

Firm Characteristics and the Impact of Emerging Market Liberalizations

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Abstract

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JEL Classification: F3, G15

Keywords: liberalization, emerging markets

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We provide a firm level analysis of the impact of capital market liberalization in 18 emerging markets. We find a larger increase in returns during liberalization and a larger decrease in returns after liberalization than previously found using indexes. While slightly more than half of the firms had higher returns during liberalization, a significant majority of firms have lower returns and lower dividend yields subsequently. These changes in returns suggest that liberalization lowers firms' cost of equity as predicted by models of international asset pricing. We also find that emerging market firms have increased exposure to the world market and decreased exposure to the home market following liberalization. On average, the Fama and French factors and momentum are not significantly affected by liberalization. We also find that the impact of liberalization varies significantly and to a large degree predictably across firms. During liberalization, smaller firms, high book-to-market value firms, low local beta firms, low foreign exchange beta firms, and non-manufacturing firms have increased returns. After liberalization, firms with higher local market betas, and firms with lower foreign exchange betas have decreased returns. Firms which are cross-listed have significantly larger changes in returns than other firms, suggesting that cross-listing has an additional diversifying impact.

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I. Introduction

Recent papers by Bekaert and Harvey (2000), Henry (2000), Kim and Singal (2000), and others examine emerging stock market liberalization and its impact on the cost of capital, stock returns, and volatility. Using a market level analysis, these papers find that the empirical evidence for liberalization's benefits is rather small. We aim to contribute to this growing area of research by providing a firm-level analysis of the impact of liberalization. We focus on three aspects in particular: first, we examine to what degree prior results using market level data on returns and cost of capital hold with a firm-level analysis. As we employ firm level data, we are also able to examine the breadth of liberalization's impact. Second, we examine how dividend yields, volatility, exposures to the local and world markets, the Fama and French factors, and momentum change around liberalization. Third, we provide a cross-sectional analysis of the relationship between changes in returns due to liberalization and firm characteristics such as size, book-to-market ratio, local beta, foreign-exchange beta, industry of the firm, and whether the firm is cross-listed.

Barber and Lyon (1997) discuss how an index-based analysis can produce potential new listing and rebalancing biases. By examining instead the returns of individual firms in 18 countries around capital market liberalizations, we are able to remove these biases from the analysis.¹ Overall, our findings are similar in sign in to those of Kim and Singal (2000) and Bekaert and Harvey (2000) – returns increase during

¹ As the change in composition in these indexes around liberalization is much larger than changes in indexes such as the S&P 500, these biases may be potentially significant. To see how much the new listing might impact these indexes, consider that the Brazilian index went from 36 stocks before liberalization to 90 stocks after liberalization, while the Mexican index went from 26 stocks before liberalization to 89 stocks after liberalization.

liberalization and decrease afterwards. However, the magnitude of the results is larger than previously found. Specifically, we find an average increase in returns of 1.5 percent per month during the 12-month period around liberalization. For the three years following liberalization, positive returns continue but at a lower level. In the 36-month period starting three and a half years after the liberalization date, firm returns decrease on average by a highly significant 2.88 percent per month.² While only 52.4 percent of firms do better during liberalization than before, the long-run decrease in returns following liberalization appears to affect most firms. In the 36-month period starting three and a half years after the liberalization date, 77.8 percent of firms have lower returns than before liberalization.

Models of international asset pricing under capital market segmentation (see, for instance, Errunza and Losq (1985, 1989), Eun and Jankiramanan (1986)) predict that as capital markets integrate, the cost of capital will decline as risk is internationally diversified. Consistent with these predictions are the declines in returns after liberalization, a significant drop in dividend yields during and after liberalization, an increase in exposure to the world market, and a decrease in exposure to the home market. All these impacts of liberalization hold significantly in our firm-level analysis, and thus our evidence is consistent with a significant decrease in the cost of capital after liberalization.

Rouwenhorst (1999) finds that factors such as book-to-market ratios, size, and momentum significantly affect emerging market stocks in the same way that they affect developed stock markets. We examine whether liberalization changes these effects, and

² This drop corresponds to an average equally weighted return after liberalization of -0.752 percent. These negative returns cannot entirely be accounted for by the Mexican and the Asian financial crises.

find that, overall, liberalization does not significantly impact small-minus-big (SMB), high-minus-low (HML) book-to-market, or winner-minus-loser (WML) portfolio returns.

Further, we hypothesize that the impact of liberalization varies cross-sectionally. We test whether firm characteristics (estimated in the three years ending six months before liberalization) such as size, local market beta, foreign exchange beta, book-to-market ratio, and industrial sector affect the impact of liberalization on firm returns. As a number of studies have shown that cross-listing also has a diversifying impact, we also control for whether the firm is cross-listed in the United States, United Kingdom, or Luxembourg. We find that these firm characteristics explain a significant fraction of the changes in returns during and after liberalization. Specifically, larger increases in returns during stock market liberalizations occur for small firms, firms with lower local betas, firms with lower foreign exchange betas, firms with higher book-to-market ratios, for non-manufacturing firms, and for firms that cross-list during liberalization. After liberalization, larger firms, firms with higher local market betas, firms with lower foreign exchange betas, and cross-listed firms have lower returns.

In related work, Foerster and Karolyi (2000) and Errunza and Miller (2000) examine the impact on the cost of capital for firms which issue Depositary Receipts (DRs). Most of the firms in their sample are from developed markets while we focus only on emerging markets. They find that firms have a positive price reaction during the period of cross-listing, followed by a decline in the cost of capital. Our findings are consistent with these prior results, but for a larger sample of emerging market firms.

The findings in this paper may have some practical implications for portfolio managers and policy makers interested in understanding how market liberalizations affect

stock returns and risk. Following the crisis in Mexico in 1994 and Asia in 1997, many have expressed doubts about the benefits of stock market openings. This paper provides further evidence of the positive impacts of liberalization. Our findings suggest that market liberalization is not associated with an increase in volatility, and that some firms may benefit due to a lower cost of capital.

The remainder of the paper is organized as follows. Section II discusses the theoretical motivation for our hypothesis. Section III discusses our methodology, while section IV discusses the data used in the analysis. Section V presents the empirical results on how returns change during and after liberalization for emerging market stocks. Section VI considers how characteristics such as dividend yields, exposure to the local and world market, volatility, the Fama and French factors, and momentum change around liberalization. Section VII examines how firm characteristics impact returns during and after financial market liberalization. Section VIII presents our concluding remarks.

II. Motivation

During the 1980s and 1990s, financial reforms in countries in Africa, Asia, Europe, Latin America, and the Middle East resulted in the development of so-called emerging capital markets with increased international investments. The recent crises in the financial markets of East-Asia and Russia have drawn further attention to these markets, and capital inflows and outflows are sometimes faulted as a potential cause for the crises (see Stiglitz, 1999). In fact, countries such as Chile and Malaysia brought back capital controls on outflows after liberalization. However, Edwards (1999) expresses doubts about the effectiveness of these capital controls in the context of Chile. The main issues that have been of concern to investors and policy makers alike are the impact of

financial market liberalization and foreign equity participation on the mean returns and volatility of the firms in these emerging market countries, as well as the change in the cost of capital. By testing whether the cost of capital declines and how volatility and other firm characteristics change, this paper provides a better understanding of the impact of liberalization.

The foundation of this paper is in a framework of market segmentation where an emerging market is not completely accessible by international investors due to restrictions on investments and prohibitive transaction costs. The market structure is such that foreign investors are excluded from equity ownership in the emerging market. Thus, the emerging market's securities are priced with incomplete risk sharing with world capital markets and are subject to the national price of risk. The price on the market's securities is therefore lower than it would be under complete risk sharing with the world market. When liberalization occurs an increase in risk sharing typically causes the prices on the securities to increase as the cost of capital declines.³ As in many tests of asset pricing, we test these hypotheses using the mean returns of the firms as a proxy for the firms' cost of capital.

In segmented capital markets, the market portfolio against which securities are priced is the home market index. However, when markets are liberalized, the benchmark portfolio becomes the world market portfolio and securities are therefore repriced according to the world market price of risk. In practice, markets may not be fully open to

³ Bailey, Chung, and Kang (1999) consider the determinants of premiums for unrestricted shares relative to shares for those securities available only to domestic investors for 11 countries. In most cases, this premium is positive, although securities from China and Taiwan are notable exceptions. In countries such as Finland and Thailand, which had two classes of shares, the shares that could be bought by foreign investors traded at prices higher than the securities available only to local investors. See Hietala (1989) and Bailey and Jagtiani (1994) for evidence from Finland and Thailand respectively.

foreign investors. In this case, the securities may be priced partly according to the local price of risk and partly according to the world market price of risk. In either case, because international diversification reduces risk, investors are willing to accept a lower return on their investments compared to when markets are fully segmented. These issues are formally treated in Errunza and Losq (1985, 1989), and we test the implications of these models below.

