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Thomas Lagoarde-Segot
IIIS & School of Business, Trinity College Dublin & CEFI, Universite Aix Marseille II.

Brian M. Lucey,
IIIS & School of Business, Trinity College Dublin

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Thomas Lagoarde-Segot[#]
lagoardt@tcd.ie

Institute For International Integration Studies and School of Business, Trinity College, Dublin & CEFI, Universite Aix Marseille II.

Brian M. Lucey
blucey@tcd.ie

Institute For International Integration Studies and School of Business, Trinity College Dublin

Abstract

The objective of this paper is to situate the MENA area within the emerging markets universe. We first discuss the various components of market emergence and generate four bootstrapped indexes reflecting market size, market activity, market pricing and transparency. We then draw inter-regional and country-level comparisons using a probit model and a hierarchical cluster analysis. Our results suggest that in spite of intra-regional heterogeneity, the MENA region ranks favorably by comparison to Latin America and Eastern Europe. We can therefore expect greater international financial integration of the MENA region in the near future.

JEL classification: G11;G12;G15

Keywords: Emerging Markets, Middle East and North Africa, Meta analysis

[#] Corresponding Author
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1. Introduction

Interest in emerging markets is traditionally fuelled by an assumption of their segmentation from global factors. This stabilizes portfolio value and increases long-run yields: see for example Bartram and Dufey (2001). In a seminal study, Harvey (1995)showed that adding a portfolio of emerging markets to a diversified developed markets portfolio would result in a reduction of six percentage points in the total portfolio's volatility, while keeping the expected returns unchanged. But the waves of privatizations and economic liberalization that took place in transition economies during the 1980's and 1990's have also considerably widened the emerging investible area. In 1981, the International Financial Corporation (IFC) emerging market index included only 9 countries; by 2005, the total number of countries had reached 53. These factors have led to a dramatic increase in net private portfolio investment to emerging markets – from an estimated US$ 100 millions in 1985 the IMF estimate (from the Consolidated Portfolio Investment Survey) is that foreign portfolio investment in developing countries topped US$50b by 2002.

In spite of specific drawbacks linked to the incorporation of international financial volatility into the domestic financial system, economic theory suggests that increased portfolio flows carry positive outcomes for emerging market economies. On a conceptual level, the existence of a 'negative differential' in capital marginal productivity between developed and emerging countries implies that direct and portfolio investment flows improve the efficiency in the allocation of international capital and allows countries to smooth their consumption and finance investment regardless of their initial income level (Agenor (2003)). The integration of capital markets also encourages the financing of riskier and potentially more profitable –i.e socially useful- projects by providing investors with an insurance against country-specific risks (Kim, Lee and Shin (2006)). Finally, the deepening of the domestic financial system

allows firms to choose the most efficient trading, clearing and/or settlement platforms, which should result into an eased access to capital (Henry (2003)). Empirically, international financial integration has proven able to successfully alter growth paths in the most dynamic emerging countries – such as East Asia, where annual rates of economic growth have exceeded 7%. More generally, it has also been shown that liberalization generally reduced the cost of capital for firms in these countries, with all the attendant benefits of same – see for example Henry (2003) or Patro and Wald (2005).

The MENA[1] region has long been the world's smallest region in terms of recipient of foreign capital. In 2004, international capital flows to the MENA area accounted for only 2.8% of global funds, and Turkey absorbed more than the half of these inflows. Only 0.7 % of the area's GDP was externally-funded, versus an average of 4.2% of GDP in other LDC. Such a situation was justified by institutional and regulatory barriers, which have hampered capital flows to the region during much of the twentieth century (Henry and Springborg (2004)). However all MENA countries have implemented official external financial liberalization and introduced ADR systems during the 1990's. Concurrently, a profound reform agenda was initiated during the last decade, resulting in significant success in the areas of macro-economic stabilization (the average inflation rate in the region hovers around 1.1% since 2000) and in the evolution of property rights and legal structures (FEMISE (2001, (2002, (2003, (2004) At the political level, the impulsion for reform was given by the signature of the Euro-Mediterranean partnership in 1995, and further reinforced by South-South initiatives such as the implementation of the Agadir Agreements in 2003.

This paper aims to situate the MENA capital markets within the emerging markets universe. We first note some theoretical components market emergence. We then generate four bootstrapped emergence indexes and draw inter-regional and cross country comparisons using a probit model and a hierarchical cluster analysis. Our results suggest that in spite of a high intra-regional heterogeneity, the MENA area ranks favourably by comparison to other

[1] In this paper we consider countries that have signed the 1995 Barcelona Declaration: Morocco, Tunisia, Egypt, Jordan, Lebanon, Turkey and Israel.

zones such as Latin America or emerging Europe. The rest of the paper is structured as follows. Section 2 presents our database and discusses the distinction between frontier and emerging markets. Section 3 reviews the various dimensions of market emergence in the MENA region. Section 4 presents the methodology and discusses our results, and Section 5 draws together our conclusions.

2. Emerging and frontier markets

The generic term 'emerging markets' was first employed by the International Finance Corporation (IFC) and was subsequently more rigorously defined by the rating agency Standard and Poor's (S&P), who completed the acquisition of the IFC's database in 2002. The S&P/IFC database currently constitutes the widest source of information on emerging markets. According to S&P/IFC, an equity market is characterized as 'emerging' if it meets at the following conditions:

- Being a low, lower-middle or upper-middle-income economy as defined by the World Bank for at least three consecutive years[2]. The period of three years was introduced in 1995 in order to control for the income overevaluation bias induced by the dollar denomination of national incomes in a context of unstable exchange rates.
- Having a low investable market capitalization to GDP ratio relative to other emerging markets. The investable market capitalization refers to the market segment immediately available to investors, and excludes large restricted block holdings. To be reclassified as 'developed', the investable market capitalization to GDP ratio must also reach the top 25% of the emerging market universe for three consecutive years.

Using these criteria, 53 out of the 150 low, lower-middle and upper-middle income countries as calculated by the World Bank were considered to be 'emerging markets' in 2005. Another distinction is made between standard and smaller emerging markets through the construction of 'global' and 'frontier' indexes. The *global* index includes each emerging market's most active stocks, ie stocks which represent between 60% and 75% of the market's overall

[2] The threshold was $9,075 in 2002.

capitalization. The *frontier* index represents the evolution of the most active stocks in the smallest, less liquid emerging markets, although there is no exact threshold for reclassification. The inclusion of stocks in the frontier index is based on firm-level characteristics and development prospects. In 2005, 23 countries belonged to the S&P 'emerging market' universe and 20 were 'frontier' markets. Within the MENA region, 5 markets – Turkey, Israel, Egypt, Jordan, and Morocco – were noted as 'emerging markets' and 2 –Lebanon and Tunisia- as 'frontier markets'. Finally, an 'investable' index is calculated for all markets, reflecting the activity of stocks directly accessible to foreign investors.

3. Theoretical factors of market emergence

From an economic point of view, cross-country differences in levels of market emergence are due to divergent local political and economic dynamics, which result in heterogeneous rates of economic growth and market capitalization. In other words, market emergence is primarily driven by a local dynamic resulting in various financial and socioeconomic infrastructures. Taking this into account, measures of market emergence generally involve both quantitative and qualitative elements. Quantitative elements have been described by Kumar and Tsetsekos (1999) and include levels of market size, market activity and the pricing mechanism. Qualitative elements determine the availability of economic information and ultimately impact on the perception of country risks and include levels of transparency, competitiveness and corruption.

3.1 Market size

3.1.1 Market volume

Market volume, as measured by the overall dollar market capitalization, is the simplest indicator of market size. It also reflects the age of a market and its maturity (Füss (2002
)). As shown in Figure 1, market volume discriminates well between emerging and frontier markets. Not surprisingly, China, South Africa and India appear as the sample's largest

markets. Turkey and Israel are the largest markets within the MENA region. They have reached similar sizes and are comparable in size to Indonesia, Chile and Thailand. Egypt ranks third within the MENA region and can be compared to Argentina and the Philippines. Jordan and Morocco have reached similar size and can be compared to Peru and Hungary. Finally, Tunisia and Lebanon, the two frontier markets, are clearly lagging behind and can be compared to Bangladesh and Bulgaria.

3.1.2 Market depth

The concept of 'financial depth' provides a more refined insight into capital market size. It is defined as the ratio of market capitalization to GDP and expresses stock market size as a percentage of the total national product of an economy. Scores are shown in Figure 2 and do not seem to discriminate between frontier and emerging markets. For instance, Bulgaria, a frontier market, has the highest market capitalization to GDP ratio in our sample (136%), well ahead of South Africa (37%) and China (38%). The figure also shows that financial depth is very heterogeneous across MENA markets. Egypt ranks first among emerging markets (103%). The second MENA market is Jordan (79%), with a financial depth similar to Argentina (78%). Turkey comes third and can be compared to the Czech Republic (65%). Lebanon, a frontier market, can be compared to Slovenia (55%). The less deep markets of the MENA region include Israel (32%), which is located above Ecuador (31%), and Morocco (24%) which ranks close to Venezuela (19%). Finally, Tunisia (10%) is located between Malaysia (12%) and Croatia (3%).

3.1.3 Number of actively traded equities

The number of actively traded equities constitutes our third measure of market size. We report the number of equities included in the S&P/IFCG or S&P/IFCF index in Figure 3. Inspection of the figure suggests that the number of firms discriminates well between emerging and frontier markets. China displays the highest number of equities (181), and is followed by

Korea (105) and Taiwan (68). Turning to the MENA countries, Israel comes first with 34 active stocks, a number similar to Indonesia. It is followed by Turkey, which with 26 active stocks ranks equal to Mexico. Egypt (15 firms), Jordan (13 firms), Tunisia (10 firms) and Morocco (9 firms) constitute a rather homogeneous group. Lebanon (5 firms) is lagging behind and can be compared to Slovakia (4 firms).

3.2 Market activity

3.2.1 Return on the S&P/IFC Investable index

The percentage return on the annual S&P Investable index constitutes an obvious measure of market activity. It highlights the performance of the most open and active firms of the stock exchange. As shown in Figure 4, this indicator discriminates well between frontier and emerging markets, with the exceptions of Jamaica (133%) and Trinidad (118%). Among the MENA countries, Israel showed the best performance in 2005 (75%), followed by Egypt (41%), Morocco (40%) and Turkey (30%). Tunisia and Lebanon, the two frontier markets, are lagging behind (10% and 9%, respectively).

3.2.2 Turnover ratios

A tendency towards illiquidity in emerging markets is one of the primary factors that differentiates their capital markets from developed countries. Lack of liquidity significantly affects the ability of market participants to accomodate order flows, resulting in a desynchronization between market opportunities and the execution of market decisions. This implies higher holding costs for investors (Fuss, 2000). Another inconvenient of market illiquidity is that it allows possible disadvantageous price effects when a large trade is made by a single investor. The extent of liquidity in an emerging market is generally expressed through the turnover ratio, which is calculated as the annual value traded divided by the average market capitalization if the last two consecutive years. A high turnover ratio means that a large number of the shares outstanding were traded, which is assimilated to greater

degree of liquidity. As shown in figure 4, turnover ratio seems to discriminate well between emerging and frontier markets. While Pakistan appears as the sample's most liquid market (398%), the greatest turnover ratios of the frontier universe is obtained by Bangladesh and does not exceed 30%. Turning to the MENA countries, Turkey (176%) ranks among the sample's most liquid market, just behind Pakistan and Saudi Arabia. It is followed by Israel and Jordan (59% and 50%, respectively), which have liquidity levels similar to those of Russia (46%) and the Czech Republic (63%). Egypt seems to be as liquid as Mexico (25%); Lebanon is comparable to Romania (15%) while Tunisia and Morocco display the same liquidity level as Chile (11%).

