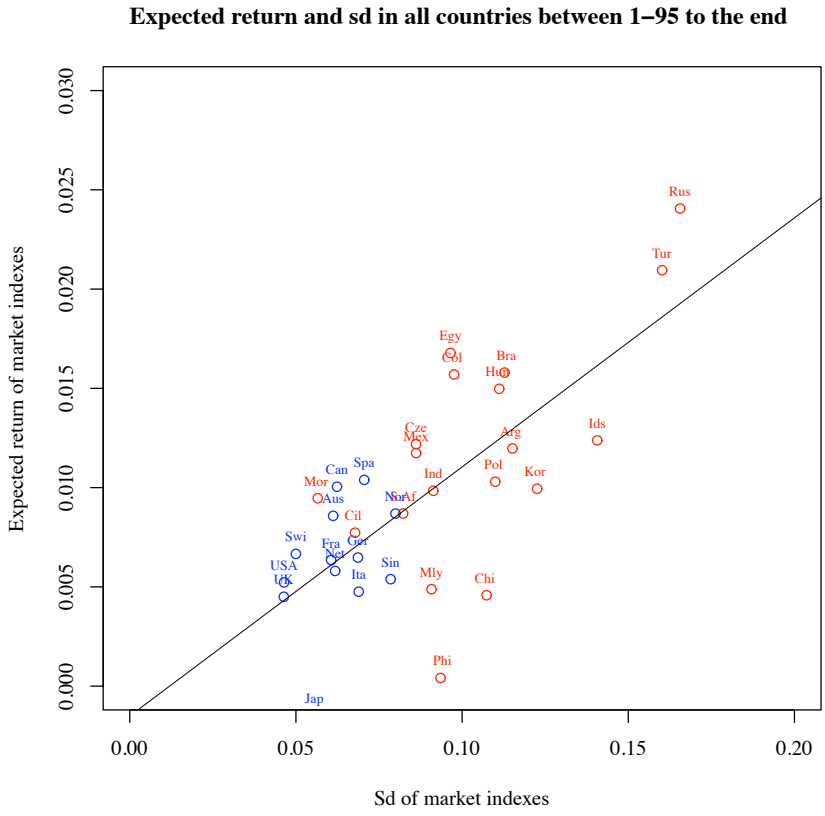

Figure 4: International Equity Markets: Standard Deviations vs Expected Returns

	Australia	Canada	France	Germany	Italy	Japan	Netherlands	Norway	Singapore	Spain	Switzerland	UK	USA	Argentina	Brazil	Chile	China	Colombia	Czech Rep	Egypt	Hungary	India	Indonesia	Malaysia	Mexico	Morocco	Philippines	Poland	Russia	RSA	Korea	Turkey	World
Australia	1.00																																
Canada	0.76	1.00																															
France	0.72	0.73	1.00																														
Germany	0.72	0.71	0.90	1.00																													
Italy	0.65	0.61	0.84	0.77	1.00																												
Japan	0.61	0.57	0.52	0.45	0.43	1.00																											
Netherlands	0.72	0.70	0.90	0.88	0.78	0.53	1.00																										
Norway	0.75	0.76	0.75	0.72	0.68	0.51	0.76	1.00																									
Singapore	0.67	0.67	0.58	0.57	0.47	0.50	0.60	0.61	1.00																								
Spain	0.70	0.63	0.84	0.80	0.80	0.46	0.79	0.68	0.56	1.00																							
Switzerland	0.61	0.57	0.77	0.73	0.64	0.50	0.79	0.64	0.49	0.69	1.00																						
UK	0.76	0.75	0.85	0.79	0.73	0.55	0.86	0.78	0.62	0.78	0.74	1.00																					
USA	0.71	0.80	0.78	0.79	0.65	0.53	0.78	0.66	0.64	0.71	0.66	0.79	1.00																				
Argentina	0.07	0.12	0.03	0.08	0.09	0.03	0.06	0.14	0.13	0.10	0.03	0.09	0.10	1.00																			
Brazil	0.05	0.16	0.05	0.10	0.08	0.11	0.08	0.14	0.08	0.04	0.08	0.09	0.04	0.56	1.00																		
Chile	0.09	0.13	0.09	0.11	0.08	0.17	0.13	0.17	0.08	0.03	0.07	0.12	0.03	0.50	0.67	1.00																	
China	0.14	0.20	0.17	0.13	0.17	0.24	0.16	0.28	0.23	0.19	0.18	0.16	0.11	0.37	0.49	0.49	1.00																
Colombia	0.06	0.10	0.10	0.14	0.09	0.08	0.12	0.13	0.05	0.06	0.03	0.08	0.06	0.33	0.42	0.46	0.25	1.00															
Czech Rep	0.08	0.16	0.13	0.13	0.14	0.13	0.10	0.11	0.12	0.12	0.09	0.11	0.08	0.41	0.48	0.42	0.42	0.37	1.00														
Egypt	0.13	0.21	0.15	0.19	0.12	0.10	0.19	0.20	0.12	0.15	0.13	0.23	0.11	0.30	0.31	0.35	0.26	0.34	0.36	1.00													
Hungary	0.06	0.13	0.10	0.09	0.15	0.12	0.09	0.10	0.03	0.09	0.08	0.13	0.10	0.45	0.57	0.48	0.38	0.39	0.68	0.41	1.00												
India	0.03	0.13	0.03	0.09	0.01	0.12	0.05	0.10	0.08	0.03	0.01	0.11	0.05	0.30	0.49	0.51	0.41	0.37	0.48	0.41	0.46	1.00											
Indonesia	-0.04	-0.01	-0.01	-0.02	-0.02	0.01	0.02	0.02	0.06	-0.05	-0.08	0.03	-0.06	0.32	0.40	0.50	0.39	0.41	0.38	0.33	0.42	0.39	1.00										
Malaysia	0.03	0.12	0.09	0.00	0.11	0.15	0.03	0.12	0.06	0.05	-0.04	0.04	-0.01	0.32	0.35	0.48	0.45	0.32	0.33	0.24	0.39	0.37	0.60	1.00									
Mexico	0.08	0.14	0.04	0.08	0.14	0.18	0.10	0.22	0.10	0.04	0.08	0.15	0.06	0.58	0.70	0.58	0.44	0.36	0.47	0.32	0.61	0.45	0.41	0.35	1.00								
Morocco	0.04	0.11	0.02	0.04	0.03	0.05	0.04	0.04	0.05	0.07	0.01	0.08	0.06	0.19	0.13	0.14	0.10	0.08	0.15	0.28	0.12	0.19	0.09	0.05	0.03	1.00							
Philippines	0.08	0.07	0.15	0.14	0.14	0.05	0.12	0.10	0.15	0.14	0.06	0.13	0.08	0.35	0.39	0.51	0.48	0.30	0.29	0.30	0.41	0.35	0.61	0.56	0.46	0.01	1.00						
Poland	0.06	0.18	0.15	0.11	0.15	0.10	0.13	0.13	0.08	0.12	0.14	0.18	0.08	0.39	0.54	0.48	0.40	0.28	0.65	0.38	0.74	0.44	0.36	0.39	0.60	0.14	0.39	1.00					
Russia	0.02	0.02	0.00	0.04	0.08	0.11	0.05	0.04	-0.03	-0.02	-0.09	0.04	-0.01	0.39	0.55	0.55	0.36	0.41	0.38	0.27	0.50	0.33	0.53	0.42	0.55	0.04	0.42	0.36	1.00				
RSA	0.04	0.14	0.11	0.10	0.12	0.22	0.13	0.14	0.11	0.12	0.11	0.13	0.05	0.45	0.61	0.56	0.59	0.36	0.50	0.41	0.57	0.50	0.46	0.38	0.63	0.25	0.49	0.61	0.47	1.00			
Korea	0.01	0.12	0.04	0.02	0.01	0.09	0.09	0.11	0.25	0.00	0.00	0.10	0.00	0.28	0.38	0.39	0.34	0.31	0.36	0.29	0.34	0.37	0.45	0.35	0.39	0.07	0.38	0.44	0.29	0.51	1.00		
Turkey	-0.02	0.08	0.00	0.01	0.02	0.08	0.04	0.02	-0.03	-0.05	-0.01	-0.01	0.00	0.37	0.48	0.47	0.26	0.40	0.37	0.38	0.52	0.38	0.26	0.25	0.47	0.06	0.26	0.44	0.48	0.44	0.31	1.00	
World	0.08	0.21	0.13	0.12	0.17	0.18	0.15	0.19	0.14	0.11	0.13	0.21	0.13	0.48	0.68	0.59	0.49	0.38	0.50	0.40	0.65	0.53	0.48	0.42	0.71	0.21	0.48	0.63	0.51	0.69	0.57	0.55	1.00