The same process which explains the increase in prices during liberalization also explains the decline in expected returns after liberalization. When securities are cross-listed and trade internationally, the national risk premium should disappear and the only risk priced should be the covariance with the world market portfolio, resulting in lower expected returns. This decline in expected returns will cause security prices to increase, and therefore a positive price reaction is expected following international tradability. This fact has been demonstrated empirically by Foerster and Karolyi (2000) and Errunza and Miller (2000). Errunza and Miller (2000) also show that the impact of cross-listing is largest on those firms whose returns are not easily spanned with U.S. stock returns. Recently, Chari and Henry (2001) examine the impact of liberalization for investible and non-investible firms, and they show that the impact of liberalization increases with the difference between the firm's local market and global market covariances.⁴ Additionally, Eun, Claessens, and Jun (1995) illustrate that even non-investible securities that are not

⁴ However, IFC only started reporting investibility in 1988, and therefore countries that liberalized before 1988 are not in the Chari and Henry (2001) sample. Furthermore, for countries such as India that liberalized after 1988, IFC started covering investibility only in 1992, the same year India was liberalized. Moreover, non-investible firms are not necessarily completely closed off to foreign investment; IFC only considers the degree of investibility when constructing their indices.

cross-listed benefit because of an indirect revaluation as they are partly spanned by the securities that are cross-listed.

Research has also shown that stock returns are affected by foreign exchange risk when purchasing price parity does not hold (see Adler and Dumas, 1983; and Dumas and Solnik, 1985). Fama and French (1993) and others have shown that firm characteristics such as size and book-to-market may be important in explaining cross-sectional variation in returns. Therefore we also consider whether these factors impact the changes in returns following liberalization.

III. Methodology

In order to test whether the impact of liberalization on stock returns is consistent with the predictions of international asset pricing models (such as Errunza and Losq (1989)), we use the following methodology. We consider periods before, during, and after the official liberalization date for the countries in our sample. We define four periods of interest: the three year period from -43 to -7 months of liberalization we refer to as PRE, the one year period from -6 to $+5$ months of liberalization we refer to as DURING, the three year period from $+6$ to $+41$ months of liberalization we refer to as POST, and the three year period from $+42$ months to $+77$ months we refer to as AFTER.⁵ Table I lists the official liberalization dates for the emerging markets in our sample, as well as the PRE, DURING, POST, and AFTER periods for each country. These official liberalization dates represent the first month in which there were significant changes in government policy affecting equity market participation by foreigner investors. These

⁵ Our sample ends in December 2000. Since Jordan and Nigeria liberalized their markets in the late 1990's, the AFTER period for these countries is not a full three years in length.

official liberalization dates correspond to the official liberalization dates given by Bekaert and Harvey (2000), and closely resemble the dates used by other studies.

It is sometimes difficult to establish when a market was actually liberalized. For example, the government may announce liberalization on a certain month, but capital flows may not occur until much later. Using a larger one-year window may partly capture these effects. Alternatively, there may be a country fund from the emerging market trading in developed markets, and the listing date of that fund may be considered the date of liberalization. Bekaert and Harvey (2000) also provide results using these earlier dates of liberalization. We also examine the robustness of our results to using these earlier dates of liberalization, which is the first date of listing of a country fund. Table I also provides these first dates. If there is no earlier date due to a country fund, we continue to use the official liberalization date in this alternate analysis.⁶

Our primary unit of analysis is average monthly *real* stock returns in US dollars for the period in question.⁷ We consider how stock returns, and the factors usually used to explain returns, vary over each period in Section V, but first we discuss the data used in our analysis.

⁶ Bekaert, Harvey, and Luminsdale (2001) and Chaudhuri and Wu (2002) analyze when liberalization creates a break in the time series of these countries' financial markets. While these estimated dates provide a more exact analysis of when the impact of liberalization is actually felt, because these dates are estimated using return data, in order to avoid a circular argument, we use the official liberalization dates in our analysis.

⁷ We also perform the analyses using US dollar returns in excess of 30-day treasury bill returns. The results are very similar.

IV. Data

The data for the emerging market firms are sampled from 20 countries in the IFC's Emerging Markets Database (EMDB).⁸ Table II lists the countries and the beginning dates of the sample if it is after January 1982.⁹ Note that this is not a random collection of companies, but instead these are the constituents of the IFC market indices. These indices account for approximately 60 percent of market capitalization for each country. Thus this sample represents a subset of the country's market which is biased towards large firms. From this database, for the 20 countries, we collect data on monthly closing prices, dividends and distributions, stock-splits, firm size, book-to-market ratios, industry of the firm, market indices, and currency exchange rates with the U.S. dollar. When there are errors in the database, such as the computed returns are higher than 5,000% for a month, they are set to missing values. If a firm has less than 12 months of data in the PRE or POST periods, or less than six months of data in the DURING period, it is not included in the analysis.

Table II reports some descriptive statistics for the sample. The returns are calculated as *real* returns in both dollars and the respective local currencies.¹⁰ We report only the results in real US dollars calculated using US CPI inflation rates taken from the Federal Reserve Board. We also examine real local currency results using local inflation

⁸ In January 2000 this database was acquired by Standard & Poor's and became the Standard & Poor's EMDB. As of December 2000, the database includes 54 markets. Of these 20 markets are called 'frontier markets' and include countries such as Ukraine which have very new stock markets and have very limited historical data. The other 34 countries are the 'emerging markets' of which 15 have very short return histories as they were added much later (for example, Bahrain was added in December, 1998). The remaining 19 and Portugal (which was dropped from the EMDB in March 1999 as it is no longer considered an emerging market) constitute the 20 emerging market countries we study in this paper.

⁹ In mid-1981 when IFC constructed the indices for 10 countries, IFC back filled them to 1975 introducing a survivor-ship bias in the pre-1982 data. However, our analysis does not use pre-1982 data.

¹⁰ As these are larger firms, and the returns are calculated monthly, we do not perceive infrequent trading or bid-ask spread biases to be significant problems for these returns.

rates and find the results (not reported) based on them to be quite similar. The CPIs for calculating the local inflation rates are taken from IMF's International Finance Statistics, with the exception of Taiwan, whose CPI is obtained from the Taiwan central bank web site. For some of the countries in the sample, such as Brazil, there are periods when new currencies replaced old currencies. For these countries, the EMDB provides a currency scale for adjusting the old prices in local currencies, and this scale is used when calculating local currency returns. Further, the EMDB provides a capital adjustment factor to account for splits, dividends and rights offers, and we use this factor when calculating total returns. Since there is no data for the PRE liberalization period for Indonesia and Portugal in the EMDB, we exclude these two countries from the remainder of the analysis.

Table III provides the premiums for small-minus-big (SMB) portfolios, where the small portfolio holds the smallest 30 percent of the stocks in each country, and the big portfolio holds the largest 30 percent of the stocks in each country based on the previous month's market capitalization. Similar portfolios are created for high-minus-low (HML) book-to-market values, and, to examine momentum, winner-minus-loser (WML) portfolios. WML returns are based on six month ranking period and six month holding period returns. As in Rouwenhourst (1999), we find that in total emerging market stock returns have significant SMB, HML, and WML premiums. We test to see if these characteristics were significantly affected by liberalization below.

We also obtain data on listing dates of depositary receipts (if any) in the United States, United Kingdom, and Luxembourg for the firms in our sample. The data for the United States DRs are obtained from the Bank of New York web site, while the United

Kingdom and Luxembourg data are provided by the London Stock Exchange and the Luxembourg Stock exchanges respectively.¹¹ Of our firms, only 8 firms were cross-listed in New York, London, or Luxembourg prior to the liberalization dates; 15 firms were cross-listed in the PRE or DURING liberalization periods, while 99 firms had cross-listings in the PRE, DURING or POST liberalization periods. Overall, 185 firms in our sample were cross-listed in either the PRE, DURING, POST, or AFTER liberalization periods. Thus the sample of cross-listed firms is only a small fraction of our total sample. The next section discusses our empirical results.

V. The Effect of Liberalization on Returns

A. Effect of Liberalization on Stock Returns

In order to examine whether the overall impact of liberalization is consistent with the decrease in the cost of capital predicted by international asset pricing models, we present the mean stock returns on a country-by-country basis for the periods PRE, DURING, POST, and AFTER liberalization. The results in Table IVA provide the returns for each period for the stocks listed at those times. The differences in returns between periods, DURING-PRE, POST-PRE, and AFTER-PRE, are only for those stocks which were present in the sample in both periods. The results in Table IVA show that nine out of the 18 countries, Argentina, Brazil, Malaysia, Pakistan, Taiwan, Thailand, Turkey, Venezuela, and Zimbabwe, have significantly higher returns in the DURING period than in the PRE period. Three out of the eighteen countries, India, Jordan, and

¹¹ These three markets are the most popular venues for cross-listing of emerging market stocks. We include both publicly traded issues and private placements.

Korea, have significantly lower returns in the DURING period. The gain or loss from liberalization in the DURING period relative to the PRE period ranges from a low of -8.28 percent for India to 20.87 percent for Argentina.