3.3 Market pricing

3.3.1 Price-earning ratios

The valuation of market profits is dependent on dividend payout ratio, potential profit growth, and risk of return. These factors are incorporated into the P/E ratio, which reflects the relative cost of investing in a specific market. Theoretically, the P/E ratio is smaller in emerging markets than in developed markets. A shown in figure 5, apart from Romania, P/E are rather homogeneous across countries. An interesting feature is that the P/E can be higher in frontier markets than in emerging markets. For instance, frontier markets such as Romania (322%), Lithuania (35%) and Lebanon (32%) are within the top ten. Within the MENA region, highest ratios are obtained by Jordan (50%), Egypt (36%) and Lebanon (32%), reflecting higher growth prospects. Israel (25%) and Morocco (22%) come next, while Tunisia (15%) and Turkey (12%) are lagging behind.

3.3.2 Dividend yields

Dividend yields equal the index's annual dividend payment divided by the stock price and simultaneously measures the income components of stock returns for stockholders. The highest yields seem to be found in frontier markets, such as Botswana (5%), Kenya (5%) or

Côte d'Ivoire (4%). This suggests that investors in these markets have to be compensated for the uncertainty of capital gains due to existing inefficiencies. This also suggests a highest firm level growth rate as fast growing firms are generally perceived as having lower payouts (Megginson & Smart, 2005). Finally, it suggests a higher cost of capital in these theoretically less integrated markets, which echoes previous empirical work (Patro, 2004). Turning to the MENA region, the highest dividend yield is obtained by Tunisia and Morocco (4%), which can be compared to the frontier markets of Namibia and Ecuador (4%). Turkey and Jordan have smaller dividend yields (3%) and are ranked equally to the Czech Republic and Slovakia. Finally, the smallest dividend yields are observed in Israel (2%), which is comparable to Mexico, Egypt (1%) which is comparable to Russia; and Lebanon (0%), which is comparable to Croatia.

3.3.3 Percentage change in market capitalization

The last pricing indicator that we analyse is the annual percentage change in market capitalization which is a proxy for the variation in the value of company shares that are owned by stockholders. As shown in figure 7, the highest value is observed in Bulgaria, a frontier market (125%), while Latvia, another frontier market, ranks third (101%).We also observe that most of the negative values are obtained by frontier markets such as Estonia (-56%) or Ghana (-37%). Such a divergence reflects the uncertain financial and economic trajectory of frontier markets. Jordan ranks is the fastest developing MENA market (90%) and ranks third in the whole sample, just above Russia (86%). Lebanon, a frontier market, is also growing fast (51%), just above Brazil (48%) and Egypt (48%). Turkey is ranked equally with Ukraine and Korea (43%). Israeli market capitalization is growing relatively slower (17%) and can be compared to Ecuador (18%) and South Africa (20%). Finally, Morocco (12%) and Tunisia (11%) are lagging behind, and are close to the Czech Republic (13%).

3.4 Transparency, Competitiveness and Corruption

3.4.1 The International Country Risk Guide (ICRG) index

The ICRG index provides an single measure of country risk which aggregates factors of political, economic and financial risk. The index goes from 0 to 100, with a higher value indicating a higher country risk. Inspection of the figure suggests that country risk is independent from classification as an emerging or frontier market. The highest risk within the MENA region appears to be in Morocco (75) where it is equivalent to Poland. Then come Tunisia and Israel (73). According to the ICRG classification, the least risky MENA countries are Jordan (71), Egypt (66), Turkey (63) and Lebanon (56).

3.4.2 The Corruption Perception (CPI) index

The non-governmental organization Transparency International calculates an annual corruption perception index which increases with the degree of corruption as perceived from country surveys. The index goes from 0 to 10, with a higher value indicating a lower corruption level. As shown in figure 9, the level of corruption does not seem to affect classification as an emerging of frontier market. According to the figure, Israel ranks third among the whole sample and appears to be the most transparent MENA country (7). It is followed by Jordan (6), Tunisia (5) and Turkey (4). According to this index, the most corrupted MENA countries are Egypt (3) and Lebanon (3).

3.4.3 The Investor Protection Index (IPI)

The World Bank's Doing Business database provides an overall investor protection index which aggregates survey-based measures of shareholder protection, information disclosure and company management liability (Djankov, LaPorta, Lopez-de-Silanes et al. (2005)). The index goes from 0 to 10 and a higher value indicates better investor protection. As shown in figure 10, the index value seems to be homogeneously distributed across frontier and emerging markets. Within the MENA group, the highest ranking countries appear to be Israel (9) and Turkey (5). Lebanon (4), Egypt (4), Morocco (4), Jordan (4) constitute a homogeneous group, while Tunisia (3) is lagging behind.

4. Methodology and results

4.1 The bootstrapped indexes

In this section, we generate a set of synthetical emergence indexes reflecting the four theoretical components of the market emergence: market size, market activity, market pricing and institutional quality. These indexes can be described as follows:

$$\begin{cases} SIZE_i = \alpha_i CAP_i + \beta_i CAPGDP_i + \chi NE_i \\ ACTIVITY_i = \alpha TURNOVER_i + \beta_I \%IFCI_i \\ PRICING_i = \alpha_i PER_i + \beta_i DY_i + \chi_I \Delta MC_I \\ TRANSPARENCY_i = \alpha_I ICRG_i + \beta_I CPI_i + \chi_i IPI_i \end{cases} \quad (1)$$

For each of these components the index is defined as the weighted average of the underlying variables. Weights are bootstrapped using 1000 random draws, and the selected value of the index corresponds to the 50% cumulative distributive function. Note that in calculating the transparency index, we had to normalize and reorder the scale of the ICRG index for consistency purposes. Country values are reported in Table 1. We observe the largest size for China (83.53) and the smallest for Venezuela (3.02). The most and least 'active' emerging markets are Pakistan (205.8) and Namibia (4.93), respectively. Turning to 'pricing' aspects, the extreme values are obtained for Romania (118.53) and Estonia (-12.72). Finally, the most and least 'transparent' emerging markets are Israel (5.92) and Ukraine (2.81), respectively. Averaging the index values at the regional level allows us to make some comparison. Looking first at the size index, the MENA region (30.69) is ranked after Asia (38.76) but before emerging Europe (27.37) and Latin America (30.22). Within the MENA region, the ranking is Egypt (47.25), Turkey (38.66), Jordan (38.41), Israel (30.60), Lebanon (27.05), Morocco (18.96) and Tunisia (13.91). Turning to the activity index, the MENA region (48.9) is also ranked second, after Asia (77.39) but before emerging Europe (37.04) and Latin America (27.35).

Table 1 Bootstrapped emergence indexes (50% CDF)

Country	SIZE	ACTIVITY	PRICING	TRANSPARENCY
Argentina	37.14	21.42	9.31	3.93
Bahrain	11.39	59.13	17.69	5.60
Bangladesh	33.45	16.66	7.16	4.09
Botswana	16.77	16.01	5.65	4.07
Brazil	47.02	41.94	21.61	4.16
Bulgaria	54.30	14.63	50.37	4.04
Chile	32.97	67.69	15.85	5.08
China	83.53	66.83	14.18	3.26
Colombia	34.58	13.88	37.29	4.46
Cote d'Iv,	20.72	7.57	8.32	3.69
Croatia	11.21	16.53	2.23	3.06
Czech R,	31.40	42.78	11.33	3.85
Ecuador	19.17	6.03	13.46	3.42
Egypt	47.25	32.89	28.96	3.60
Estonia	27.86	38.96	-12.62	4.96
Ghana	25.09	14.21	-9.31	4.43
Hungaria	25.27	44.27	10.56	4.01
India	45.09	82.53	17.76	4.03
Indonesia	32.77	34.63	5.28	3.84
Israel	30.60	67.41	15.11	5.92
Jamaica	20.68	70.33	0.97	4.00
Jordan	38.41	93.26	48.65	4.08
Kenya	35.73	17.48	26.47	3.64
Latvia	25.92	10.38	41.07	4.13
Lebanon	27.03	11.93	28.27	3.96
Lithuania	29.67	16.97	19.56	4.16
Malaysia	35.95	98.51	6.13	5.44
Mexico	30.85	23.73	21.24	3.35
Morocco	18.96	25.82	12.80	3.24
Namibia	15.77	4.93	-0.07	4.46
Nigeria	24.31	15.23	30.89	4.01
Oman	26.16	27.07	35.88	4.62
Pakistan	30.13	205.80	18.52	4.06
Peru	25.94	17.43	31.69	4.34
Philippines	24.11	23.58	12.66	2.96
Romania	32.12	14.60	118.53	3.90
Russia	31.54	47.96	35.25	3.32
Saudi A,	41.96	142.85	62.05	3.59
Slovakia	21.27	13.15	6.40	3.62
Slovenia	27.87	20.15	0.75	4.61
South Africa	43.55	118.58	12.27	5.23
Sri Lanka	11.89	20.93	34.42	4.07
Thailand	46.62	86.31	1.68	4.06
Trinidad	18.85	63.13	5.83	5.77
Tunisia	13.91	10.30	9.98	3.53
Turkey	38.66	100.97	19.95	4.09
Ukraine	39.71	8.34	21.87	2.81
Venezuela	3.02	5.38	3.75	2.93
Zimbabwe	49.98	25.84	-2.17	4.49
Min	3.02	4.93	-12.62	2.81

Max	83.53	205.80	118.53	5.92
Mean (MENA)	*30.69*	*48.94*	*23.39*	*4.06*
Mean (Latin America)	*30.22*	*27.35*	*20.11*	*4.04*
Mean (Asia)	*38.76*	*77.39*	*13.83*	*3.97*
Mean (Emerging Europe)	*27.37*	*37.04*	*12.71*	*3.70*

Within the MENA region, activity levels in decreasing order are Turkey (100.97), Jordan (93.26), Israel (67.41), Egypt (32.89), Morocco (25.82), Lebanon (11.93) and Tunisia (10.30). Interestingly, when looking at the pricing index the MENA region ranks first (23.39), before Latin America (20.11), Asia (13.83) and emerging Europe (12.71). This reflects the strong growth of capital market in the region. At the intra-MENA level, the ranking is Jordan (48.65), Egypt (28.96), Lebanon (28.27), Turkey (19.97), Israel (15.11), Morocco (12.8) and Tunisia (9.98). Finally, the MENA region also ranks first in terms of the transparency index. Its average score is 4.06 versus 4.04 for Latin America, 3.97 for Asia and 3.70 for Eastern Europe. This somewhat surprising result may be due by the very high level of transparency attained in Israel (5.92), which ranks first among emerging markets. The rest of the intra MENA ranking is Turkey (4.09), Jordan (4.08), Lebanon (3.96), Egypt (3.60), Tunisia (3.53) and Morocco (3.24).

Table 3 reports the correlation matrix between the four dimensions of market emergence. We find a significant correlation between size and activity (0.32), and between transparency and activity (0.28). The association of market size and market activity is obvious, and the significant coefficient uniting transparency and activity echoes theoretical work on the relationship between market efficiency and liquidity (Chordia, Roll and Subrahmanyam (2005)).