Table 20: Correlation of the emerging and developed market US dollar returns (Sample: Jan 1995 - Dec 2010). The monthly returns for emerging and developed markets have been computed by using the respectively MSCI Total Return Indeces using the largest data set available.

	Australia	Canada	France	Germany	Italy	Japan	Netherlands	Norway	Singapore	Spain	Switzerland	UK	USA	Argentina	Brazil	Chile	China	Colombia	Czech Rep	Egypt	Hungary	India	Indonesia	Malaysia	Mexico	Morocco	Philippines	Poland	Russia	RSA	Korea	Turkey	World
Australia	1.00																																
Canada	0.84	1.00																															
France	0.90	0.81	1.00																														
Germany	0.90	0.82	0.97	1.00																													
Italy	0.86	0.78	0.98	0.94	1.00																												
Japan	0.82	0.80	0.83	0.85	0.82	1.00																											
Netherlands	0.88	0.82	0.96	0.93	0.94	0.85	1.00																										
Norway	0.87	0.88	0.85	0.82	0.82	0.78	0.89	1.00																									
Singapore	0.83	0.90	0.85	0.88	0.82	0.84	0.88	0.85	1.00																								
Spain	0.81	0.68	0.94	0.89	0.95	0.73	0.89	0.75	0.79	1.00																							
Switzerland	0.86	0.74	0.89	0.91	0.85	0.82	0.87	0.77	0.82	0.82	1.00																						
UK	0.90	0.89	0.92	0.89	0.92	0.85	0.92	0.91	0.89	0.85	0.84	1.00																					
USA	0.90	0.86	0.90	0.92	0.87	0.84	0.90	0.80	0.83	0.79	0.83	0.90	1.00																				
Argentina	0.30	0.36	0.29	0.36	0.25	0.28	0.30	0.38	0.39	0.24	0.36	0.39	0.39	1.00																			
Brazil	0.28	0.33	0.23	0.25	0.23	0.24	0.24	0.35	0.33	0.21	0.25	0.37	0.28	0.64	1.00																		
Chile	0.28	0.24	0.17	0.17	0.16	0.21	0.22	0.30	0.21	0.13	0.23	0.32	0.28	0.51	0.70	1.00																	
China	0.29	0.35	0.31	0.34	0.31	0.38	0.38	0.34	0.39	0.29	0.32	0.40	0.42	0.49	0.79	0.59	1.00																
Colombia	0.28	0.30	0.20	0.21	0.21	0.30	0.27	0.32	0.28	0.16	0.27	0.33	0.28	0.50	0.75	0.72	0.74	1.00															
Czech Rep	0.20	0.33	0.27	0.29	0.31	0.31	0.29	0.28	0.36	0.25	0.31	0.40	0.33	0.68	0.75	0.54	0.68	0.68	1.00														
Egypt	0.24	0.44	0.25	0.26	0.27	0.33	0.32	0.38	0.37	0.18	0.26	0.40	0.38	0.55	0.67	0.57	0.65	0.64	0.76	1.00													
Hungary	0.22	0.33	0.19	0.23	0.22	0.29	0.26	0.26	0.32	0.15	0.24	0.34	0.35	0.64	0.77	0.61	0.72	0.80	0.88	0.78	1.00												
India	0.21	0.25	0.16	0.16	0.21	0.24	0.24	0.23	0.25	0.18	0.14	0.32	0.29	0.38	0.79	0.72	0.82	0.81	0.63	0.65	0.79	1.00											
Indonesia	0.19	0.34	0.21	0.21	0.24	0.25	0.28	0.35	0.36	0.19	0.25	0.41	0.29	0.61	0.75	0.62	0.72	0.70	0.85	0.80	0.81	0.75	1.00										
Malaysia	0.35	0.45	0.33	0.33	0.31	0.34	0.38	0.46	0.41	0.26	0.32	0.47	0.41	0.57	0.76	0.65	0.74	0.75	0.67	0.74	0.78	0.77	0.82	1.00									
Mexico	0.26	0.36	0.23	0.29	0.28	0.39	0.30	0.35	0.36	0.19	0.29	0.41	0.35	0.68	0.78	0.65	0.68	0.71	0.83	0.72	0.86	0.75	0.80	0.71	1.00								
Morocco	0.27	0.44	0.22	0.28	0.20	0.29	0.25	0.35	0.41	0.21	0.27	0.31	0.35	0.44	0.36	0.34	0.23	0.29	0.43	0.57	0.46	0.22	0.41	0.40	0.41	1.00							
Philippines	0.21	0.16	0.20	0.23	0.25	0.17	0.20	0.12	0.14	0.18	0.19	0.27	0.29	0.37	0.60	0.67	0.63	0.66	0.60	0.50	0.72	0.78	0.67	0.71	0.70	0.23	1.00						
Poland	0.21	0.37	0.27	0.27	0.30	0.34	0.31	0.31	0.33	0.18	0.29	0.42	0.38	0.61	0.64	0.54	0.65	0.67	0.89	0.73	0.90	0.63	0.78	0.72	0.83	0.38	0.67	1.00					
Russia	0.31	0.34	0.23	0.27	0.25	0.32	0.23	0.30	0.36	0.22	0.28	0.40	0.36	0.61	0.88	0.64	0.67	0.64	0.79	0.71	0.78	0.72	0.71	0.66	0.80	0.42	0.57	0.67	1.00				
RSA	0.18	0.31	0.21	0.25	0.26	0.29	0.28	0.28	0.31	0.21	0.22	0.32	0.33	0.58	0.82	0.61	0.86	0.77	0.81	0.76	0.86	0.84	0.78	0.75	0.83	0.38	0.69	0.78	0.76	1.00			
Korea	0.13	0.30	0.17	0.15	0.24	0.25	0.25	0.32	0.26	0.13	0.13	0.39	0.25	0.52	0.75	0.57	0.73	0.67	0.80	0.80	0.76	0.76	0.87	0.75	0.77	0.22	0.59	0.79	0.71	0.83	1.00		
Turkey	0.10	0.22	0.09	0.08	0.09	0.17	0.17	0.15	0.17	0.02	0.14	0.22	0.23	0.46	0.64	0.59	0.75	0.75	0.68	0.70	0.82	0.77	0.76	0.75	0.62	0.22	0.65	0.76	0.60	0.78	0.75	1.00	
World	0.21	0.35	0.21	0.23	0.26	0.33	0.26	0.29	0.31	0.17	0.22	0.38	0.33	0.66	0.85	0.63	0.77	0.79	0.85	0.77	0.91	0.83	0.81	0.78	0.92	0.37	0.71	0.87	0.81	0.92	0.86	0.76	1.00