Henry (2000) finds that stock market indices experience abnormal returns of 4.7 percent per month during an eight month window leading up to the implementation of liberalization. This declines to 3.3 percent when control variables are used. In contrast, we find that at the firm level, the increase in returns is approximately 1.5 percent per month during liberalization. When not including control variables, Bekaert and Harvey (2000) find that using all 20 countries, the impact of liberalization as measured by the coefficients on (DURING - PRE) in their panel model is an insignificant 0.2 percent per month. More similar to our findings, Kim and Singal (2000) find a positive price reaction following liberalization. For the second year following liberalization compared to the second year before liberalization, for a sample of 15 countries, they find an increase of 1.7 percent per month.

The difference in these results could be due to the different set of countries used by various authors. Also, these studies use slightly different liberalization dates and windows around liberalization, which has a slight impact on the results. Furthermore, these studies use market indices whereas we use firm level data which we believe is more appropriate for measuring costs of capital. Whereas previous authors show by how much each country gained on average, we show by how much each firm gained on average by comparing the same set of firms before and after liberalization. In fact, if we average the increase in returns during liberalization across countries, we obtain 3.16 percent per month, a figure much closer to Henry's (2000) 3.3 percent. However, considering an

equally weighted average across firms produces a gain in returns of 1.5 percent. Value-weighting all the firms produces an even lower increase in returns during liberalization of only 0.879 percent per month. Therefore, our findings provide strong evidence that stock returns increase during liberalization.

We also examine what fraction of firms had an increase in returns during liberalization in Table IVB. We find that out of 557 firms, 292 or 52.4 percent had higher returns in the DURING period than in the PRE period. Thus while the average returns are significantly higher during liberalization than before, the impact of liberalization is not that broadly felt. The returns are particularly negative during liberalization in India (60 out of 60 companies had lower returns DURING than PRE) and Korea (46 out of 63 companies had lower returns DURING than PRE). Moreover, using the earlier liberalization dates for these countries gives similar results.

In the POST period, most firms again had a higher return than in the PRE period, with the average firm gaining slightly (0.411 percent monthly) in our sample. Nine out of the 18 countries have significant positive returns in the POST period, whereas six out of the 18 have significant negative returns. These positive returns in the POST period may reflect a lagged impact of liberalization rather than a change in the cost of capital.

When considering the AFTER period relative to the PRE period, the returns are on average significantly lower. 11 out the 18 countries have significantly lower returns, while five have an insignificant positive return, and only Malaysian firms have significantly higher returns AFTER than PRE. Whereas this may be interpreted as a decrease in the average cost of capital, some caveats need to be considered. Specifically, the average returns on the stocks in the AFTER period are actually negative. Thus, the

change of -2.887 percent in monthly returns visible in the stocks in our sample cannot be seen as indicative of the true difference in the cost of capital. When we consider the value-weighted change in returns, we find an even larger change of -3.101 percent. Instead, a more conservative interpretation is that this result is consistent with a significant drop in the cost of capital. Thus, while the 5 to 75 basis point decrease found by Bekaert and Harvey (2000) using dividend yields, or the 76 basis point decline in returns found by Kim and Singal (2000) may be a low estimate for the true drop in the cost of capital, a more accurate estimate may require a much longer time period to determine. When using excess returns, Bekaert and Harvey (2000) find an insignificant decrease in average returns in the POST and AFTER periods, compared to the PRE period. Therefore, our findings are important since they indicate a clear and significant decline in average returns in the AFTER period for most countries.¹²

We next examine to see why the decline in returns we find is larger than the decline previously found. One possibility is that the difference in results is due to differences in dates and countries examined; however, these differences appear to cause only a small fraction of the difference in results.¹³ Instead the difference appears to be due to our use of individual stocks. We considered whether this was because we do not have a new listing bias (Barber and Lyon, 1997), but find that the returns for new firms, as shown in Table IVA, are similar to the returns for existing firms. Thus new listings, while prevalent over this time period, do not significantly change the results. Instead, as

¹² Moreover, since these liberalizations occurred sufficiently before the East Asian financial crisis, the negative returns in the AFTER period are not due to these crises.

¹³ For robustness, we examine the results using the earlier liberalization dates reported in Table I. Using the earlier dates excludes Brazil and Taiwan from the study because the EMBD data does not go back far enough. We find that the equally weighted returns across firms increase DURING liberalization by only 1.28 percent using these dates, and the decline in returns AFTER liberalization is smaller at -1.17 percent.

the comparisons in Table IVA demonstrate, the difference appears to be due at least partly to equally weighting firms (value weighting provides similar results), rather than equally weighting indices as done by prior authors.

Table IVB also reports what fraction of firms had lower returns in the POST and AFTER periods than in the PRE period. We find that 247 out of 539 firms, or 45.8 percent, had lower returns in the POST period. For the AFTER period, we find that 350 out of 450 firms, or 77.8 percent, had lower returns AFTER than PRE. Thus the decrease in returns following liberalization is broadly felt for a significant majority of firms. Moreover, this breadth still remains after excluding Korean and Mexican firms, which may be affected by the Asian and Mexican crises. Excluding Korean and Mexican firms leaves us with 275 out of 374 firms, or 73.5 percent, that had lower returns AFTER than PRE. Thus liberalization appears to lower the cost of capital for the median firm, as well as on average.

B. Cumulative Abnormal Returns around Liberalization

In order to further verify our results, we conduct a classical event study analysis of the impact of liberalization on cumulative abnormal returns. The methodology used is as follows. Let $R_{i,t}$ be firm i 's return at time t , and let \bar{R}_i be the mean return for the PRE liberalization (estimation) period. For the mean-adjusted returns technique, the abnormal returns $AR_{i,t}$ are computed as follows:

$$AR_{i,t} = (R_{i,t} - \bar{R}_i) \quad (1)$$

We then calculate average abnormal returns (AAR_t) by averaging $AR_{i,t}$ across firms in event time. The average abnormal returns are then summed over different time periods, as follows:

$$CAR = \dot{\bar{a}} \underset{a}{\overset{b}{AAR_t}} \quad a \leq t \leq b \quad (2)$$

where, a and b are the beginning and end of the period in question. The cumulative abnormal returns (CARs) are calculated for the four periods—PRE, DURING, POST and AFTER official liberalization dates as discussed earlier. These CARs are tested to see if they are statistically significantly different from zero. The t -statistic for the hypothesis that CAR is zero is computed as in Brown and Warner (1980).

To ascertain robustness of the mean adjusted CARs, and to estimate risk-adjusted abnormal returns, market adjusted CARs are also computed. To estimate risk-adjusted abnormal returns, real returns on the firms are regressed on the returns on the emerging market index and the return on the exchange rate with the US dollar for the estimation period. After that, using the parameters of this market model, the abnormal returns are calculated as returns in excess of the return predicted by the market model. Next, the CARs are computed and the hypothesis that the CAR for an interval is zero is tested.

The magnitude of the average abnormal returns corresponds very closely with the results reported earlier. As expected, both the mean-adjusted and market adjusted CARs are not significantly different from zero in the PRE period (t -stats of 0.161 and 0.662). In the DURING period, the CARs are positive and significant for the market adjusted CARs (t -stats of 1.473 and 2.118 for the mean-adjusted and market adjusted CARs respectively). In the POST liberalization period, the CARs are not significantly different

from zero, and in the AFTER period they are significantly negative (t-stats of -5.705 and -5.142).

The results are presented graphically in Figure 1, and they confirm the positive initial impact of liberalization and the negative subsequent returns. Examination of Figure 1 indicates a downward drift in the CARs beginning approximately 20 months after liberalization. This downward drift continues until approximately 77 months after liberalization. The graph clearly indicates that during liberalization there is a positive price reaction, but subsequently the cost of capital declines. This pattern is similar to that found for ADRs (see Foerster and Karolyi, 1999). These findings indicate that our initial results are quite robust to methodology.

Thus, as found by Kim and Singal (2000), Henry (2000), and Bekaert and Harvey (2000), returns increase DURING liberalization. Further, similar to Kim and Singal (2000), we find that returns decrease afterwards, suggesting a decrease in the cost of capital. However, the magnitude of the results is significantly different from these prior findings. Specifically, considering either equally-weighted or value-weighted individual stocks produces a larger overall decline in returns than that found using market indices alone. These results are similar to those found for ADRs by Forrester and Karolyi (2000) and Errunza and Miller (2000) but with a broader sample of emerging market firms.

VI. The Effect of Liberalization on Firm Characteristics

A. Effect of Liberalization on Dividend Yields

Bekaert and Harvey (2000) consider that a change in capital may be reflected in a change in dividend yields as well as in returns. In fact, they argue that dividend yields

are a superior measure of cost of capital in small samples because of their lack of variability compared to returns, and they show this via Monte Carlo simulations. Bekaert and Harvey (2000) find adjusted changes of 5 to 89 basis points in dividends due to liberalization after adding controls, whereas Henry (2000) finds a raw change in dividend yield of approximately 100 basis points. However, the change in dividend yields found by Henry (2000) becomes small and insignificant after other factors are adjusted for.