Table 3 Correlation of indexes of market emergence

	SIZE	ACTIVITY	PRICING	TRANSPARENCY
SIZE	1.0000			
ACTIVITY	0.3245* (0.0229)	1.0000		
PRICING	0.1850 (0.2032)	0.0417 (0.7762)	1.0000	
TRANSPARENCY	-0.0195 (0.8944)	0.2842* (0. 0446)	-0.1251 (0.3919)	1.0000

Note : P-values are reported between brackets. (*) indicates significance at the 5% level.

4.2 Probit analysis

In this section we use a probit analysis in order to draw international comparisons on levels of market emergence. We first investigate the impact of our indexes on country classification as emerging or frontier markets. Our dependent variable takes a value of 1 if the country is classified as emerging and 0 otherwise.

As shown in Table 4, model 1 (including SIZE), model 2 (including ACTIVITY) and model 5 (including all four indicators) appear appropriately fitted as observed from the likelihood ratio statistics. This suggests that our indicators appropriately reflect the dimensions of market emergence. Looking at coefficients, SIZE and ACTIVITY have both positive signs and explanatory power and thus seem to be the most important dimensions of market emergence. ACTIVITY seems to have the strongest impact on market emergence as it is also significant in the four variables model. By contrast, market pricing and transparency do not appear to have explanatory power in determining market classification.

Table 4 Probit analysis

	Model 1	Model 2	Model 3	Model 4	Model 5
SIZE	0.02*				0.01
	(0.06)				(0.58)
ACTIVITY		0.02**			0.04**
		(0.00)			(0.006)
PRICING			0.00		0.00
			(0.74)		(0.42)
TRANSPARENCY				0.09	-0.47
				(0.72)	(0.17)
CONSTANT	-0.58	-0.62*	0.23		
	(0.23)	(0.06)	(0.33)		
Number of obs	49	49	49	49	49
LR chi2(12)	3.84	13.79	0.11	0.12	16.43
Prob > chi2	0.04	0.0002	0.74	0.72	0.0025

Note : P-values are reported between brackets. (*) indicates significance at the 5% level.

In Figure 12, we show the probability of a particular country being classified as an emerging market based on our four indicators. Inspection of the figure suggests that in spite of specific cases such as Jamaica or Trinidad which are ranked above most emerging markets, our model discriminates well among emerging and frontier markets. Observing probabilities for the MENA countries, our model suggests the Turkey and Jordan have 99% chances of being classified as emerging markets. Then come Egypt (78%), Israel (75%) and Morocco (63%). Tunisia and Lebanon, the two frontier MENA markets, have the lowest probability of being classified as emerging markets (34% and 36%, respectively); which confirms intuition from the S&P classification. According to our model this is primarily due to a small size and a lack of activity in these markets. Averaging these probabilities at the regional level, we find that the MENA area (69%) has the second highest probability of being classified as emerging: it is ranked after Asia (83%) but before Latin America (57%) and Emerging Europe (54%). This confirms previous observations and suggests that the region may attract further portfolio flows in the future. However, the associated standard deviations are the highest for the MENA region (26.8%), above Asia (23%), Latin America (23%) and Europe (19%). The region should therefore not be considered as a homogeneous block.

4.3 Cluster analysis

In this section, we implement a hierarchical cluster analysis based on Ward's (1963) linkage in order to situate the MENA markets within the emerging market universe. Within this framework, the squared Euclidean distance is used as a measure of dissimilarity. The recurrence formula is the following:

$$d_{k(i,j)} = \frac{\eta_i + n_k}{\eta_i + \eta_j + \eta_k} d_{ki} + \frac{\eta_j + n_k}{\eta_i + \eta_j + \eta_k} d_{kj} - \frac{n_k}{\eta_i + \eta_j + \eta_k} d_{ij} \quad (2)$$

Where η_i, η_j, η_k are the numbers of observations contained in groups i, j and k, respectively. d_{ij} is the distance between cluster *i* and cluster *j*, $d_{k(ij)}$ is the distance between cluster *k* and the new cluster formed by joining clusters i and *j*. The optimal number of clusters is identified based on the pseudo F index which is defined as $F = \frac{Trace[B/(k-1)]}{Trace[W/(n-k)]}$ where *n* is the number of observations in a sample, *K* is the number of clusters, *B i*s the between cluster sum of squares and cross product matrix, and *W* is the pooled within cluster sum of squares and cross products matrix. By this method, the optimal number of clusters is determined by plotting the F index against the number of clusters[3]. Finally, inspecting of the repartition of clusters across radar plots gives insight on their respective characteristics.

Starting the analysis at a regional level, we divide our sample into four blocks corresponding to the regional averages ASIA, LATIN AMERICA, EUROPE and MENA. Implementing Ward's algorithm, we find that the maximum F-statistic (9.45) is obtained with 3 clusters. The first cluster contains ASIA, the second cluster contains MENA, and the third cluster contains LATIN AMERICA and EUROPE. As shown in Figure 12, the ASIA block is dominates in terms of market size and activity. Levels of market transparency are evenly distributed across the four regions. The MENA area clearly comes second in activity, and first in pricing. These two dimensions of market emergence being the most sensitive to annual variations and market

[3] Respective dendograms are not reported due to space considerations but are available on request.

anticipations, this suggests that contemporaneous market emergence is a more dynamic process in the MENA region than in Latin America and emerging Europe. This result echoes previous findings from the probit analysis and confirm the emergence of the MENA capital markets.

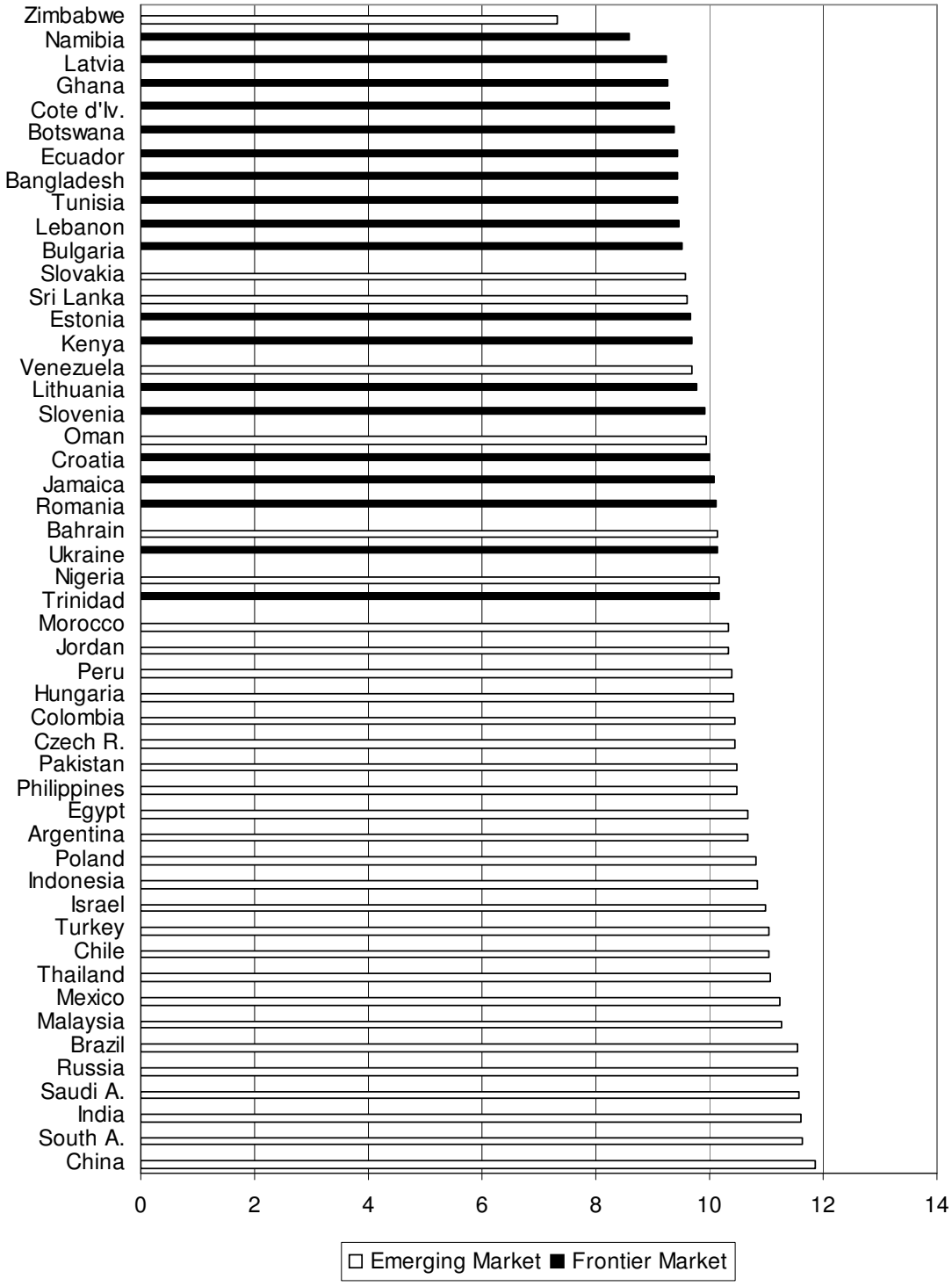
However, turning to a country level analysis within the MENA region, we find the F-statistic (15.20) to be optimized with a number of 6 clusters. This suggests that market emergence levels are very heterogeneous across the MENA capital markets. This confirms intuition from the previous section. Each individual country constitutes an optimal cluster, except Tunisia and Morocco which constitute a joint cluster. Radar plots are shown in figure 14. The chart is skewed towards the North-East, which suggests that although being divergent, Turkey, Jordan, Egypt and Israel seem to have reached higher market size and activity than Lebanon, Tunisia and Morocco. Morocco's capital market is more active than Lebanon's, but this appears to be counterbalanced by higher transparency and higher pricing in Lebanon. Tunisia is lagging behind. Since Tunisia and Morocco constitute a joint cluster, this suggests that Lebanon is ahead of Morocco in terms of market emergence. This shows that adding supplementary emergence criteria – market pricing and transparency- can lead to a slightly different result than the S&P classification.