Table 21: Correlation of the emerging and developed market US dollar returns (Sample: Jan 2008 - Dec 2010)

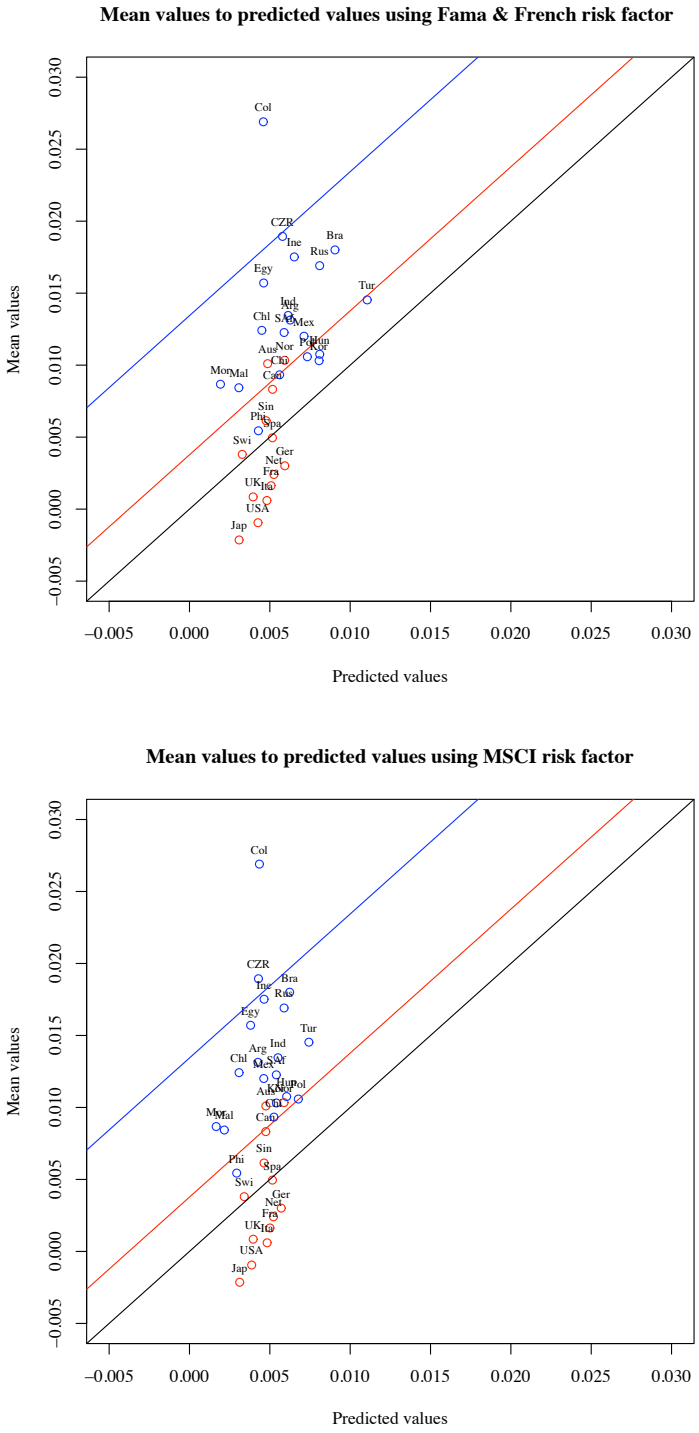

Figure 5: Predictable Equity Risk Premia in Emerging and Developed Markets

Country MSCI	Period	Alpha (α)	$R_m - R_f$	SMB	HML	R^2	Period	Alpha (α)	$R_m - R_f$	SMB	HML	R^2
Australia	01/70-12/10	0.0009	0.8595**	0.0021*	0.0015	0.34	1/00-12/10	0.0083*	1.0649**	0.0006	0.0013	0.65
		(0.7317)	(0.0000)	(0.0135)	(0.0891)			(0.0202)	(0.0000)	(0.5492)	(0.2028)	
Canada	01/70-12/10	0.0005	0.9697**	0.0014**	0.0012*	0.63	1/00-12/10	0.0078*	1.1345**	-0.0001	-0.0001	0.74
		(0.7655)	(0.0000)	(0.0100)	(0.0397)			(0.0129)	(0.0000)	(0.9036)	(0.8823)	
France	01/70-12/10	0.0013	0.842**	-0.0005	0.0021*	0.32	1/00-12/10	0.0001	1.1189**	0.0002	0.0011	0.74
		(0.6030)	(0.0000)	(0.5219)	(0.0128)			(0.9638)	(0.0000)	(0.8031)	(0.1908)	
Germany	01/70-12/10	0.0012	0.7714**	0.0005	0.0021*	0.30	1/00-12/10	0.0007	1.2842**	0.0013	0.0013	0.75
		(0.6258)	(0.0000)	(0.5283)	(0.0129)			(0.8291)	(0.0000)	(0.1833)	(0.1758)	
Italy	01/70-12/10	-0.0011	0.6393**	0.0012	0.0021*	0.16	1/00-12/10	-0.0022	1.032**	0.0019	0.0018	0.61
		(0.7335)	(0.0000)	(0.2468)	(0.0505)			(0.5755)	(0.0000)	(0.0842)	(0.0910)	
Japan	01/70-12/10	0.0029	0.4971**	0.0002	0.0002	0.14	1/00-12/10	-0.0034	0.6786**	0.0004	0.0011	0.42
		(0.2822)	(0.0000)	(0.8227)	(0.8321)			(0.3501)	(0.0000)	(0.7095)	(0.2864)	
Netherlands	01/70-12/10	0.0019	0.8689**	-0.0001	0.0029**	0.47	1/00-12/10	0.0005	1.1707**	-0.0001	0.0019*	0.71
		(0.3095)	(0.0000)	(0.8572)	(0.0000)			(0.8733)	(0.0000)	(0.9537)	(0.0484)	
Norway	01/70-12/10	0.0022	0.9757**	0.0003	0.0029**	0.30	1/00-12/10	0.0086	1.3167**	-0.0002	0.0016	0.60
		(0.4775)	(0.0000)	(0.7937)	(0.0053)			(0.0809)	(0.0000)	(0.9061)	(0.2385)	
Singapore	01/70-12/10	0.0028	0.9924**	0.0012	0.0025*	0.30	1/00-12/10	0.0051	1.0727**	-0.0007	0.0013	0.53
		(0.3856)	(0.0000)	(0.2753)	(0.0274)			(0.2606)	(0.0000)	(0.5641)	(0.3171)	
Spain	01/70-12/10	0.0018	0.7022**	-0.0004	0.0011	0.22	1/00-12/10	0.0042	1.1445**	-0.0004	0.0005	0.59
		(0.5066)	(0.0000)	(0.6365)	(0.2344)			(0.3294)	(0.0000)	(0.7386)	(0.7058)	
Switzerland	01/70-12/10	0.0021	0.7063**	-0.0010	0.0027**	0.33	1/00-12/10	0.0022	0.7712**	-0.0012	0.0028**	0.59
		(0.3092)	(0.0000)	(0.1369)	(0.0001)			(0.4483)	(0.0000)	(0.1468)	(0.0007)	
UK	01/70-12/10	0.0008	0.8596**	-0.0002	0.0027**	0.35	1/00-12/10	0.0006	0.9303**	-0.0022**	0.0014*	0.76
		(0.7263)	(0.0000)	(0.7799)	(0.0014)			(0.7875)	(0.0000)	(0.0005)	(0.0345)	
USA	01/70-12/10	0.0001	0.988**	-0.0022	0.0000	0.99	1/00-12/10	-0.0006	0.9802**	-0.0020**	0.0002	0.99
		(0.6366)	(0.0000)	(0.0000)	(0.9026)			(0.2382)	(0.0000)	(0.0000)	(0.1779)	
Argentina	01/88-12/10	0.0158	1.039**	0.0057*	-0.0004	0.12	1/00-12/10	0.0115	0.9568**	0.0050	-0.0025	0.23
		(0.0855)	(0.0000)	(0.0441)	(0.8986)			(0.2457)	(0.0000)	(0.0690)	(0.3725)	
Brazil	01/88-12/10	0.0158	1.4206**	0.0025	0.0012	0.18	1/00-12/10	0.0193**	1.6001**	-0.0020**	-0.0019	0.54
		(0.0633)	(0.0000)	(0.3392)	(0.6812)			(0.0047)	(0.0000)	(0.2882)	(0.3135)	
Chile	01/88-12/10	0.0104**	0.7247**	0.0013	0.0000	0.22	1/00-12/10	0.0135**	0.7925**	-0.0011	-0.0015	0.39
		(0.0074)	(0.0000)	(0.2612)	(0.9976)			(0.0033)	(0.0000)	(0.3875)	(0.2310)	
China	01/93-12/10	-0.0028	1.146**	-0.0004	-0.0001	0.24	1/00-12/10	0.0122*	1.1327**	-0.0036**	-0.0027*	0.42
		(0.6651)	(0.0000)	(0.8564)	(0.9794)			(0.0446)	(0.0000)	(0.0338)	(0.1141)	
Colombia	01/93-12/10	0.0097	0.7368**	0.0036*	0.0055**	0.15	1/00-12/10	0.0234**	0.9105**	0.0005	0.0042*	0.24
		(0.1129)	(0.0000)	(0.0496)	(0.0042)			(0.0023)	(0.0000)	(0.7972)	(0.0450)	