We examine the individual stock dividend yields (annual) by country in Table V. However, our main focus is on returns. We exclude dividend yields greater than 100% from the analysis as these may be errors in the reported data. We find that dividend yields decline by 44 basis points on average from the PRE to DURING period, by 204 basis points from the PRE period to the POST period, and by 143 basis points from the PRE period to the AFTER period. As with returns, these changes suggest that using individual stocks rather than indexes produces a larger (more negative) change in dividend yields. However, as we do not control for other factors in the changes in dividend yields in Table V, a large portion of these raw changes may be due to macroeconomic factors such as inflation.^{14, 15} Nor do we find a close match between the countries with large significant changes in returns and those with large significant changes in dividend yields. For instance, whereas Thailand has a significant negative decline in dividend yields in the POST and AFTER periods, the mean returns in Thailand are on average not significantly different from the mean returns in the PRE period.

¹⁴ Bekaert and Harvey (2000) and Errunza and Miller (2000) illustrate that dividend yields are a good measure of the cost of capital only when the expected growth rate of dividends is the same before and after liberalization.

¹⁵ For robustness, we examine the dividend yields using the earlier liberalization dates reported in Table I. Again, using the earlier dates excludes Brazil and Taiwan from the study because the EMBD data does not go back far enough. We find that the equally weighted dividend yields decrease by 1.84 and 2.18 percent POST and AFTER liberalization, respectively.

Between countries, the correlation between POST-PRE changes in returns and POST-PRE changes in dividend yields is only 0.11, while the correlation between AFTER-PRE changes in returns and AFTER-PRE changes in dividend yields is only 0.07. This suggests that only to a relatively small degree can both changes in returns and changes in dividend yields be used to measure changes in the cost of capital.

We also find that the dividend yields of most stocks for these countries move in the same direction after liberalization, with 65.5 percent of stocks having a decline in dividend yields DURING, 70.3 percent having a decline in dividend yields POST, and 62.6 percent having a decline in dividend yields AFTER. Therefore, our findings for dividend yields are consistent with the prior literature, although the magnitude of changes in yields is somewhat larger than previously found.

B. Effect of Liberalization on Stock Betas

We estimate a two factor model for each stock, where the real dollar return on the stock is regressed on the real dollar return on the local market index and the real dollar return on the local exchange rate. Separately, we also estimate a one factor model where the real stock returns are regressed on the real returns on the MSCI world market index. The exposures to these factors (betas) are reported in Table VI. We also estimate a three factor model with the return in the local market index, currency return and the return on the world market index. However, the betas on the world market index are rarely

significant. We therefore simply provide some descriptive statistics for global market betas from a one factor model in Table VI.¹⁶

If markets are integrated but purchasing power parity does not hold, a two factor model with a global market factor and an exchange rate factor would be the correct model as shown by Adler and Dumas (1983). However, if markets are not integrated, which we expect to be the case for emerging markets, the local market index would also be an important risk factor as shown by Errunza and Losq (1985, 1989).

We consider how both the local market betas and global market betas change for these stocks. Our evidence is consistent with the findings in Bekaert and Harvey (1997) and Errunza and Miller (2000), that liberalization on average causes stocks to become less correlated with the local market index and more highly correlated with the global market. Again, this effect holds for most countries, with an average increase in global beta of 0.199. Nigeria, Turkey, and Venezuela however have significant decreases in their global market betas, although as Nigeria and Venezuela are oil exporters, these stock returns may be better explained by fluctuations in the price of oil than by the world market. We do not find significant changes in foreign exchange betas and therefore do not discuss them.

Overall, the results in Table VI show that firms have lower local betas and higher global betas following liberalization. These changes indicate increased global risk sharing as predicted by models of international asset pricing such as Errunza and Losq

¹⁶ In an alternate specification, we estimated a five factor model with SMB and HML as additional variables. Stock returns do not have significant exposures to the SMB or the HML factors or the global index returns.

(1985). This global risk sharing is the source of the perceived decline in the cost of capital.

C. Effect of Liberalization on Stock Return Volatility

Table VII reports the standard deviation of monthly returns for the stocks in our sample PRE, DURING, POST, and AFTER liberalization. Kim and Singal (2000) find that volatility does not change significantly in the two-year period after liberalization, but then appears to decline in the fourth and fifth years after liberalization. Bekaert and Harvey (1997, 2000) find mixed evidence on the impact of liberalization on volatility.

Our approach is more modest in method; instead of using a GARCH methodology like Bekaert and Harvey (1997, 2000) or Kim and Singal (2000), we consider only the simple standard deviations of returns for the stocks in our sample. Our findings suggest that there is an increase in volatility DURING liberalization, and a significant decrease in volatility following liberalization. To further examine the difference between our results and those provided by prior authors, we examined the changes in standard deviations of the indexes, rather than of individual stocks, over these same periods. The indexes show a decrease in volatility that is not statistically significant. Thus part of the more significant decrease we find in volatility is due to the use of individual stocks, rather than an index.

It's also worth noting that not all countries had a decrease in volatility. Pakistan and Thailand had increases in volatility that were significant at the one percent level,¹⁷

¹⁷ Again, our analysis period for Thailand does not include the Asian financial crisis of 1997; the increase in volatility occurred before this crisis.

whereas Venezuela and Zimbabwe had increases that were significant at the 10 percent level.

D. Effect of Liberalization on SMB, HML, and WML

Fama and French (1993) argue that cross-sectional variations in stock return in the U.S. can be explained by three factors, the excess market return, the difference in return of small and big firm (SMB) and difference in returns of high and low book-to-market equity value firms (HML). Additionally, Fama and French (1998) show the importance of the HML premium in the international context. Similarly, Rouwenhorst (1999) shows that these premiums are significant in the context of emerging market stocks. In panel A of Table VIII, we consider how SMB and HML portfolios perform PRE, POST, and AFTER liberalization.¹⁸ We find no significant overall change in the impact of firm size in the POST period in comparison to the PRE period, although there was a significant decline in performance for small firms in Mexico. We do find that small firms did slightly worse AFTER liberalization than PRE, and this impact is significant at the 10 percent level.

The only country for which the SMB premium is significantly negative in the AFTER period is Mexico, and this may be due to the Mexican currency crisis of December 1994. We therefore compare the overall results excluding Mexico from the sample, and find that the change in SMB premium is no longer significant in the AFTER period. Dropping Mexico does not materially affect the other results.

¹⁸ We do not consider the DURING period as it is only 12-months long, and therefore insufficient to form a reasonable estimate of these effects.

We find no significant difference in HML portfolios over either the POST or the AFTER period in comparison to the PRE period, although there was a significant underperformance by high book-value firms in Mexico in both the POST and AFTER periods. Again, some portion of this Mexican underperformance may be due to the Mexican currency crisis of December 1994.

We again consider changes in size and book-to-market effects with corrections for other factors in the next section, and there we find that size and book-to-market do impact the returns during and after liberalization. However, there we consider only the firm characteristics in the PRE period, rather than updating the composition of the portfolio every month. Thus, the results are not directly comparable, but reflect different types of analysis.

Panel B of Table VII considers WML portfolios for each country in question. While there is an increase in performance for WML portfolios in the POST and AFTER period in comparison to the PRE period, the change is not significant. On a country-by-country basis for AFTER-PRE, there is a significant increase in the WML premium for Argentina, Brazil, India, Korea, Mexico, Philippines, Thailand, and Zimbabwe. However, there is also a significant decline in WML effects in Chile, Colombia, Jordan. Thus the overall impact of liberalization on WML effects is positive but insignificant.

In summary, when individual stocks are considered, the impact of liberalization on returns is positive DURING, but smaller than that found using indices. The decrease in returns AFTER liberalization is larger than previously found using indices. Local market betas appear to decline after liberalization, whereas global market betas increase. Firm level standard deviations increase during liberalization, and then decline

subsequently. On average, liberalization does not affect WML, HML, or SMB risk premiums.

VII. Effect of Firm Characteristics on Returns around Liberalizations

We next consider which firms do best DURING liberalization, and which firms appear to have the largest decline in returns in the POST and AFTER periods of liberalization. In three separate regressions, we regress the difference between average returns DURING, POST, and AFTER and average returns PRE liberalization on individual firm characteristics. The firm characteristics used as independent variables are calculated for the PRE period.