5. Conclusion

The objective of this paper was to assess the degree of market emergence within the MENA by comparison with other emerging markets. We first discussed the various components of market emergence and generate four bootstrapped indexes reflecting market size, market activity, market pricing and transparency. We then drew inter-regional and country-level comparisons using a probit model and a hierarchical cluster analysis. Our results suggested that in spite of intra-regional heterogeneity, the MENA region ranks favorably by comparison to Latin America and Eastern Europe. Overall, our results suggest that economic reforms have finally led to market emergence in the MENA region and that the necessary conditions are

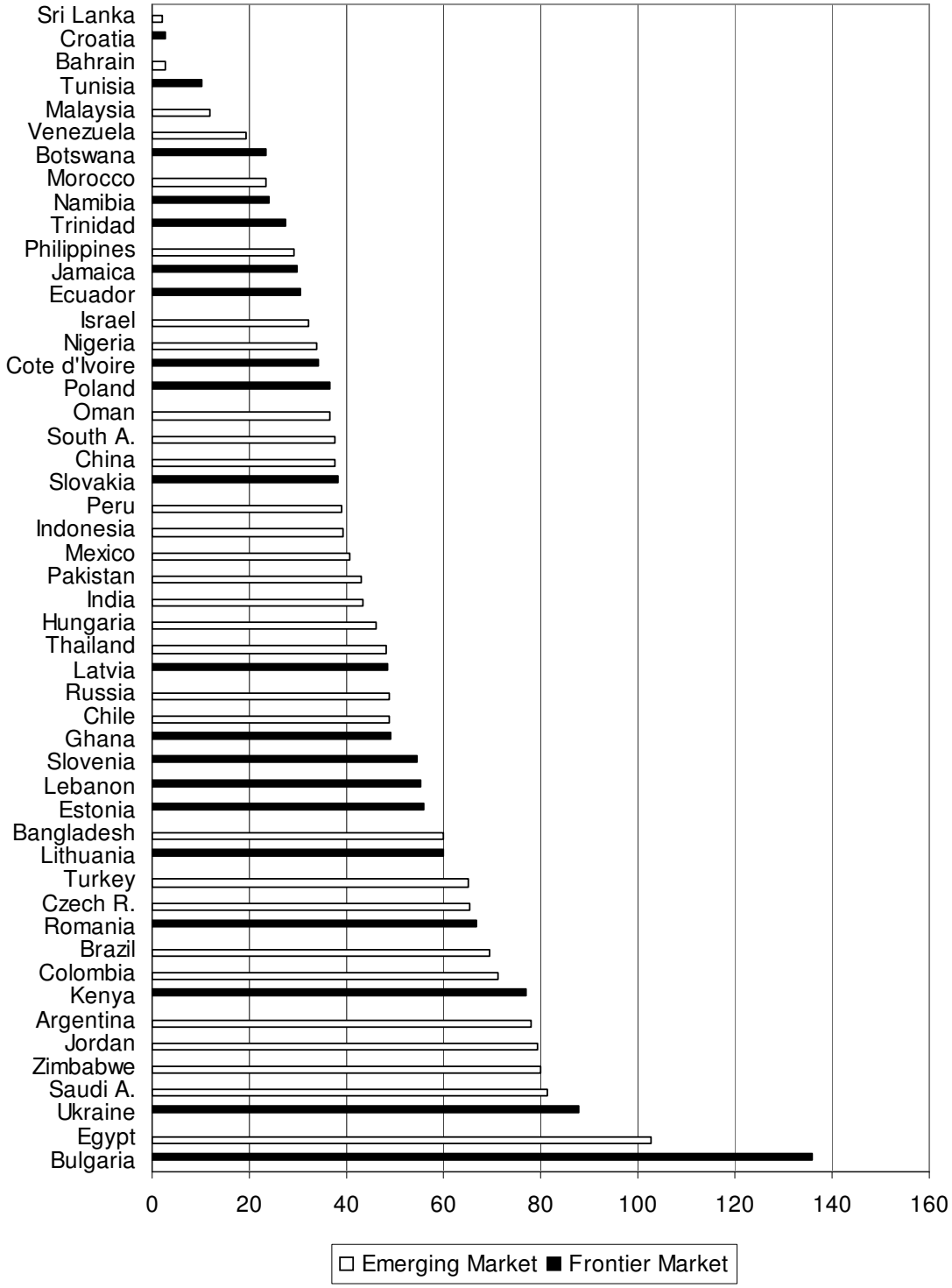
met to attract further portfolio flows in the area. Bearing this objective in mind, future research could examine the composition and performance of a MENA inclusive portfolio.

Figure 1 Dollar market capitalization in emerging markets, 2005



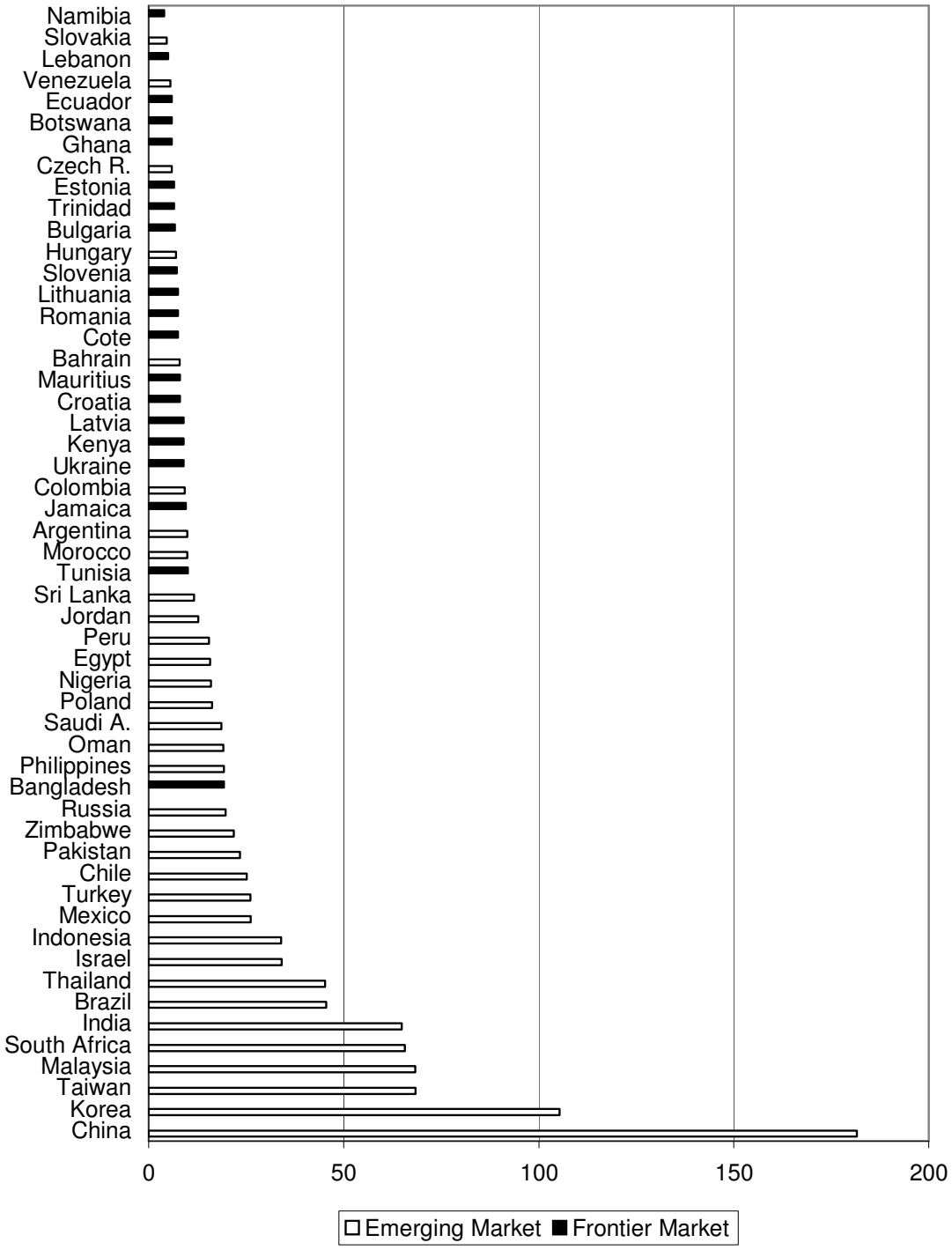
Note : Market capitalization of listed companies (logarithmic scale), US
Source : Based on data from S&P's EMDB.

Figure 2. Market capitalization (%GDP) in emerging markets, 2005



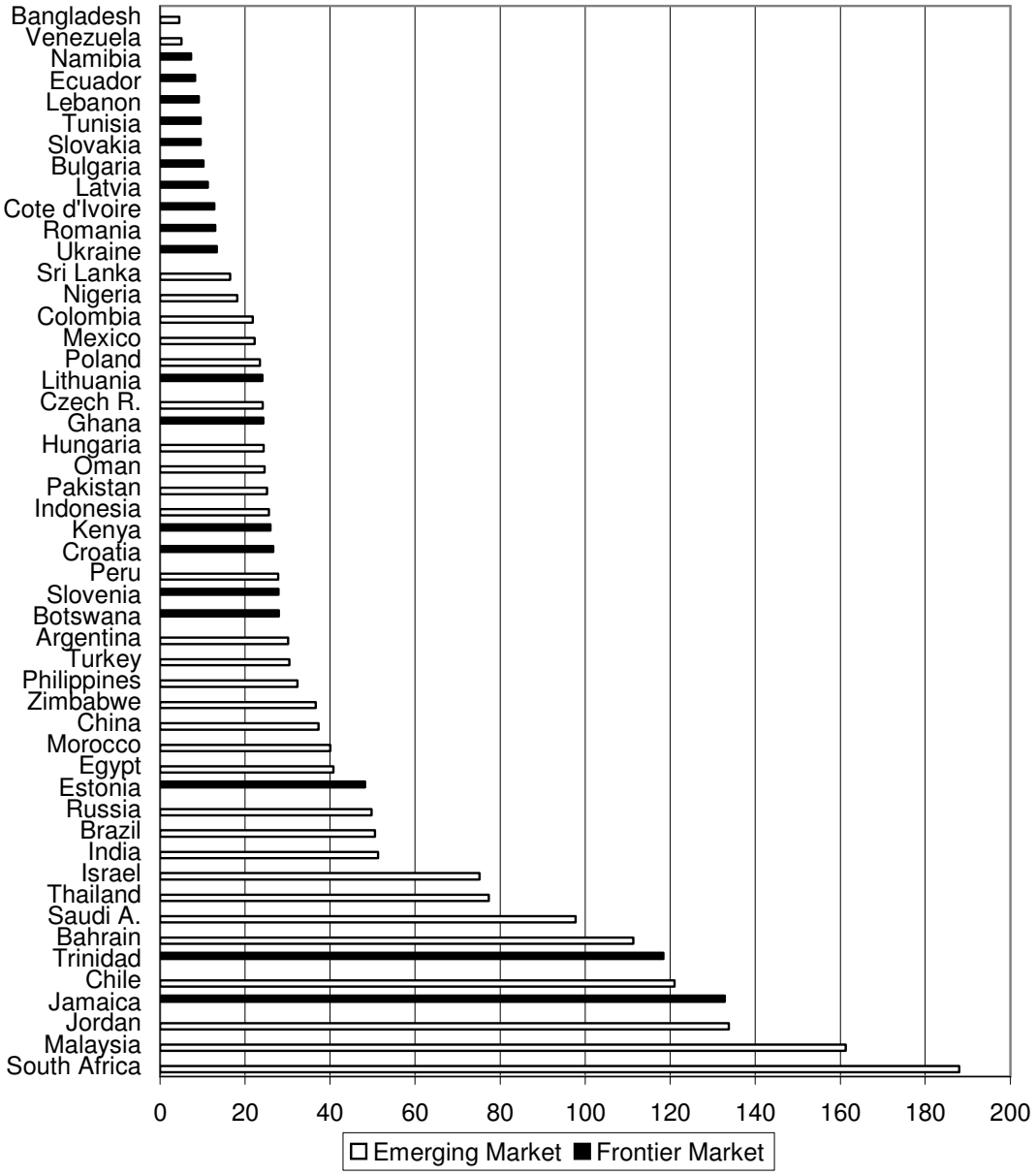
Note : Market capitalization of listed companies (% of GDP), USD
Source : Based on data from S&P's EMDB.