Czech Rep	01/95-12/10	0.0043	0.8374**	0.006**	0.0048**	0.30	1/00-12/10	0.0146*	0.9737**	0.0036*	0.0029	0.39
		(0.4178)	(0.0000)	(0.0001)	(0.0029)			(0.0180)	(0.0000)	(0.0328)	(0.0950)	
Egypt	01/95-12/10	0.0111	0.7918**	0.0010	0.0035	0.15	1/00-12/10	0.0120	0.8574**	0.0003	0.0048*	0.20
		(0.0939)	(0.0000)	(0.5771)	(0.0819)			(0.1505)	(0.0000)	(0.9007)	(0.0380)	
Hungary	01/95-12/10	0.0042	1.491**	0.0033	0.0048*	0.42	1/00-12/10	0.0055	1.4142**	0.0030	0.0045*	0.49
		(0.4975)	(0.0000)	(0.0674)	(0.0118)			(0.4257)	(0.0000)	(0.1171)	(0.0191)	
India	01/93-12/10	0.0045	0.8487**	0.0056**	0.0003	0.28	1/00-12/10	0.0106	1.0832**	0.0043*	-0.0002	0.43
		(0.4048)	(0.0000)	(0.0006)	(0.8335)			(0.0988)	(0.0000)	(0.0156)	(0.9206)	
Indonesia	01/88-12/10	0.0079	1.1941**	0.0041	0.0043	0.14	1/00-12/10	0.0103	1.0809**	0.005*	0.0062**	0.31
		(0.3528)	(0.0000)	(0.1168)	(0.1266)			(0.2204)	(0.0000)	(0.0336)	(0.0085)	
Malaysia	01/88-12/10	0.0027	0.7552**	0.0020	0.0013	0.16	1/00-12/10	0.0068	0.5147**	0.0013	0.0010	0.22
		(0.5796)	(0.0000)	(0.1900)	(0.4262)			(0.1496)	(0.0000)	(0.3163)	(0.4247)	
Mexico	01/88-12/10	0.0103*	1.2196**	0.0031*	0.0005	0.38	1/00-12/10	0.0095**	1.1753**	0.003**	0.0003	0.72
		(0.0234)	(0.0000)	(0.0296)	(0.7613)			(0.0092)	(0.0000)	(0.0030)	(0.7492)	
Morocco	01/95-12/10	0.0076	0.2074*	0.0002	0.0025*	0.04	1/00-12/10	0.0077	0.3596**	-0.0002	0.0014	0.09
		(0.0652)	(0.0199)	(0.8727)	(0.0458)			(0.1555)	(0.0011)	(0.8961)	(0.3390)	
Philippines	01/88-12/10	0.0011	0.9424**	-0.0003	0.0024	0.19	1/00-12/10	0.0051	0.7985**	-0.0019	0.0013	0.23
		(0.8268)	(0.0000)	(0.8612)	(0.1663)			(0.4289)	(0.0000)	(0.2979)	(0.4537)	
Poland	01/93-12/10	0.0092	1.4351**	0.0052	0.0032	0.23	1/00-12/10	0.0049	1.3746**	0.0035	0.0047*	0.49
		(0.3036)	(0.0000)	(0.0526)	(0.2488)			(0.4648)	(0.0000)	(0.0606)	(0.0146)	
Russia	01/95-12/10	0.0148	1.7161**	-0.0005	-0.0002	0.25	1/00-12/10	0.0173*	1.5277**	-0.0037	0.0010	0.43
		(0.1668)	(0.0000)	(0.8631)	(0.9494)			(0.0273)	(0.0000)	(0.0900)	(0.6435)	
South Africa	01/93-12/10	0.0040	1.0644**	0.0033*	0.0028*	0.39	1/00-12/10	0.0085	1.099**	0.0026	0.0028	0.52
		(0.3622)	(0.0000)	(0.0133)	(0.0380)			(0.0943)	(0.0000)	(0.0606)	(0.0512)	
Korea	01/88-12/10	0.0025	1.0889**	0.0018	-0.0016	0.21	1/00-12/10	0.0087	1.3803**	0.0011	0.0003	0.52
		(0.6837)	(0.0000)	(0.3409)	(0.4337)			(0.1569)	(0.0000)	(0.5168)	(0.8691)	
Turkey	01/88-12/10	0.0145	1.238**	0.0001	-0.0033	0.12	1/00-12/10	0.0167	1.9274**	-0.0018	-0.0038	0.41
		(0.1420)	(0.0000)	(0.9730)	(0.3129)			(0.1163)	(0.0000)	(0.5353)	(0.1972)	
Asia	01/88-12/10	0.0032	0.9794**	0.0022	0.0013	0.35	1/00-12/10	0.009*	0.9999**	0.0010	0.0010	0.55
		(0.3989)	(0.0000)	(0.0572)	(0.2798)			(0.0336)	(0.0000)	(0.3687)	(0.3833)	
Latin America	01/88-12/10	0.0137**	1.0348**	0.0034**	0.0013	0.35	1/00-12/10	0.0155**	1.0894**	0.0011	-0.0002	0.59
		(0.0009)	(0.0000)	(0.0079)	(0.3239)			(0.0004)	(0.0000)	(0.3531)	(0.8415)	
Eastern Europe	01/88-12/10	0.0152	1.4801	0.0023	-0.0002	0.19	1/00-12/10	0.0167*	2.0181**	0.0004	0.0007	0.59
		(0.0811)	(0.0000)	(0.3891)	(0.9515)			(0.0321)	(0.0000)	(0.8561)	(0.7592)	
Africa & ME	01/93-12/10	0.009*	0.6837**	0.0016	0.003**	0.28	1/00-12/10	0.0092*	0.7656**	0.0009	0.003*	0.39
		(0.0120)	(0.0000)	(0.1351)	(0.0077)			(0.0413)	(0.0000)	(0.4637)	(0.0190)	
Emerging	01/88-12/10	0.0098**	1.0139**	0.0027**	0.0017	0.47	1/00-12/10	0.0115**	1.103**	0.0010	0.0012	0.68
		(0.0014)	(0.0000)	(0.0047)	(0.0943)			(0.0014)	(0.0000)	(0.3001)	(0.2174)	
Developed	01/70-12/10	0.0055*	0.1314**	-0.0001	-0.0002	0.02	1/00-12/10	0.0061	0.224*	-0.0014	-0.0014	0.04
		(0.0119)	(0.0083)	(0.8945)	(0.7539)			(0.2301)	(0.0303)	(0.3103)	(0.3163)	