Since the number of firms on a country-by-country basis is small, in order to improve estimation efficiency, we pool data for all 18 countries and run both a pooled and fixed effects regressions. The pooled model includes a common intercept and the fixed effects model includes a separate intercept for each country. Our fixed effects regression model is:

$$Dr_{i,j} = a_j + g(Size_{ij}) + l(Manuf_{i,j}) + h(Local\ beta_{i,j}) + d(Fx\ beta_{i,j}) + b(BTM_{i,j}) + m(DR_{i,j}) + e_{ij} \quad (3)$$

where,

$Dr_{i,j}$ = Change in mean return for firm i in country j for two event periods

a_j = The constant for country j

$Size$ = Logarithm of the equity market capitalization of the firm

$Manuf$ = A dummy variable which is 1 if the firm is a manufacturing firm

Local beta = Exposure of the firm's real returns to the return on the local market index

Fx beta = Exposure of the firm's real returns to the return on the bilateral exchange rates with the U.S. dollar

BTM = The ratio of book-to-market values of equity

DR = A dummy variable which is one if the firm lists a depositary receipt in the United States, United Kingdom, or Luxembourg

In order to explain the increase in returns DURING liberalization, we consider the local beta and foreign exchange betas of the individual stocks, as well as mean firm size, mean book-to-market ratio, a dummy for whether the firm is in the manufacturing sector, and a dummy for whether the firm issued depositary receipts in the United States, United Kingdom, or Luxembourg DURING the liberalization period.¹⁹

We report both pooled regressions and country fixed effect regressions in Table IX. We test for and reject the null hypothesis of homoskedasticity. Therefore we report White t-statistics robust to heteroskedasticity.²⁰ We find that DURING the liberalization period, firms with higher local betas have significantly more negative changes in returns, larger firms have significantly more negative changes in returns, and firms with lower book-to-market values have significantly more negative changes in returns. Moreover, these results are similar whether or not country fixed effects are included in the regression. The firm's foreign exchange beta is significant at the five percent level without country-specific fixed effects, but becomes insignificant when fixed effects are added. Thus there is some evidence that firms with more positive foreign exchange

¹⁹ Moreover, adding estimated global market global market betas to the right-hand side of the regressions produces coefficients which are always insignificant.

²⁰ Using heteroskedastic-consistent t-statistics and country dummies also helps to control for the impact of the Mexican and Asian financial crises.

exposure (which we might expect would be export-oriented firms) do somewhat worse DURING the liberalization process. These results suggest that foreign investors prefer firms which have lower currency risk, and possibly that these exporting firms face increased competition as trade restrictions are often relaxed around capital market liberalizations.

In terms of economic impact, a one standard deviation increase in size equals 1.631. Thus a firm that is one standard deviation larger than average will have returns that are -0.920 percent lower DURING liberalization given the pooled coefficient, or -0.820 percent lower given the fixed effect coefficient. Local beta has a standard deviation in the regression sample of 0.383, thus a firm with a beta one standard deviation larger than the mean will have approximately -0.816 percent lower returns DURING liberalization. Book-to-market has a standard deviation of 1.769 in the regression sample, thus a firm with a one standard deviation larger book-to-market value will have 3.280 percent larger returns given the pooled regression, or 0.909 percent larger returns given the fixed effect regression. Foreign exchange beta has a standard deviation of 1.108, thus a one standard deviation larger foreign exchange beta firm will have returns which are -0.550 percent lower given the pooled regression. Thus all of these variables have an economically, as well as statistically, significant impact on the returns DURING liberalization.

The cross-listing dummy, which is equal to one if the firm cross-lists DURING liberalization, is positive and significant in the fixed effect regression.²¹ Thus, consistent

²¹ The cross-listing could provide easier access to securities which were previously restricted to foreign investment. Domowitz, Glen, and Madhavan (1997) show that unrestricted shares have a premium relative to restricted shares for Mexican stocks.

with Forrester and Karolyi (2000) and Errunza and Miller (2000), who find that firms that issue ADRs have significant positive returns, we find that returns of cross-listed firms are also significantly different relative to other firms in the same developing countries. Eun, Claessens, and Jun (1995) show that even firms which do not trade internationally benefit when some firms in a country gain access to foreign capital. However, this “free ride” effect does not appear to be sufficiently strong to obviate the significant additional gains for the cross-listing firm when adjusted for other factors.

Firms in the Manufacturing sector appear to have slightly lower returns DURING the liberalization process, but this effect is only significant at the 10 percent level when fixed effects are added. 60.4 percent of the firms were in the manufacturing sector, 15.7 percent were in the finance sector, and the other firms were in other sectors. More specific sector dummies are not significant. Thus we find that sectors have a small influence on which firms do better DURING liberalization.

In the regression without country fixed effects, firm-specific characteristics explain 21.1 percent of the firm differences in returns DURING liberalization, while adding country fixed effects explains 62.4 percent of the differences in returns.

In the regressions comparing returns POST and AFTER liberalization with PRE, we find that firms with higher local betas have significantly more negative changes in returns. Firms with more foreign exchange exposure appear to have more positive changes in returns (significant at the 10 percent level), again possibly because capital market liberalization is often accompanied by trade and foreign exchange liberalizations, and thus the risk inherent in these firms may increase. Larger firms have more negative changes in returns AFTER liberalization as well, although in the AFTER period, this

effect is not significant when fixed effects are included. A higher book-to-market ratio is associated with more positive changes in returns in the POST-PRE period given the pooled regression results, but book-to-market does not have a significant impact on changes in returns in the AFTER-PRE regressions.

After liberalization, a firm with a one standard deviation larger size will have returns -0.740 percent per month on average lower given the pooled regression coefficient. A firm with a one standard deviation larger local beta will have returns -0.372 percent lower given the pooled regression. A one standard deviation larger foreign exchange beta firm will have returns which are 0.304 percent higher. While these economic impacts are smaller than those for returns DURING liberalization, they are nevertheless economically significant, and suggest that individual firm characteristics are also important economic determinants of the changes in cost of capital after financial market openings.

In the POST-PRE and AFTER-PRE regressions, the cross-listing dummies are set equal to one if the firm cross-listed from DURING up to the period in question. That is, for the DURING-PRE regression, the cross-listing dummy is equal to one if the firm cross-listed in the DURING period, for the POST-PRE regression, the dummy is equal to one if the firm cross-listed in the POST or DURING periods, and in the AFTER-PRE regression, the cross-listing dummy is equal to one if the firm cross-listed AFTER, POST, or DURING. Cross-listed firms appear to have significantly lower returns (1.36 percent lower or 0.99 percent lower in the pooled and fixed effects regressions, respectively) than not cross-listed firms. Thus while the impact of liberalization is widely felt, firms which cross-list appear to have significant additional declines in their cost-of-

capital. These numbers are close to the impact of cross-listing found by Errunza and Miller (2000), who find a 30-month holding period decrease in returns of 54.2 percent (or 1.45 percent monthly) after an ADR is issued.

The adjusted R-squared's show that a smaller percentage of the difference in returns can be explained by firm specific factors over time. While the firm-specific factors explain 21.1 percent of the DURING-PRE regression, they only explain 13.3 percent of the AFTER-PRE regression, and only 5.1 percent of the POST-PRE regression. The fixed effects still explain a great deal of the differences in results, with a total 63.7 percent of the POST-PRE regression, and 37.5 percent explained in the AFTER-PRE regression.²²

While these results demonstrate that firm characteristics have a significant impact on performance DURING and AFTER liberalization, their economic interpretation is not so straightforward. If small firms had a larger decline in the cost of capital because of liberalization, we would expect a negative coefficient on size in the DURING-PRE regressions, and a positive coefficient in the AFTER-PRE regressions. Instead, we find that small firms had higher returns DURING, and POST liberalization, and in the AFTER period when fixed effects are not included. This is not consistent with a story based on changes in the cost of capital. With fixed effects, smaller firms have higher returns DURING and POST liberalization, and basically unchanged returns AFTER liberalization. Thus with fixed effects, this pattern of returns is consistent (although with

²² We also test to see whether the changes in dividend yields are related to firm characteristics (not reported). We regress the changes in dividend yields on firm-specific factors including size, book-to-market, local beta, foreign exchange beta, a dummy for the manufacturing sector, and a dummy for whether the firm issues a DR. However, we find that after correcting for country-specific factors and heteroskedasticity, none of the firm-specific characteristics are significant in explaining changes in dividend yields. Instead, changes in dividend yields are primarily explained by country factors.

no statistical significance) with bigger decreases in the cost of capital for small firms. Alternatively, smaller firms may gain more visibility during the liberalization process, and these effects could provide longer lasting gains relative to larger firms. This increase in visibility is consistent with Merton's (1987) investor recognition hypothesis, and with Forrester and Karolyi (1999), who find support for this hypothesis from firms cross-listing in the U.S.

Similarly, firms with higher local betas had lower returns DURING, POST, and AFTER liberalization. Firms with higher local betas may benefit more from liberalization due to greater global risk sharing. The more negative returns POST and AFTER liberalization for higher local beta firms implies a larger decrease in the cost of capital, and this is consistent with the prediction of greater risk sharing. However, foreign investors appear to prefer lower beta firms DURING liberalization, and this is surprising given the theory and the results POST and AFTER.

On the other hand, it is easier to interpret the coefficients on FX Betas and on the DR dummy. Firms with higher foreign exchange exposure had lower gains in returns DURING liberalization, but higher gains in returns AFTER liberalization. This suggests that firms with lower FX Betas had larger declines in the cost of capital. Similarly, the positive coefficient on the DR dummy for the DURING-PRE regression, and the negative coefficient on the DR dummy for the AFTER-PRE regression, suggests that firms which cross-listed had a larger decline in the cost of capital.