Figure 3. Number of actively traded equities, 2005



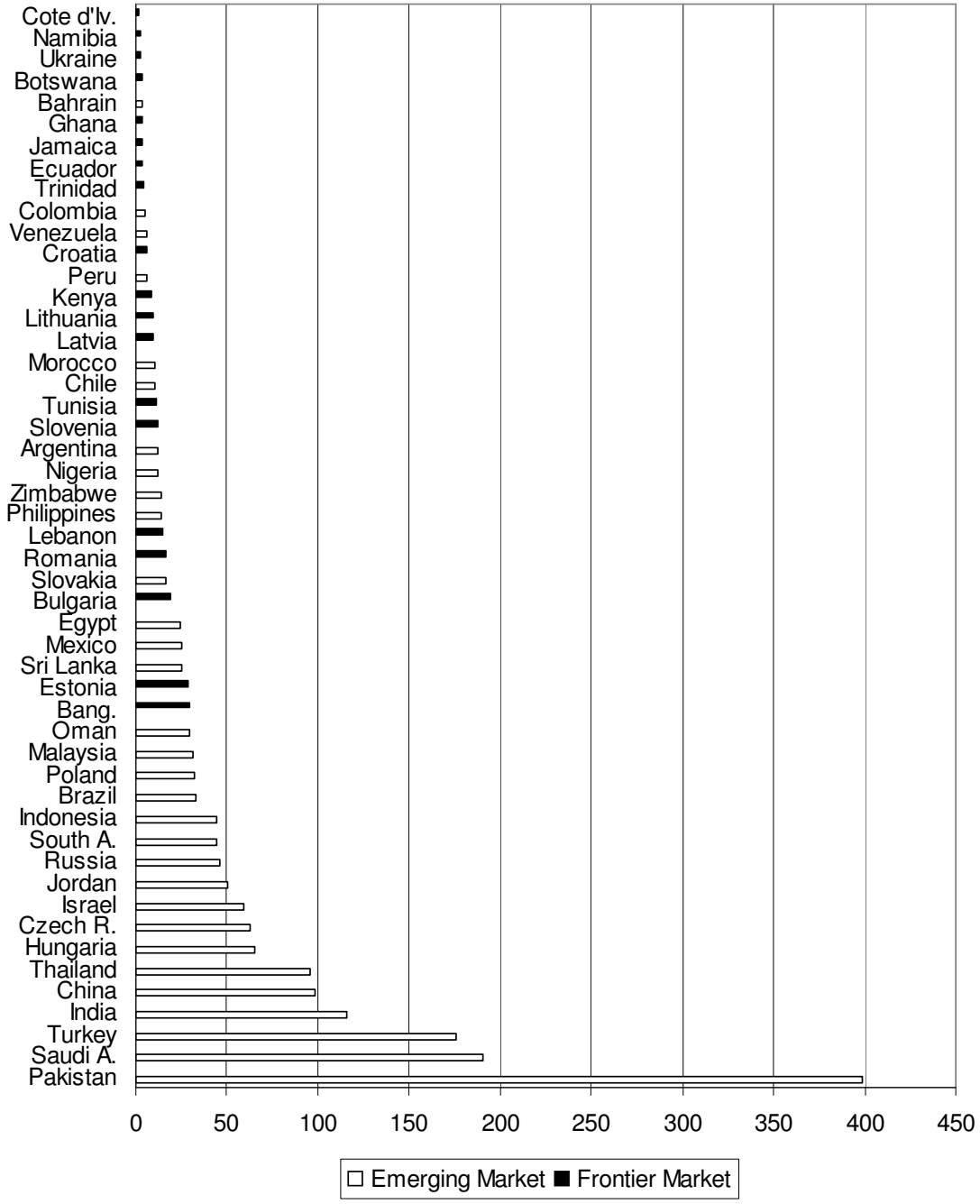
Note : Number of equities included in the S&P/IFCG and S&P/IFCF indexes, respectively.
Source : Based on data from S&P's EMDB.

Figure 4. Annual return on the S&P/IFCI index, 2005



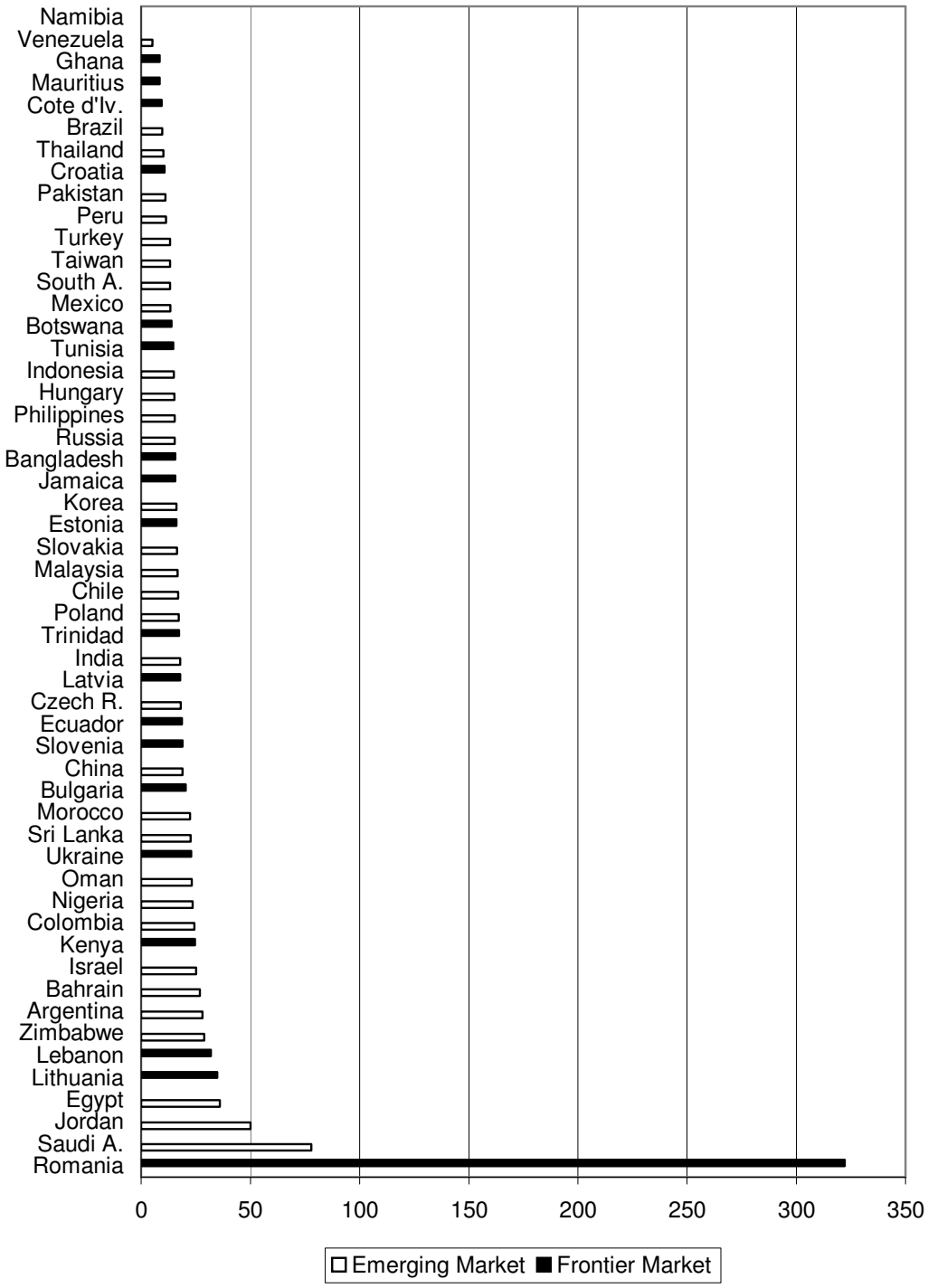
Note : S&P/IFC investable index (annual % change), USD.
Source : Based on data from S&P's EMDB.

Figure 5. Turnover ratio in emerging markets, 2005



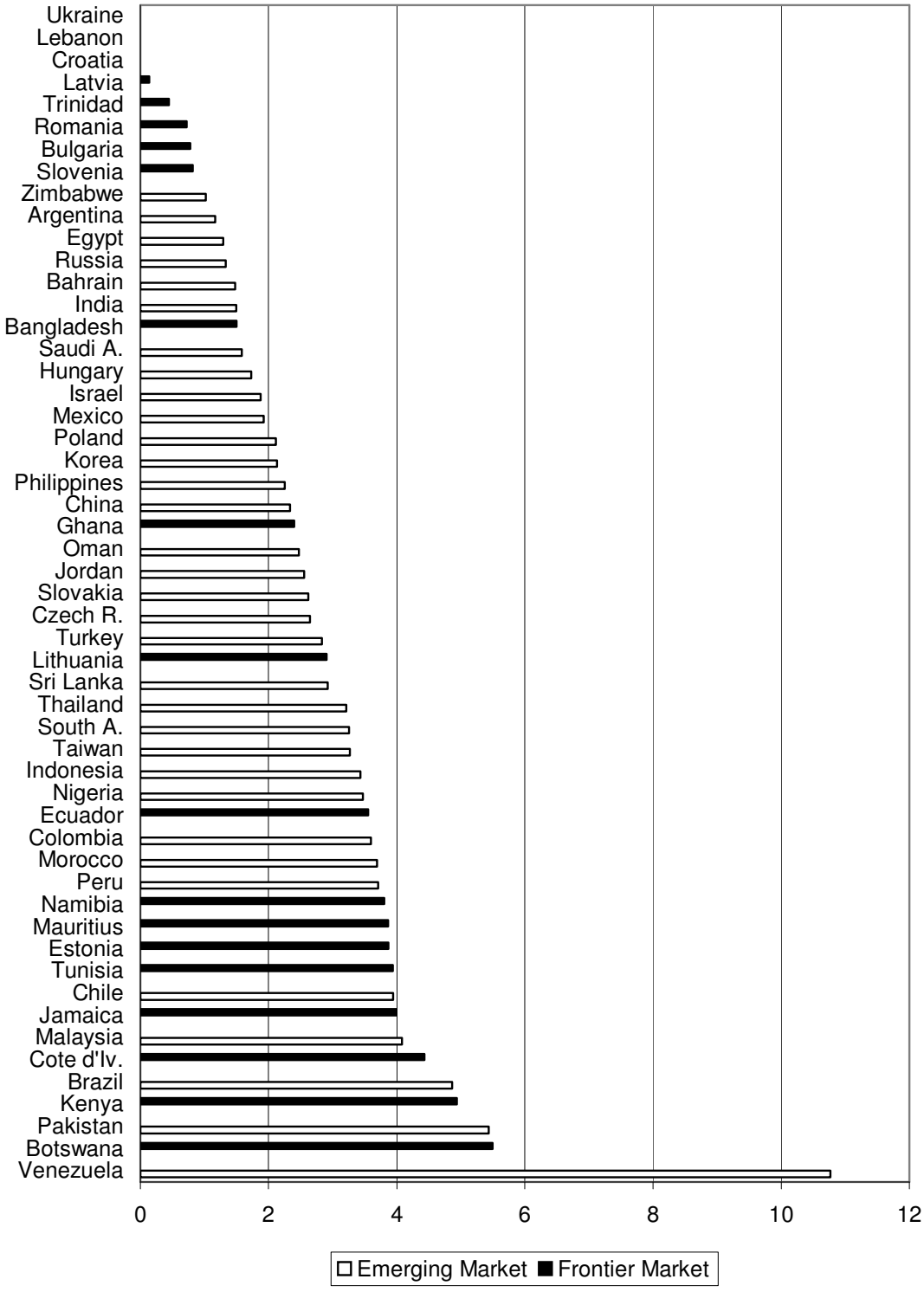
Note : Stocks traded, turnover ratio (%), USD
Source : Based on data from S&P's EMDB.