*, ** Significantly different from zero at the 5% and 1% levels, respectively

Table 22: Multy-Factor Model: Estimation Results (F&F Factors).

7.2 The Role of "Liquidity" in Predicting Equity Risk Premia

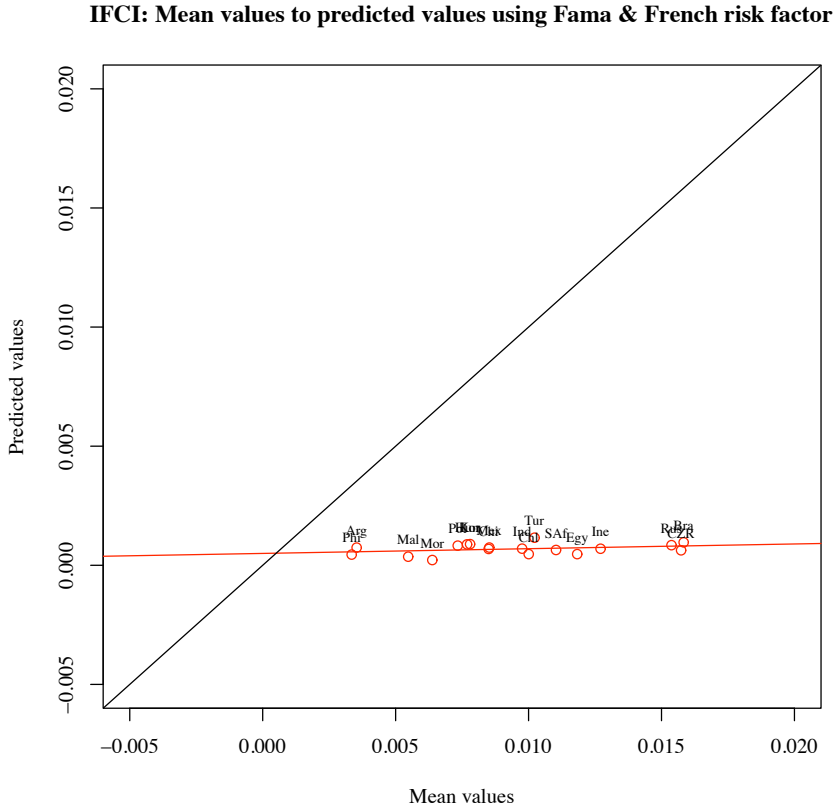

Figure 6: Predictable Equity Risk Premia in Emerging and Developed Markets (S&P IFCI)