Overall, we find that the impact of liberalization, and the subsequent decline in cost of capital, impacts firms differently, and to some degree predictably.

VIII. Conclusion

We test the implications of models of international asset pricing under market segmentation by examining the impact of financial market liberalization on firm characteristics in emerging markets. Consistent with the implications of theoretical models, returns are higher during liberalization, and lower subsequently. Moreover, the decrease in returns, and therefore the associated decrease in cost-of-capital, appears larger than that found in prior studies. This difference is larger primarily because we use firm level data and not averages across countries. We also find that there is a wide disparity in the benefits of liberalization across countries. Overall, while 52.4 percent of firms have a positive price reaction during liberalization, 45.8 percent have lower returns in the three years following liberalization, and 77.8 percent of firms have lower returns in the subsequent three years. Dividend yields also decline by a larger amount when individual stocks are considered.

Consistent with stocks being at least partly priced globally, rather than locally, after liberalization, local market betas decline whereas global market betas increase. Firm level standard deviations increase during liberalization, and then decline subsequently. On average, liberalization does not affect WML, HML, or SMB risk premiums. The results suggest that there is no significant increase in momentum returns overall, and therefore concerns of more “hot money” chasing returns may be unwarranted.

We also examine which firms do better during liberalizations, and find that smaller firms, firms with higher book-to-market values, firms with lower local betas, and firms with lower foreign exchange exposure have higher returns. After liberalization,

smaller firms, firms with lower local market betas, and firms with higher foreign exchange exposure have higher returns. Thus firms with lower foreign exchange exposure appear to have a larger decline in their cost of capital around liberalizations.

Using information on cross-listing of emerging market stocks in the United States, United Kingdom, and Luxembourg, we find that firms which cross-list have significantly different changes in returns than other firms after correcting for other characteristics. This result suggests that while the impact of liberalization spreads throughout the market, cross-listing further boosts the returns during liberalization and lowers the cost-of-capital afterwards.

Generally, our findings may assist portfolio managers and policy makers in understanding how market liberalizations affect stock returns and risk. This paper provides further evidence of the positive impacts of liberalization. Our findings suggest that concerns of increased volatility due to market liberalization may be unfounded. In general, we show that liberalizations may benefit emerging markets as they lower firms' costs of capital by increasing global risk sharing. Moreover, the impact of liberalization varies significantly and predictably across firms.

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Table I
Official Liberalization Dates of Emerging Stock Markets

Table I reports the official liberalization dates of equity markets in 20 emerging countries, and the PRE, DURING, POST, and AFTER periods used in the analysis. The liberalization dates are taken from Bekaert and Harvey (2000) and correspond closely with the liberalization dates of IFC and other authors such as Kim and Singal (2000) and Henry (2000). These dates represent months in which there were significant changes in government policy in these countries affecting investments by foreigners. PRE liberalization refers to the 36 month period from -43 to -7 months of liberalization, DURING refers to the 12 month period from -6 months to + 5 months of liberalization, POST refers to the 36 month period from +6 to +41 months of liberalization, and AFTER refers to the 36 month period from +42 to +77 months of liberalization. Alternate date gives the earliest date when a country fund was available for that country.

Country	Official Liberalization Date	PRE (-43, -7)	DURING (-6, +5)	POST (+6, +41)	AFTER (+42, +77)	Alternate Date Used
Argentina	November-89	5/85 – 4/88	5/89 – 4/90	5/90 – 4/93	5/93 – 4/96	
Brazil	May-91	11/87 – 10/90	11/90 – 10/91	11/91 – 10/94	11/94 – 10/97	October-87
Chile	January-92	7/88 – 6/91	7/91 – 6/92	7/92 – 6/95	7/95 – 6/98	September-89
Colombia	February-91	8/87 – 7/90	8/90 – 7/91	8/91 – 7/94	8/94 – 7/97	
Greece	December-87	6/84 – 5/87	6/87 – 5/87	6/88 – 5/91	6/91 – 5/94	
India	November-92	5/89 – 4/92	5/92 – 4/93	5/93 – 4/96	5/96 – 4/99	June-86
Indonesia	September-89	3/86 – 2/89	3/89 – 2/90	3/90 – 2/93	3/93 – 2/96	January-89
Jordan	December-95	6/92 – 5/95	6/95 – 6/96	6/96 – 5/99	6/99-12/00	
Korea	January-92	7/88 – 6/91	7/91 – 6/92	7/92 – 6/95	7/95 – 6/98	August-84
Malaysia	December-88	6/85 – 5/88	6/88 – 5/89	6/89 – 5/92	6/92 – 5/95	December-87
Mexico	May-89	11/85 – 10/88	11/88 – 10/89	11/89 – 10/92	11/92 – 10/95	June-81
Nigeria	August-95	2/92 – 1/95	2/95 – 1/96	2/96 – 1/99	2/99-12/00	
Pakistan	February-91	8/87 – 7/90	8/90 – 7/91	8/91 – 7/94	8/94 – 7/97	
Philippines	June-91	12/87 – 11/90	12/90 – 11/91	12/91 – 11/94	12/94 – 11/97	May-87
Portugal	July-86	1/83 – 12/85	1/86 – 12/86	1/87 – 12/89	1/90 – 12/92	
Taiwan	January-91	7/87 – 6/90	7/90 – 6/91	7/91 – 6/94	7/94 – 6/97	May-86
Thailand	September-87	3/84 – 2/87	3/87 – 2/88	3/88 – 2/91	3/91 – 2/94	July-85
Turkey	July-89	2/86 – 1/89	2/89 – 1/90	2/90 – 1/93	2/93 – 1/96	
Venezuela	January-90	7/86 – 6/89	7/89 – 6/90	7/90 – 6/93	7/93 – 6/96	
Zimbabwe	June-93	12/89 – 11/92	12/92 – 11/93	12/93 – 11/96	12/96 – 11/99	

Table II
Descriptive Statistics of Emerging Market Firm Characteristics, 1982-2000

This table reports for each country the median and total number of firms, means and standard deviations of returns in respective local currencies and U.S. dollars. The last two columns report the median firm size (logarithm of equity market capitalization) and median book value to market value ratio. The sample for all countries end in December 2000, except for Portugal ending in March 1999, when the IFC stopped including Portugal as an emerging market.

Country	Starting Date	Median Number of Firms	Total Number of Firms	Local Currency Returns (%)		USD returns (%)		Median Size (log millions of US \$)	Median Book-to- Market
				Mean	Std.	Mean	Std.		
Argentina	198201	27	50	12.013	40.460	3.872	28.030	4.979	1.111
Brazil	198201	67	163	17.950	28.003	3.361	18.134	5.307	1.409
Chile	198201	35	69	2.845	8.095	1.675	8.446	5.518	0.654
Colombia	198412	21	39	3.324	9.154	1.739	9.046	5.116	1.134
Greece	198201	32	92	2.570	10.553	1.773	10.722	4.517	0.465
India	198201	60	190	1.781	9.457	1.041	9.142	5.021	0.455
Indonesia	198912	55	145	1.375	14.277	0.861	18.735	4.431	0.565
Jordan	198201	25	71	0.359	4.281	0.043	4.450	3.226	0.791
Korea	198201	78	262	1.129	10.395	1.063	12.148	5.541	0.837
Malaysia	198412	62	210	1.072	12.698	0.968	13.991	5.381	0.500
Mexico	198201	56	154	4.890	12.286	2.467	13.235	5.555	0.755
Nigeria	198412	24	41	3.311	6.159	1.585	14.014	3.688	0.505
Pakistan	198412	53	129	1.547	8.325	0.868	8.515	3.035	0.675
Philippines	198412	30	95	2.296	12.029	1.988	13.269	4.198	0.512
Portugal	198601	29	52	2.984	12.231	2.889	12.445	5.067	0.556
Taiwan	198412	70	152	1.459	13.032	1.613	13.499	6.300	0.440
Thailand	198201	43	134	1.167	12.096	1.087	13.340	5.242	0.476
Turkey	198612	36	81	7.955	19.986	3.822	19.795	5.012	0.273
Venezuela	198412	16	29	4.099	12.272	2.297	14.543	4.538	0.697
Zimbabwe	198201	17	37	3.409	10.135	1.607	11.072	3.012	0.946
Average		41.800	109.750	3.877	13.296	1.831	13.328	4.734	0.688

Table III
Descriptive Statistics for SMB, HML, and WML in Emerging Markets, 1982-2000

This table reports for each country the means and standard deviations of returns in U.S. dollars for the IFC value weighted global index, the small minus big (SMB) risk premium, high minus low (HML) book to market premium and the winner minus loser (WML) premium. The winner minus loser premium is based on the returns of six month ranking and holding periods. The last columns is the inflation rate in the respective countries.. The sample for all countries end in December 2000, except for Portugal ending in March 1999. The mean inflation rate for the U.S. DURING the sample is 0.271 % per month. a, b, and c refer to significance at the 10%, 5%, and 1% levels, respectively, and are only reported for the differences in returns.