Figure 6. P/E ratio in emerging markets, 2005



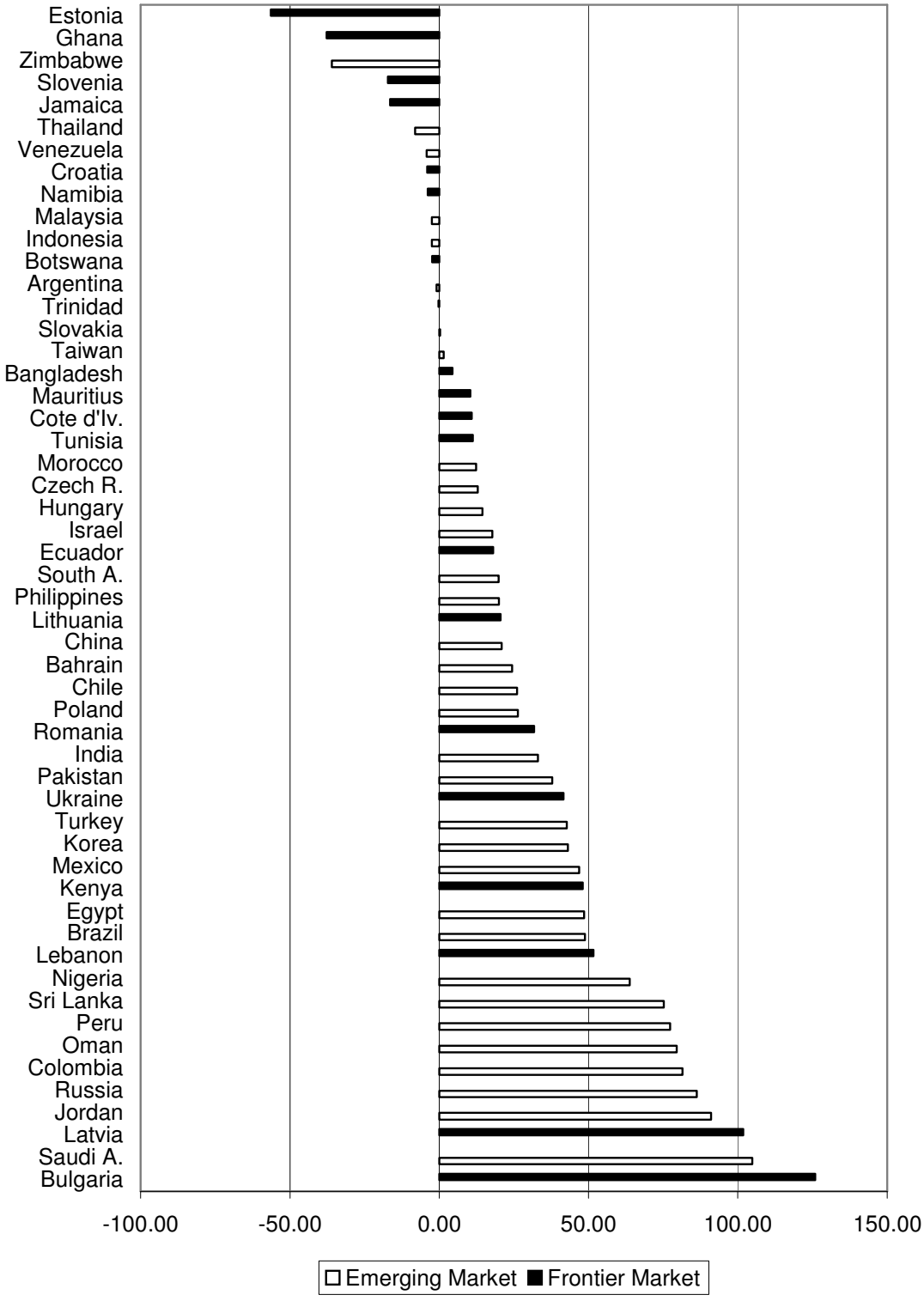
Note : Stocks traded, USD.
Source : Based on data from S&P's EMDB.

Figure 7. Dividend Yields in emerging markets, 2005



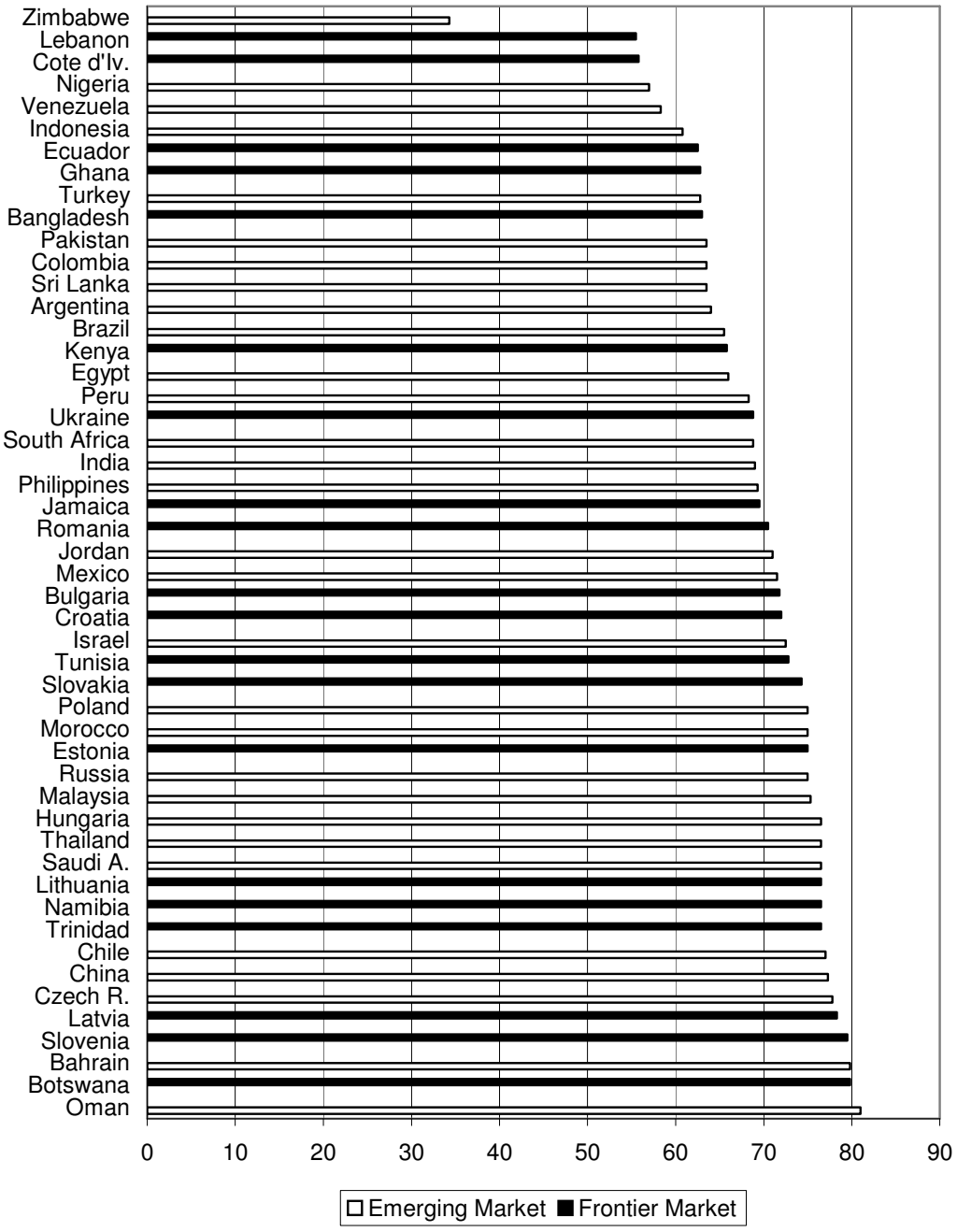
Note : Stocks traded, USD.
Source : Based on data from S&P's EMDB.

Figure 8. Variation (%) in total market capitalization, 2005



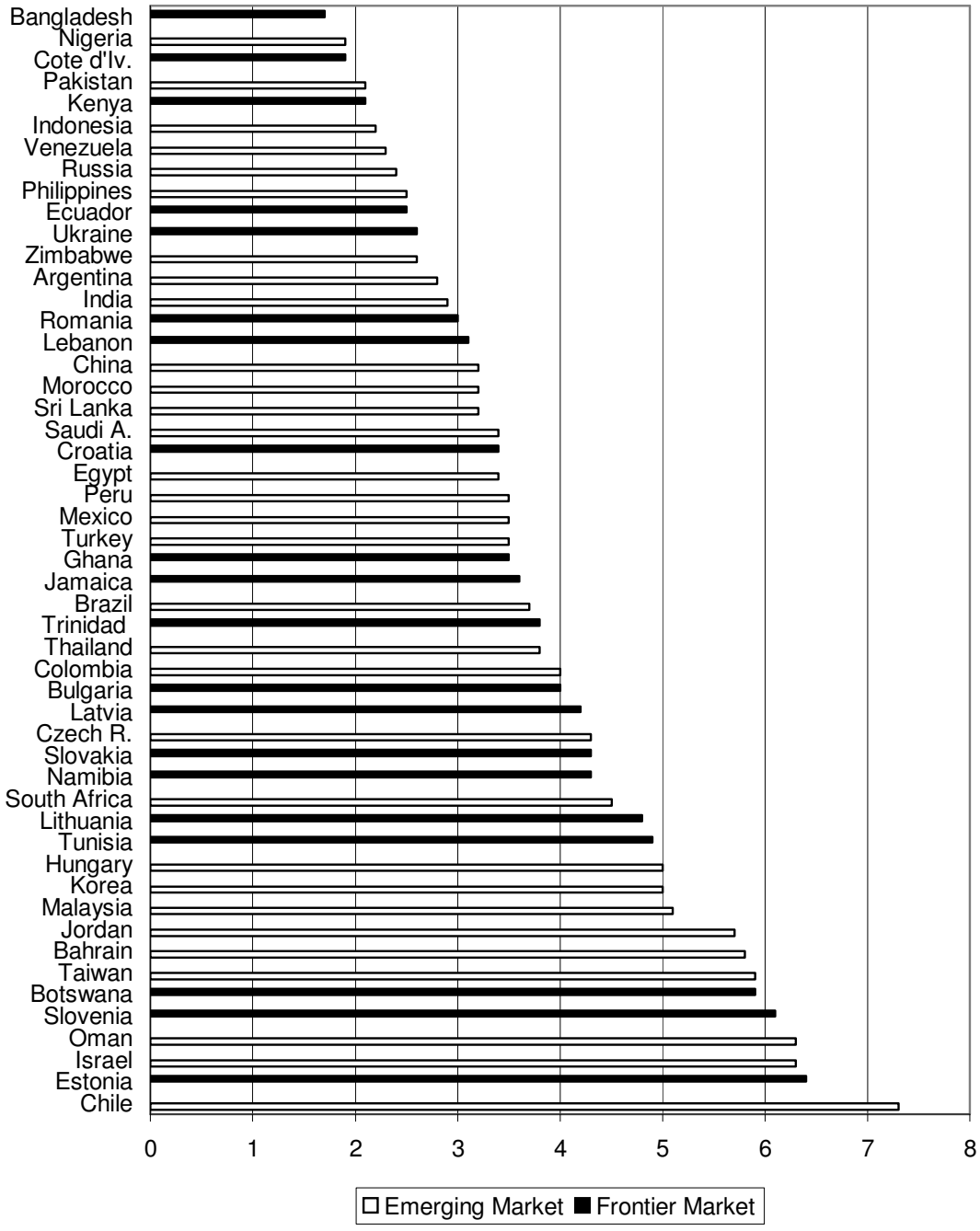
Note : % change in total market capitalization.
Source : Based on the S&P/IFC database

Figure 9. ICRG country risk index in emerging markets, 2005.