7.3 Time-Varying Nature and Global Integration

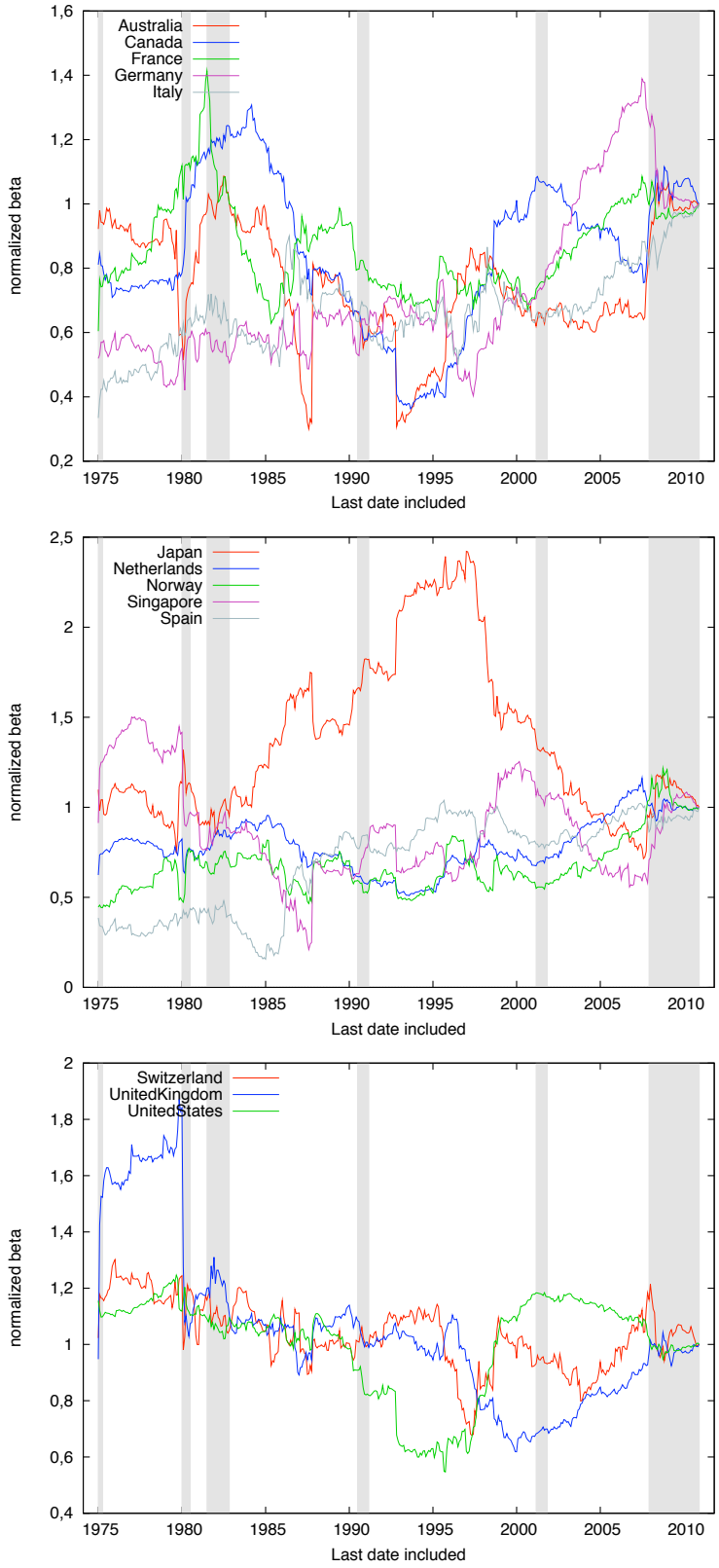

Figure 7: One-Factor Model: Betas Rolling-Window Estimations (Developed)

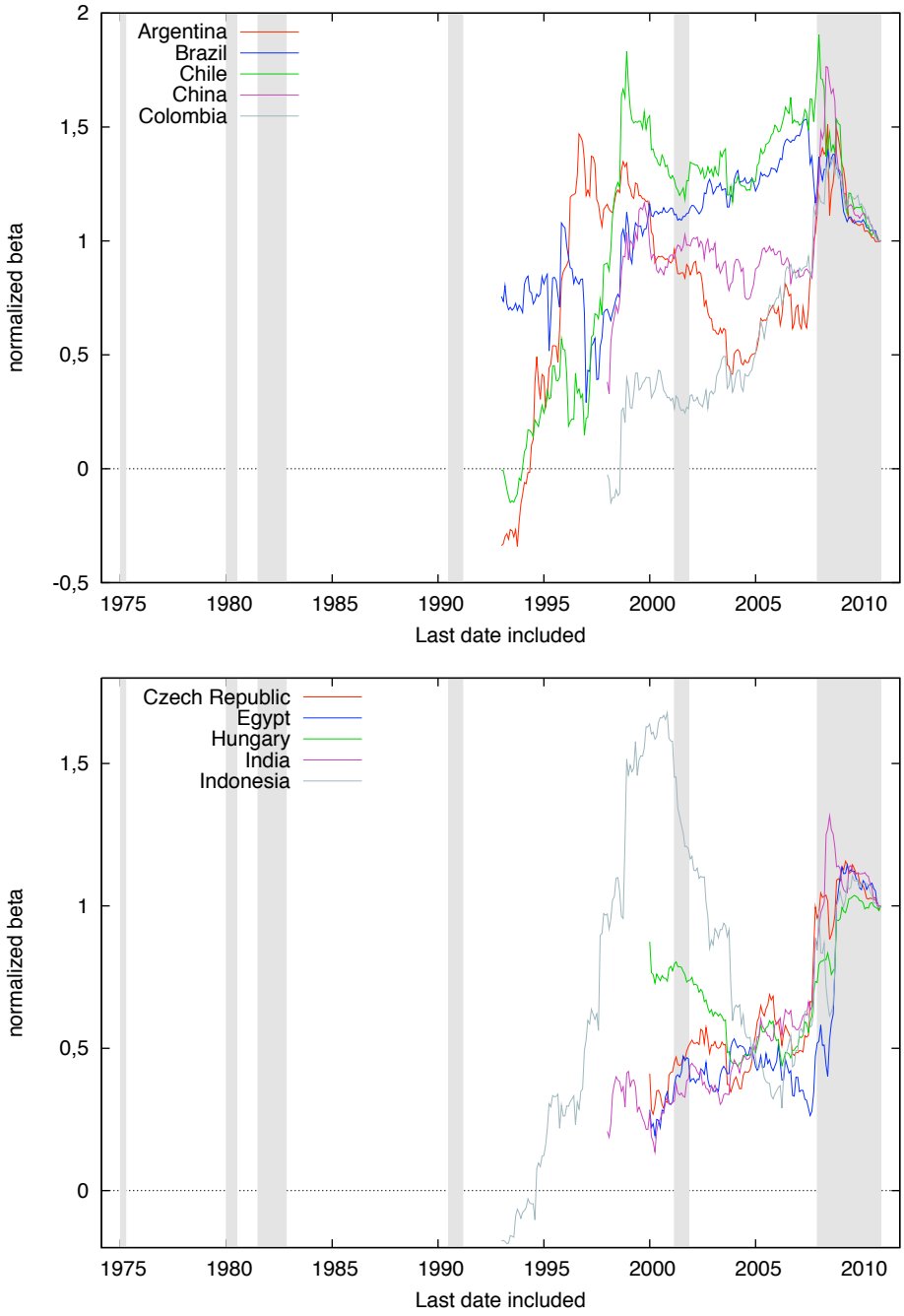

Figure 8: One-Factor Model: Betas Rolling-Window Estimations (Emerging)