Country	Return on Value weighted Index (%)		SMB (%)		HML (%)		WML (%)		Inflation (local) (%)
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean
Argentina	3.450 ^b	24.171	1.306	19.529	1.903	20.025	0.779 ^b	3.720	8.567
Brazil	2.677 ^b	17.404	0.953	14.758	3.751 ^c	13.394	0.017	3.428	12.231
Chile	1.469 ^c	8.389	0.426	6.799	1.181 ^c	6.036	1.593 ^c	2.847	1.139
Colombia	1.671 ^c	9.091	0.315	8.936	0.601	9.975	1.382 ^c	3.812	1.649
Greece	1.476 ^b	11.114	0.692	9.047	1.340 ^a	9.396	1.942 ^c	3.892	1.038
India	0.992 ^a	8.818	-0.055	6.118	-0.023	7.038	0.779 ^c	2.042	0.689
Indonesia	-0.111	14.490	2.244	17.022	1.744	12.448	0.000	3.227	1.031
Jordan	0.357	4.345	-0.457	5.010	-0.017	4.994	1.073 ^c	2.247	0.420
Korea	1.113	11.274	0.497	10.242	1.268 ^a	8.702	0.065	2.933	0.390
Malaysia	0.748	10.381	0.357	10.520	1.696 ^c	9.101	0.186	2.394	0.246
Mexico	2.132 ^b	12.960	1.481 ^b	11.204	1.421 ^a	10.442	1.057 ^b	3.578	2.871
Nigeria	1.542	13.615	-0.240	8.842	0.374	11.025	1.757 ^c	2.819	1.962
Pakistan	0.948	9.287	-0.193	6.334	0.512	6.521	0.526 ^c	2.044	0.656
Philippines	1.955 ^b	11.241	0.331	11.681	1.829 ^a	13.557	0.431	3.829	0.631
Portugal	2.469 ^c	11.355	0.677	12.303	0.008	16.759	0.309	4.277	0.587
Taiwan	1.830 ^b	13.216	0.207	9.793	0.584	9.247	-0.205	2.597	0.192
Thailand	1.085	11.072	0.058	12.381	-0.139	13.892	0.889 ^c	3.675	0.317
Turkey	3.221 ^b	19.849	0.696	10.984	2.570 ^b	13.410	0.140	4.188	4.584
Venezuela	1.797 ^a	13.804	0.106	11.144	1.502	14.704	0.424	4.258	2.794
Zimbabwe	1.273 ^a	10.836	1.881 ^b	13.015	2.023 ^b	12.693	2.016 ^c	5.745	1.712
Average	1.605 ^c	12.336	0.564 ^c	10.783	1.206 ^c	11.168	0.758 ^c	3.378	2.185

Table IVA**Mean Returns before, during, and after Liberalization**

Mean monthly returns in percentages for the stocks in the sample in real US dollars. PRE liberalization refers to the 36 month period from -43 to -7 months of liberalization, DURING refers to the 12 month period from -6 months to + 5 months of liberalization, POST refers to the 36 month period from +6 to +41 months of liberalization, and AFTER refers to the 36 month period from +42 to +77 months of liberalization. The differences between periods compare the same set of firms for the two relevant periods. a, b, and c refer to significance at the 10%, 5%, and 1% levels, respectively, and are only reported for the differences in returns.

Country	Number of Stocks DURING	Mean % Return PRE	Mean % Returns DURING	Mean % Returns POST	Mean % Returns AFTER	DURING - PRE	POST -PRE	AFTER - PRE
Argentina	24	1.147	22.215	7.420	1.290	20.871 ^c	6.331 ^b	0.553
Brazil	66	3.643	9.027	6.258	-0.691	4.445 ^c	2.240 ^b	-5.594 ^c
Chile	35	3.723	3.960	2.190	-1.578	0.677	-1.816 ^c	-5.623 ^c
Colombia	20	1.295	1.383	5.591	-0.917	0.137	4.345 ^c	-2.592 ^c
Greece	10	2.659	6.431	3.813	-0.701	3.772	1.517	-3.408 ^c
India	62	3.010	-5.252	0.931	-1.713	-8.286 ^c	-1.604 ^c	-4.948 ^c
Jordan	50	-0.291	-2.101	-0.961	-0.872	-1.900 ^c	-0.936 ^c	-0.972 ^b
Korea	77	-0.217	-1.705	0.776	-4.539	-1.501 ^c	1.591 ^c	-4.421 ^c
Malaysia	62	-0.055	3.020	1.120	1.853	2.351 ^c	1.517 ^c	3.048 ^c
Mexico	52	6.955	5.248	1.953	-0.929	-1.616	-5.018 ^c	-6.165 ^c
Nigeria	35	3.713	1.494	0.781	2.589	-1.296	-3.111 ^c	-1.523 ^a
Pakistan	54	0.410	3.377	3.035	-1.538	1.863 ^c	2.545 ^c	-2.832 ^c
Philippines	30	-0.471	2.134	3.392	-2.461	2.289	3.535 ^c	-1.283 ^a
Taiwan	64	2.919	4.481	0.727	0.761	1.632 ^c	-2.534 ^c	-2.673 ^c
Thailand	10	1.079	6.030	1.860	1.888	4.123 ^c	-0.459	0.568
Turkey	18	4.298	16.976	-1.951	4.045	12.331 ^c	-5.454 ^c	0.795
Venezuela	13	0.045	6.796	3.448	0.490	6.751 ^c	4.618 ^c	0.154
Zimbabwe	21	-2.652	7.342	2.399	-1.365	10.288 ^c	5.421 ^c	0.199
Average across countries		1.734	5.048	2.377	-0.244	3.163 ^c	0.707	-2.040 ^c
Equally Wtd across firms	703	1.773	3.487	1.955	-0.752	1.500 ^c	0.411 ^a	-2.887 ^c
Value Wtd across firms	703	2.034	2.956	2.086	-0.787	0.879 ^c	-0.006	-3.101 ^c
New firms			3.823	1.536	-0.789			

Table IVB
Breadth of Gains DURING, POST, and AFTER Liberalization

The number and percentage of stocks whose returns was higher DURING, POST, or AFTER than in the PRE period for each country. The number of stocks changes in each period as a stock is only considered if it is part of the database (and the index) for both the PRE and the other period in question.

Country	Number (Percentage) of Stocks with higher Returns DURING than PRE	Number (Percentage) of Stocks with higher Returns POST than PRE	Number (Percentage) of Stocks with higher Returns AFTER than PRE
Argentina	23/24 (95.8%)	18/24 (75.0%)	9/19 (47.4%)
Brazil	41/56 (73.2%)	33/56 (58.9%)	4/49 (8.16%)
Chile	16/28 (57.1%)	5/24 (20.8%)	0/23 (0.00%)
Colombia	10/20 (50.0%)	20/20 (100%)	6/20 (30.0%)
Greece	9/10 (90.0%)	8/10 (80.0%)	0/8 (0.00%)
India	0/60 (0.00%)	13/56 (23.2%)	4/46 (8.70%)
Jordan	8/41 (19.5%)	15/37 (40.5%)	9/28 (32.1%)
Korea	17/63 (27.0%)	54/62 (87.1%)	1/57 (1.75%)
Malaysia	25/38 (65.8%)	23/35 (65.7%)	17/19 (89.5%)
Mexico	25/25 (100%)	5/26 (19.2%)	0/19 (0.00%)
Nigeria	9/26 (34.6%)	4/23 (17.4%)	7/20 (35.0%)
Pakistan	8/24 (33.3%)	29/35 (82.9%)	4/26 (15.4%)
Philippines	10/16 (62.5%)	14/16 (87.5%)	3/16 (18.8%)
Taiwan	36/62 (58.1%)	17/62 (27.4%)	10/58 (17.2%)
Thailand	9/10 (90.0%)	4/9 (44.4%)	5/9 (55.6%)
Turkey	14/14 (100%)	1/14 (7.14%)	7/12 (58.3%)
Venezuela	12/13 (92.3%)	12/13 (92.3%)	8/11 (72.7%)
Zimbabwe	16/17 (94.1%)	17/17 (100%)	6/10 (60.0%)
Total	292/557 (52.4%)	292/539 (54.2%)	100/450 (22.2%)

Table V
Mean Dividend Yields before and after Liberalization

Mean betas for the stocks in the sample using US dollar returns. PRE liberalization refers to the 36 month period from -43 to -7 months of liberalization, DURING refers to the 12 month period from -6 months to + 5 months of liberalization, POST refers to the 36 month period from +6 to +41 months of liberalization, and AFTER refers to the 36 month period from +42 to +77 months of liberalization. The differences between periods compare the same set of firms for the two relevant periods. a, b, and c refer to significance at the 10%, 5%, and 1% levels, respectively, and are only reported for the differences in dividend yields.