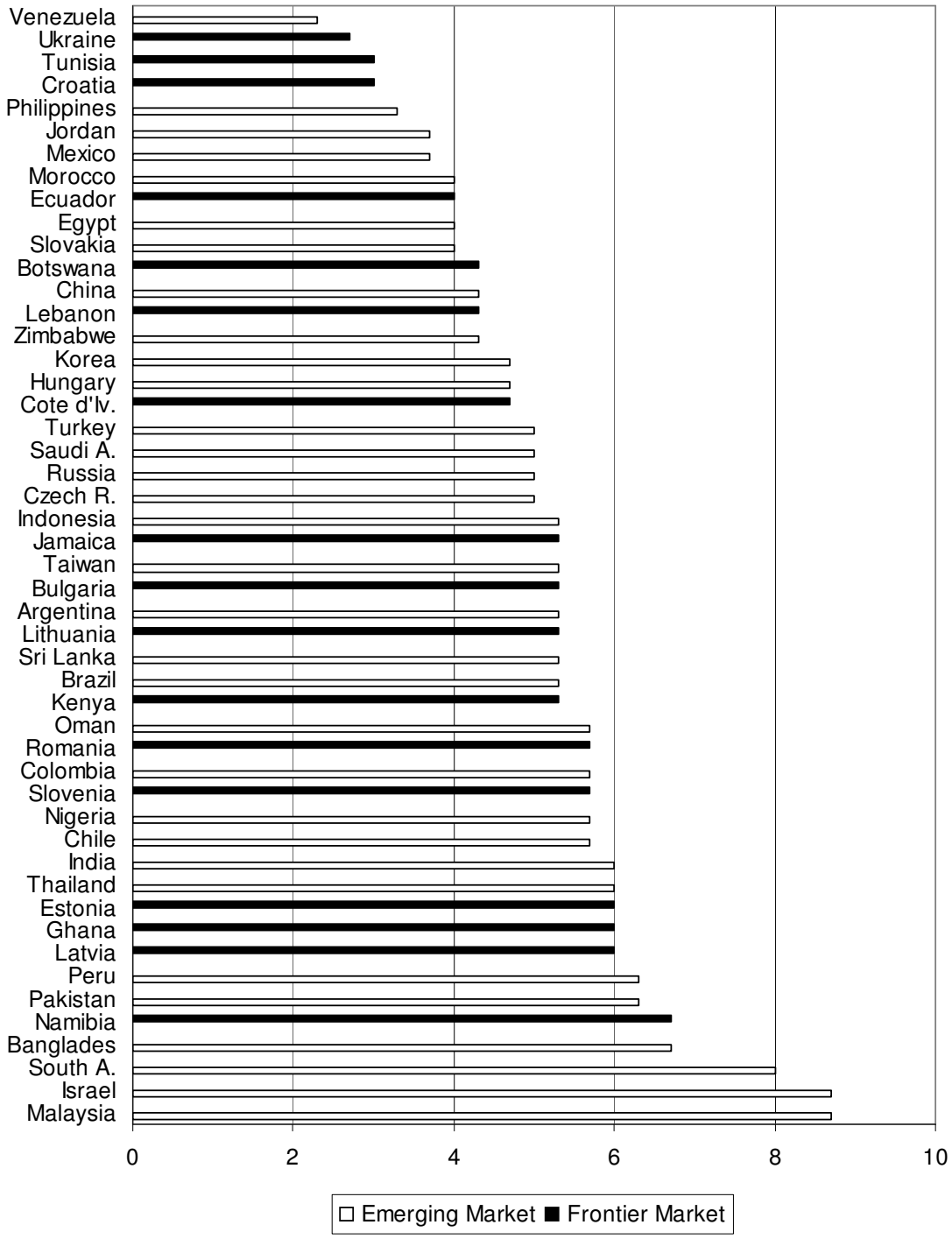
Note : ICRG composite risk rating (0=highest risk to 100=lowest)
Source : Based on data from S&P's EMDB

Figure 10. Corruption Perception Index in emerging markets, 2005



Note : Corruption Perception Index, Transparency International.
Source : Based on data from S&P's EMDB.

Figure 11. Investor Protection Index, 2005.



Note : Investor Protection Index (0=lowest to 10=highest)
Source : Based on the World Bank's Doing Business database.

Figure 12. Probit Analysis.