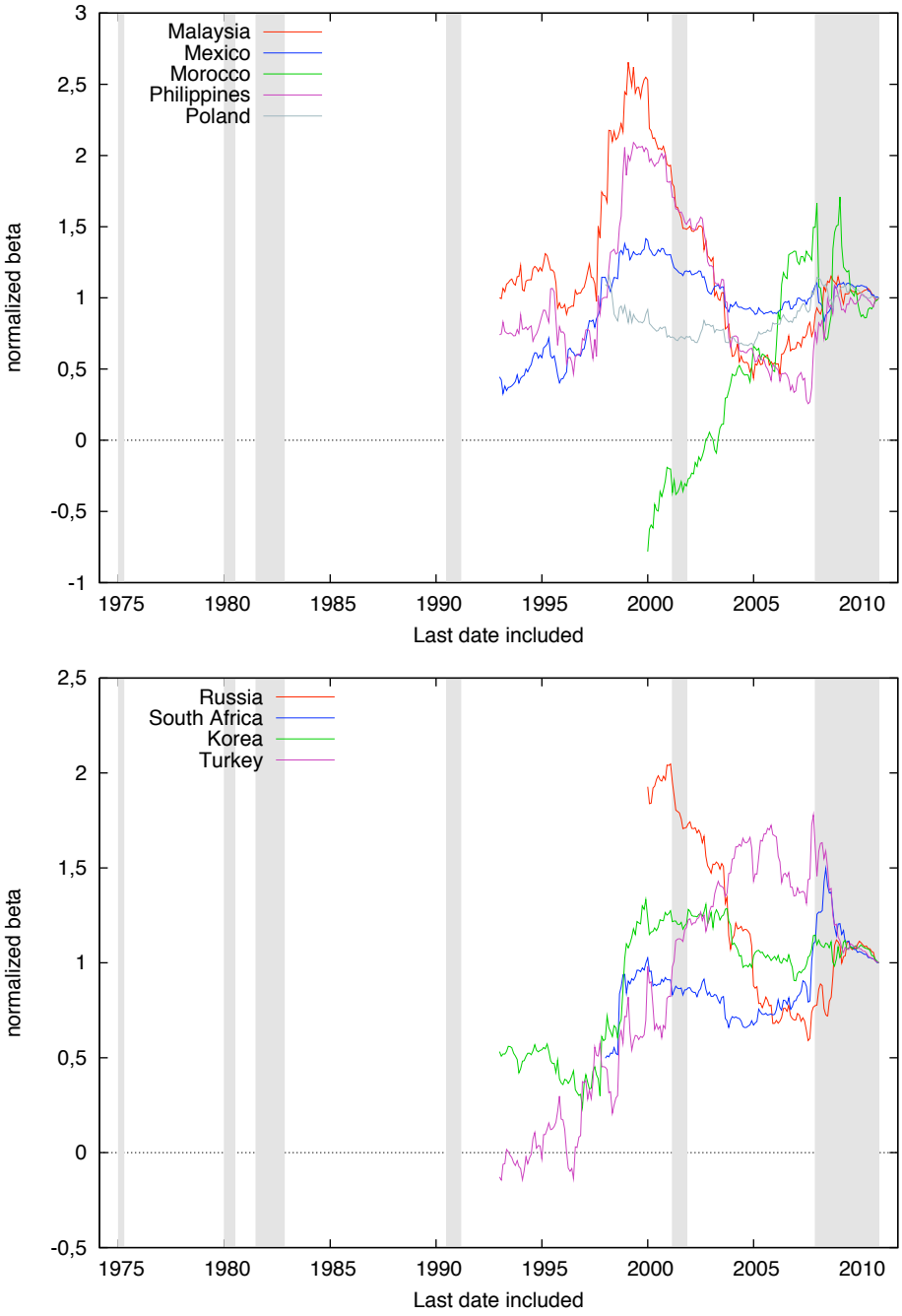

Figure 9: One-Factor Model: Betas Rolling-Window Estimations (Emerging)

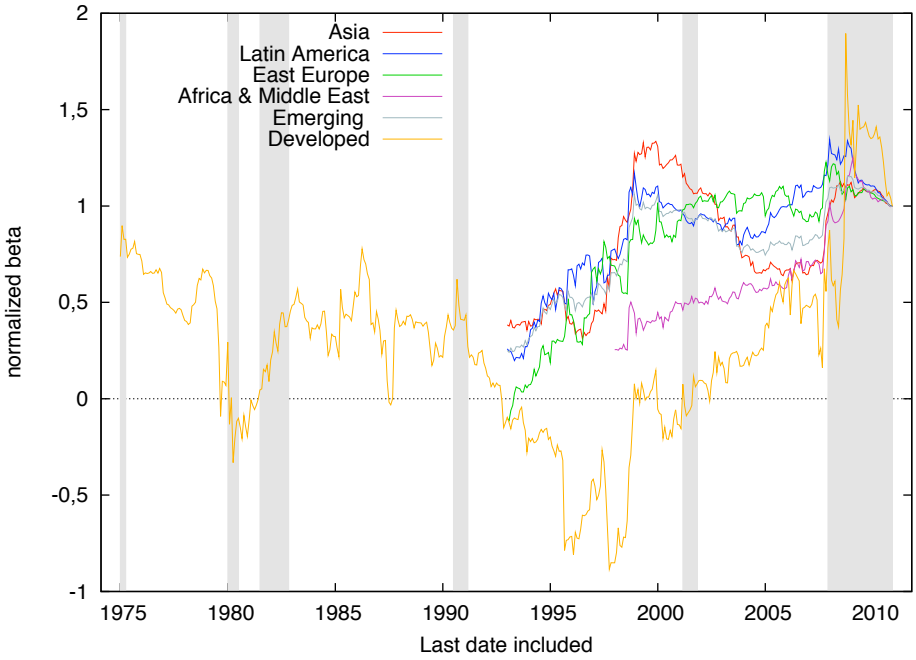

Figure 10: One-Factor Model: Betas Rolling-Window Estimations (Porfolios)

References

[1] Altug, S. J. (1983). "Gestation lags and the Business Cycle: An Empirical Analysis". Carnegie-Mellon Working Paper.