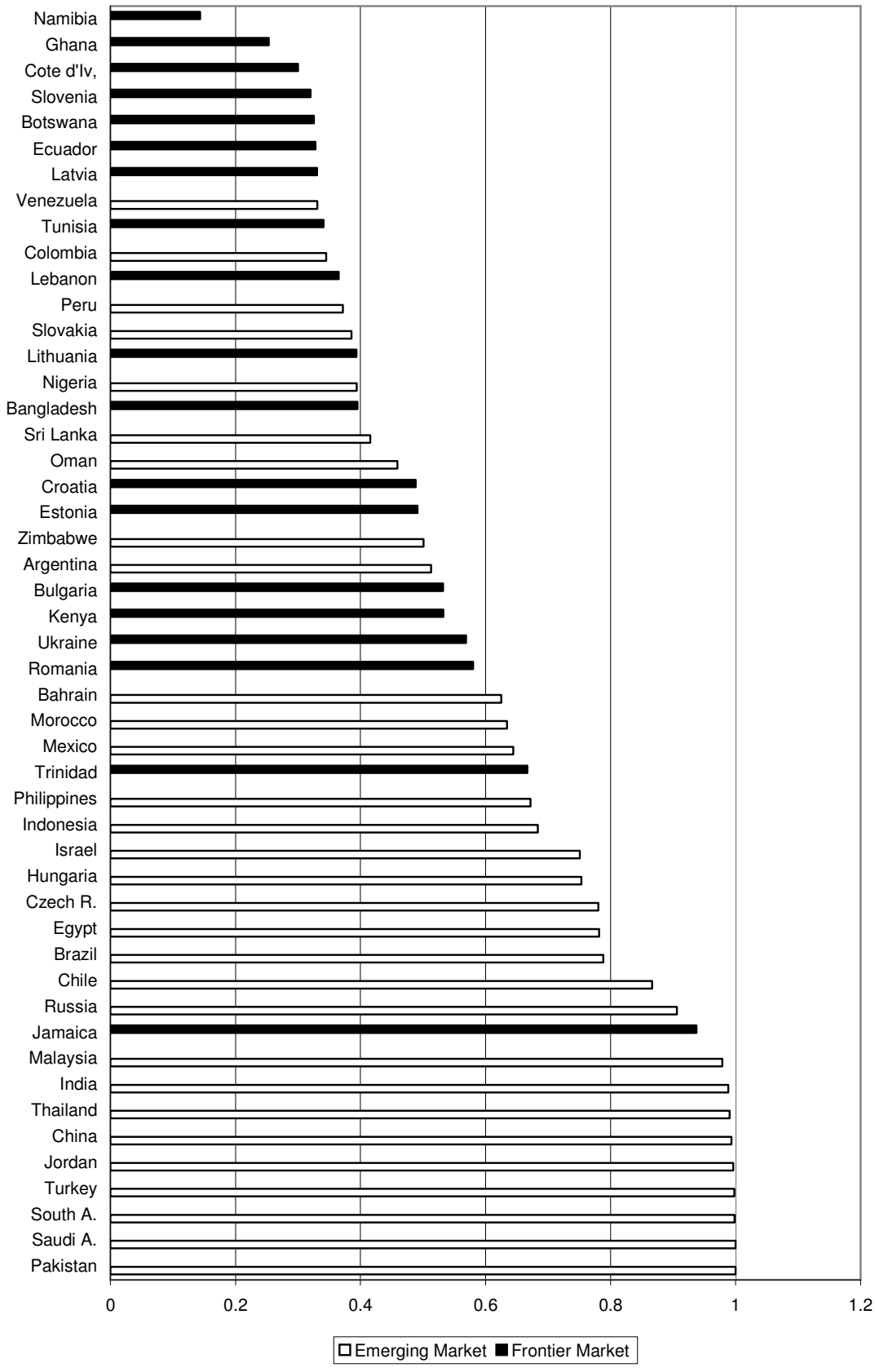


Figure 2 Regional analysis: radar plot

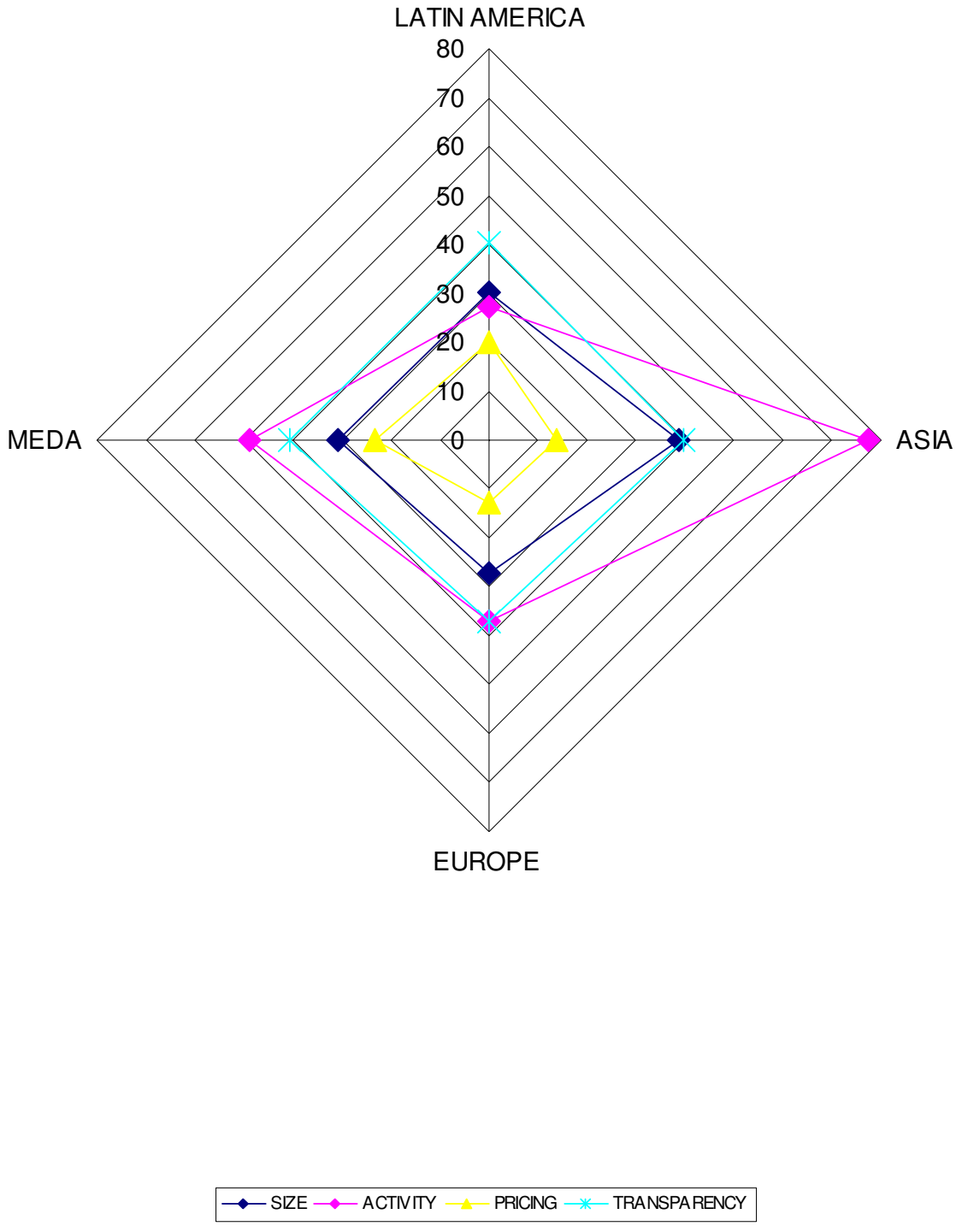


Figure 14 Country analysis: radar plot

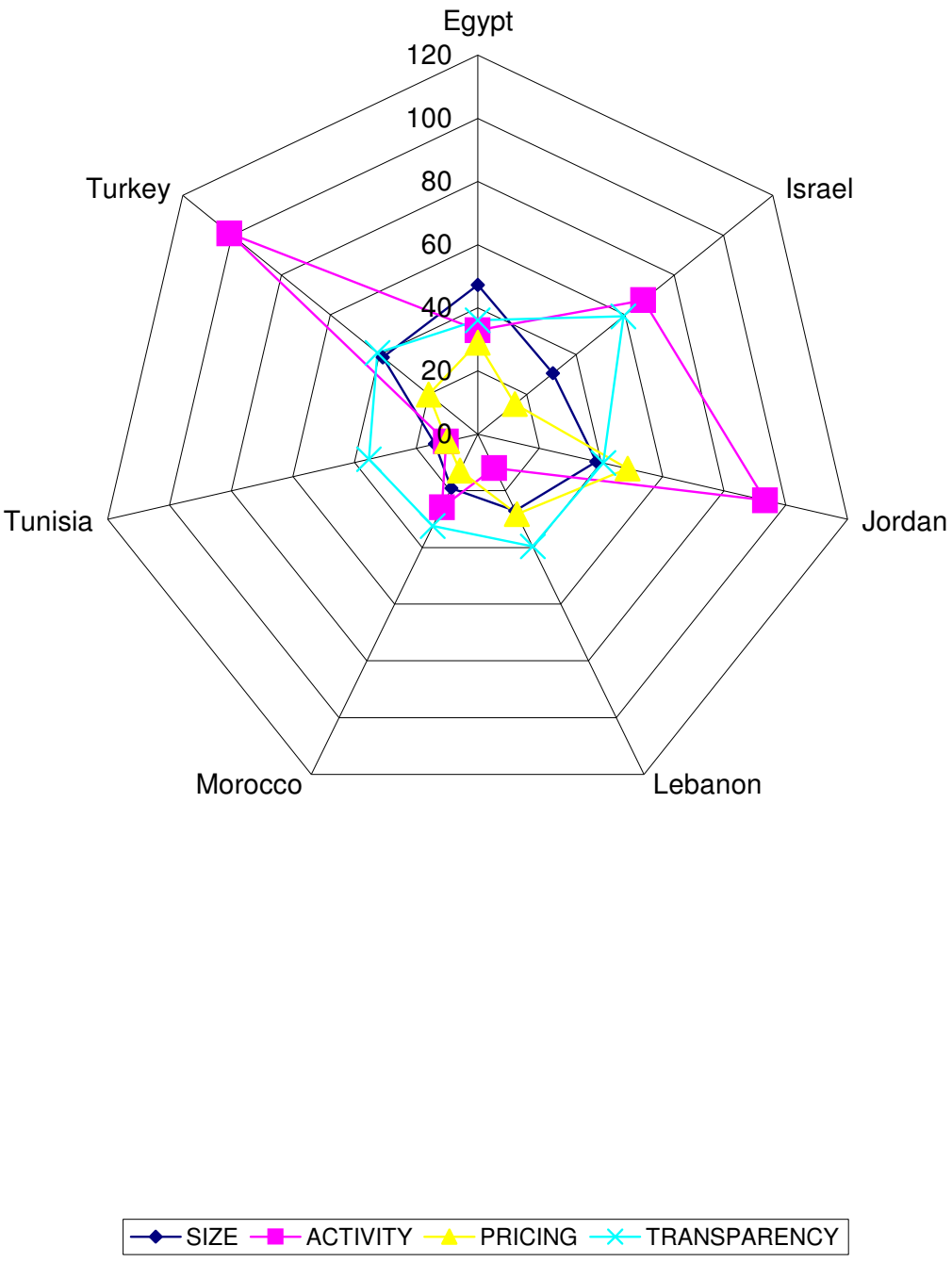


Figure 15: Dendrogram

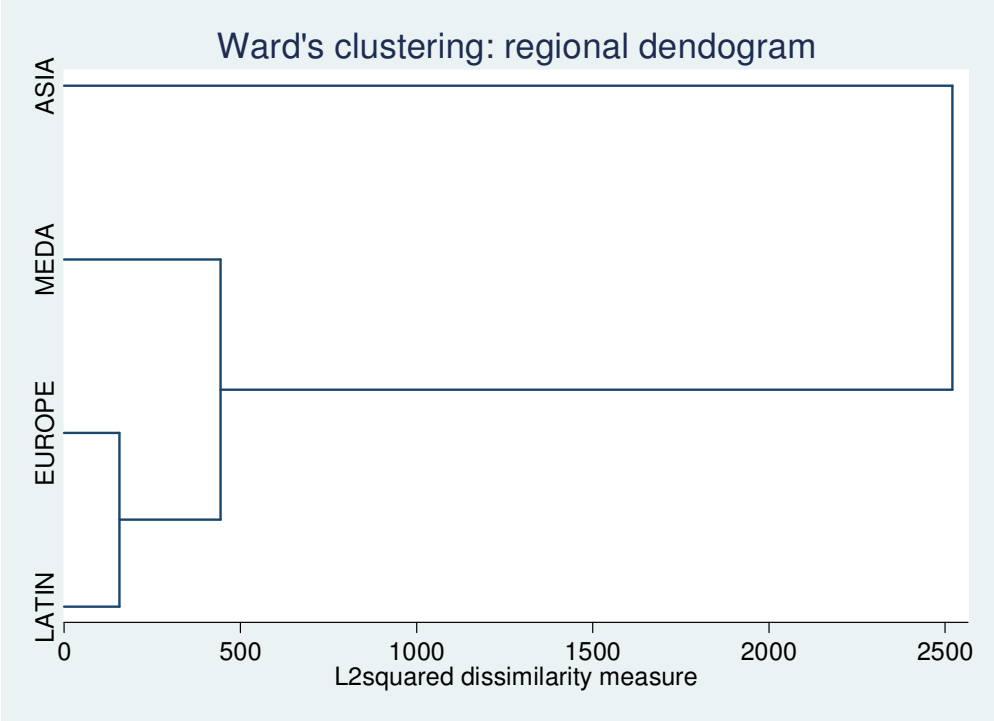
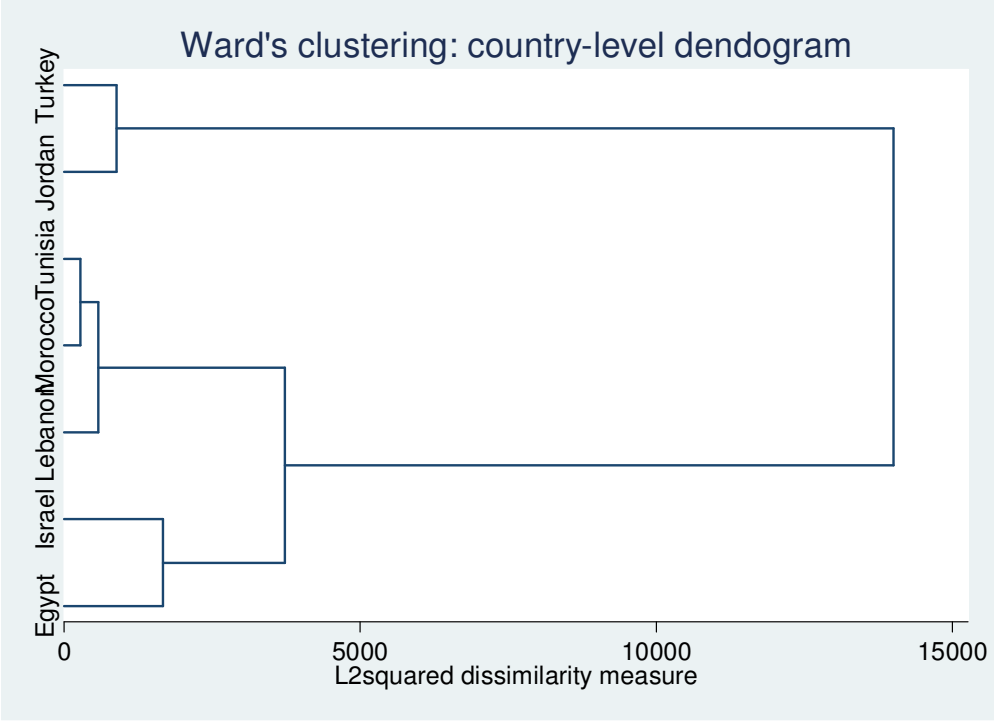


Figure 15.



References

Agenor, P.-R. 2003. Benefits and Costs of International Financial Integration: Theory and Facts. World Economy 26 1089-1118

Bartram, S. M. and G. Dufey 2001. International Portfolio Investment: Theory, Evidence, and Institutional Framework. Financial Markets, Institutions and Instruments 10 85-155

Chordia, T., R. Roll and A. Subrahmanyam 2005. Evidence on the Speed of Convergence to Market Efficiency. Journal of Financial Economics 76 271-292

Djankov, S., R. LaPorta, F. Lopez-de-Silanes and A. Shleifer (2005). The Law and Economics of Self-Dealing. National Bureau of Economic Research, Inc, NBER Working Papers: 11883

FEMISE (2001) "Report on the Euromediterranian Partnership", Marseilles, FEMISE

FEMISE (2002) "Report on the Euromediterranian Partnership", Marseilles, FEMISE

FEMISE (2003) "Report on the Euromediterranian Partnership", Marseilles, FEMISE

FEMISE (2004) "Report on the Euromediterranian Partnership", Marseilles, FEMISE

Füss, R. (2002

). The Financial Characteristics between Emerging and Developed Equity Markets. ECOMOD 2002.

Harvey, C. R. 1995. Predictable Risk and Returns in Emerging Markets. Review of Financial Studies 8 773-816

Henry, C. and R. Springborg 2004. Globalization and the Politics of Development in the Middle-East. . Cambridge, Mass, Cambridge University Press.

Henry, P. B. 2003. Capital-Account Liberalization, the Cost of Capital, and Economic Growth. American Economic Review 93 91-96

Kim, S., J. Lee and K. Shin (2006). Regional and Global Financial Integration in East Asia. . Economics Dept, Korea University Working Paper

Kumar, P. C. and G. P. Tsetsekos 1999. The Differentiation of 'Emerging' Equity Markets. Applied Financial Economics 9 443-453

Patro, D. K. and J. K. Wald 2005. Firm Characteristics and the Impact of Emerging Market Liberalizations. Journal of Banking & Finance 29 1671-1695

Institute for International Integration Studies
The Sutherland Centre, Trinity College Dublin, Dublin 2, Ireland