[2] Amihud, Y. (2002). "Illiquidity and Stock Returns: Cross Section and Time Series Effects". *Journal of Financial Markets*, 5, 31-56.

[3] Amihud, Y. and Mendelson H. (1986). "Asset Pricing and the Bid-Ask Spread". *Journal of Financial Economics*, 17, 223-249.

[4] Arrow, K. J. (1971). "Essays in the theory of risk bearing". North-Holland, Amsterdam.

[5] Bekaert G. (1995). "Market Integration and Investment Barriers in Emerging Equity Markets". *World Bank Economic Review*, 9, 75-107.

[6] Bekaert G. and Harvey C. R. (1995). "Time-Varying World Market Integration". *Journal of Finance*, 50, 403-444.

[7] Bekaert G. and Harvey C. R. (1997). "Emerging Equity Market Volatility". *Journal of Financial Economics*, 43, 29-78.

[8] Bekaert G., Harvey C. R. and Lundblad C. (2007). "Liquidity and Expected Returns: Lessons from Emerging Markets". *Review of Financial Studies*, 20(6), 1783-1831.

[9] Blanchard, O. J. (1993). "Movements in the Equity Premium". Brooking Papers on Economic Activity, 2, 519-543.

[10] Breeden, D. (1979). "An Intertemporal Asset Pricing Model with Stochastic Consumption and Investment Opportunities". *Journal of Financial Economics*, 7(3), 265-296.

[11] Chordia, T. R. and Subrahmanyam (2001). "Market Liquidity and Trading Activity". *Journal of Finance*, 56, 501-530.

[12] Chordia, T. R. and Anshuman (2001). "Trading Activity and Expected Stock Returns". *Journal of Financial Economics*, 59, 3-30.

[13] Constantinides, G. M. (1990). "Habit Formation: A Resolution of the Equity Premium Puzzle". *Journal of Political Economy*, 98(3), 519-43.

[14] Divecha, A., Drach, J. and Stefek D. (1992). "Emerging Markets: A Quantitative Perspective". *Journal of Portfolio Management*, 19, 41-56.

[15] Domowitz, I. Jack Glen, J. and Madhavan, A. (1997). "Liquidity, Volatility and Equity Trading Costs across Countries and Over Time". *International Finance*, 4(2), 221-255.

[16] Goetzmann, W. N. and Jorion, P. (1999). "Global Stock Markets in the Twentieth Century". *The Journal of Finance*, 54(3), 953-980.

[17] Estrada, J. (2000). "The cost of equity in emerging markets: A downside risk approach". *Emerging Markets Quarterly*, 4, 19-30.

[18] Ferson W. E and Harvey C. R. (1999). "Conditioning Variables and The Cross-Section of Stock Returns". *Journal of Finance*, 4, 1325-1360.

[19] Friend, I. and Blume, M. E. (1975). "The Demand for Risky Assets". *American Economic Review*, 65, 900-922.

[20] Gibbons, M. R., Ross, S. A. and Shanken J. (1989). "A Test of the Efficiency of a given Portfolio". *Econometrica*, 57, 1121-1152.

[21] Grootveld, H. and Hallerbach, W. (1999). "Variance vs Downside Risk: Is there really much difference ?". *European Journal of Operational Research*, 114(2), 304-319.

[22] Harvey C. R. (1991). "The World Price of Covariance Risk". *Journal of Finance*, 46, 111-157.

[23] Harvey C. R. (1995). "Predictable Risk and Returns in Emerging Markets". *Review of Financial Studies*, 8, 773-816.

[24] Henry, P. (2000). "Stock Market Liberalization, Economic Reform and Emerging Market Equity Prices". *Journal of Finance*, 55, 529-564.

[25] Jagannathan, R., McGrattan, E. R. and Scherbina, A. (2000). "The Declining U.S. Equity Premium". *Federal Reserve Bank of Minneapolis Quarterly Review*, 24(4), 3-19.

[26] Jarque, C. and Bera, A. (1980). "Efficient test for Normality, Heteroscedasticity and Serial Independence of Regression Residuals". *Economic Letters*, 6, 255-259.

[27] Jones, C. (2002). "A Century of Stock Market Liquidity and Trading Costs". Working Paper, Columbia University, NY.

[28] Jorion, P. (1980). "The Price of Exchange Rate Risk in the Stock Market". *Journal of Financial and Quantitative Analysis*, 26, 363-376.

[29] Kocherlakota, N. R. (1996). "The Equity Premium: It's Still a Puzzle". *Journal of Economic Literature*, 34, 42-71.

[30] Levine, R. and Schmukler, S. L. (2006). "Internationalization and stock market liquidity". *Review of Finance*, 10, 153-187.

[31] Levine, R. and Zervos S. (1998). "Stock Markets, Banks and Economic Growth". *American Economic Review*, 88(3), 537-558.

[32] Lucas, R.E. (1978). "Asset Prices in an Exchange Economy". *Econometrica*, 46(6), 1429-1445.

[33] Markowitz, H. (1952) . "Portfolio Selection". *The Journal of Finance*, 7(1), 77-91.

[34] Merella, V. and Satchell, S. E. (2007). "Animal Spirits in Consumption: Does Confidence Influence Asset Pricing ?". Birbeck Working Paper.

[35] Merton, R. C. (1973). "An Intertemporal Asset Pricing Model". *Econometrica*, 41, 867-887.

[36] Mehra, R. and Prescott E. C. (1985). "The Equity Premium: A Puzzle". *Journal Monetary Economics*, 15(2), 145-161.

[37] Pastor, L. and Stambaugh R. (2003). "Liquidity and Expected Stock Returns". *Journal of Political Economy*, 111, 642-685.

[38] Salomons, R. and Grootveld, H. (2003). "The Equity Risk Premium: Emerging vs. Developed Markets". *Emerging Markets Review*, 4(2), 121-144.

[39] Siegel, J. J. and Thaler R. H. (1992). "Global Diversification in a Shrinking World". *The Journal of Economic Perspectives*, 11(1), 191-200.

[40] Speidel, L. S. and Sappenfield R. (1997). "Anomalies: The Equity Premium Puzzle". *Journal of Portfolio Management*, 19, 57-67.

[41] Stambaugh R. (1991). "Predictive Regressions". *Journal of Financial Economics*, 54, 375-421.

[42] Stone, D. (1990). "The Emerging Markets and Strategic Asset Allocation". Working Paper, Frank Russel Co., Tacoma, WA.

[43] Weil, P. (1989). "The Equity Premium Puzzle and the Risk-Free Rate Puzzle". *Journal of Monetary Economics*, 24(2), 401-421.

[44] Wilcox, J. W. (1992). "Taming Frontier Markets". *Journal of Portfolio Management*, 19, 51-55.