Country	Mean Dividend Yield PRE	Mean Dividend Yield DURING	Mean Dividend Yield POST	Mean Dividend Yield AFTER	DURING – PRE	POST -PRE	AFTER – PRE
Argentina	3.144	5.264	1.921	2.130	1.993	-1.985 ^c	-1.228
Brazil	5.435	3.975	1.761	3.125	-1.326 ^b	-3.574 ^c	-2.470 ^c
Chile	8.546	3.226	2.955	4.064	-6.002 ^c	-6.589 ^c	-5.005 ^c
Colombia	7.830	10.190	3.257	3.092	2.268	-4.664 ^c	-4.837 ^c
Greece	9.364	4.100	4.429	6.631	-5.264 ^b	-4.795 ^b	-1.825
India	1.749	1.050	1.575	3.650	-0.699 ^c	-0.241	1.544 ^c
Jordan	2.812	2.899	2.955	2.964	-0.117	-0.159	-0.381
Korea	1.073	1.813	1.485	2.243	0.528 ^c	0.335 ^b	0.927 ^c
Malaysia	2.294	1.849	1.842	2.377	-0.566	-0.597	-0.264
Mexico	5.040	2.663	3.675	1.846	-2.543 ^b	-1.425	-3.192 ^b
Nigeria	8.899	14.728	5.231	6.062	7.343 ^c	-3.872 ^c	-2.465 ^b
Pakistan	5.407	6.075	2.561	2.741	-0.331	-3.515 ^c	-3.338 ^c
Philippines	2.073	0.798	0.455	0.472	-1.535 ^c	-1.870 ^c	-1.779 ^c
Taiwan	1.380	0.110	1.005	0.695	-1.269	-0.287	-0.363
Thailand	7.591	4.632	3.488	2.901	-3.312 ^b	-4.184 ^c	-5.036 ^c
Turkey	12.410	12.167	8.394	6.846	-0.244	-5.411 ^b	-3.869 ^c
Venezuela	1.413	2.204	1.251	2.748	0.387	-0.483	1.403
Zimbabwe	8.184	8.637	5.465	6.898	0.453	-3.006 ^b	-2.551 ^a
Equally Wtd across firms	4.3498	3.739	2.4717	2.967	-0.437 ^a	-2.044 ^c	-1.426 ^c
Value Wtd across firms	3.971	3.384	2.2419	2.903	-0.574 ^c	-1.771 ^c	-1.152 ^c
Breadth of Lower Div. Yields					329/502 (65.5%)	343/488 (70.3%)	254/406 (62.6%)

Table VI
Mean Betas before and after Liberalization

Mean betas for the stocks in the sample using US dollar returns. Local market betas are calculated using a two-factor model, where the second factor is the US dollar exchange rate. As the foreign exchange betas are almost never significantly changed by capital market liberalization, they are not reported. PRE liberalization refers to the 36 month period from -43 to -7 months of liberalization, DURING refers to the 12 month period from -6 months to + 5 months of liberalization, POST refers to the 36 month period from +6 to +41 months of liberalization, and AFTER refers to the 36 month period from +42 to +77 months of liberalization. The differences between periods compare the same set of firms for the two relevant periods. a, b, and c refer to significance at the 10%, 5%, and 1% levels, respectively, and are only reported for the differences in betas.

Country	Local Market Beta					Global Market Beta				
	Mean PRE	Mean POST	Mean AFTER	POST - PRE	AFTER - PRE	Mean PRE	Mean POST	Mean AFTER	POST - PRE	AFTER - PRE
Argentina	0.897	1.090	0.819	0.035	-0.223 ^b	0.344	1.045	1.688	-0.474	0.787 ^b
Brazil	1.016	0.833	0.700	-0.250 ^b	-0.441 ^c	0.566	0.691	0.927	0.021	0.149
Chile	0.983	1.033	0.835	-0.033	-0.124	0.162	0.268	0.795	-0.061	0.479 ^c
Colombia	0.783	1.075	0.801	0.150	0.158	-0.050	-0.580	0.172	-0.042	0.127
Greece	0.723	0.791	0.823	0.224	0.349 ^b	0.398	1.066	0.455	-0.030	0.218
India	1.048	0.940	0.875	-0.126 ^b	-0.074	-0.719	-0.757	0.638	1.034 ^c	1.301 ^c
Jordan	1.183	0.415	0.783	-0.498 ^c	-0.488 ^b	-0.381	0.102	0.202	0.364 ^b	0.345 ^a
Korea	0.931	0.654	0.932	-0.194 ^c	-0.076	0.776	0.095	1.671	-0.699 ^c	0.225 ^b
Malaysia	1.179	1.079	1.287	-0.091	0.041	0.513	0.818	0.453	0.382 ^b	-0.071
Mexico	0.883	0.671	0.012	-0.355 ^c	-1.704	0.860	0.041	-0.021	-0.434 ^b	-1.723
Nigeria	0.998	0.679	1.128	-0.106	0.031	2.173	0.152	0.684	-1.995 ^c	-1.549 ^c
Pakistan	0.653	0.858	0.812	-0.128	-0.265 ^b	0.055	-0.337	0.698	-0.047	0.463 ^c
Philippines	0.703	0.869	0.746	0.029	-0.258 ^a	0.626	0.320	0.532	-0.759 ^b	-0.215
Taiwan	1.013	0.816	0.875	-0.197 ^c	-0.132 ^c	-0.291	0.892	0.512	1.154 ^c	1.012 ^c
Thailand	1.136	1.172	0.826	0.025	-0.079	-0.019	1.273	-0.316	1.375 ^c	0.262
Turkey	0.966	1.071	0.982	0.062	-0.156	0.893	-0.091	0.168	-0.955 ^c	-1.116 ^c
Venezuela	1.051	1.094	1.028	-0.058	-0.180	0.426	-0.492	-0.470	-0.748 ^b	-0.863 ^c
Zimbabwe	0.893	1.008	1.007	0.199	-0.033	0.035	0.614	0.745	0.632 ^c	0.576
Equally Wtd across Firms	0.962	0.849	0.829	-0.144 ^c	-0.236 ^c	0.258	0.214	0.665	0.018	0.199 ^a

Table VII
Standard Deviation of Returns PRE, DURING, POST, and AFTER Liberalization

Standard deviations of monthly return percentages in US dollars for the stocks in the sample. PRE liberalization refers to the 36 month period from -43 to -7 months of liberalization, DURING refers to the 12 month period from -6 months to + 5 months of liberalization, AFTER refers to the 36 month period from +6 to +41 months of liberalization, and POST refers to the 36 month period from +42 to +77 months of liberalization. The differences between periods compare the same set of firms for the two relevant periods. a, b, and c refer to significance at the 10%, 5%, and 1% levels, respectively, and are only reported for the differences in returns.

Country	Number of Stocks DURING	Standard Deviation PRE	Standard Deviation DURING	Standard Deviation POST	Standard Deviation AFTER	DURING - PRE	POST -PRE	AFTER - PRE
Argentina	24	20.478	86.872	37.536	14.436	66.422 ^c	19.309 ^b	-5.003 ^c
Brazil	66	36.585	34.614	29.716	13.820	-2.601 ^a	-5.227	-22.026 ^c
Chile	35	11.894	13.577	13.492	8.849	1.432 ^a	1.482	-3.076 ^c
Colombia	20	10.681	12.578	20.376	12.314	1.726	9.524 ^c	3.062
Greece	10	13.963	26.831	18.846	11.574	12.868 ^c	6.239 ^b	-0.925
India	62	17.071	15.416	12.668	14.436	-1.775 ^b	-4.103 ^c	-2.301 ^c
Jordan	50	7.542	5.765	7.838	7.232	-1.513 ^c	0.295	-0.439
Korea	77	10.112	12.523	11.095	22.066	2.190 ^c	1.212 ^c	9.747 ^c
Malaysia	62	16.147	9.872	12.292	14.624	-5.284 ^c	-2.619 ^b	-0.053
Mexico	52	28.714	13.807	12.196	16.598	-13.700 ^c	-16.641 ^c	-15.337 ^c
Nigeria	35	26.300	26.440	10.832	18.280	0.780	-15.353 ^c	-8.982 ^b
Pakistan	54	7.740	9.664	14.741	14.033	1.217 ^a	7.424 ^c	5.240 ^c
Philippines	30	14.115	14.675	15.811	15.110	0.764	2.954	3.288
Taiwan	64	23.364	23.433	13.007	11.346	0.147	-10.795 ^c	-12.480 ^c
Thailand	10	9.265	14.640	15.617	13.681	6.712 ^b	5.768 ^c	4.434 ^c
Turkey	18	31.617	29.662	21.614	26.847	-0.477	-9.812 ^c	-6.457 ^b
Venezuela	13	16.010	20.496	22.404	20.106	4.486 ^a	7.191 ^c	3.252 ^a
Zimbabwe	21	14.917	22.645	16.902	22.597	9.076 ^c	3.147 ^b	6.947 ^a
Equally Wtd across Firms	703	17.794	19.506	15.276	15.451	2.549 ^c	-1.600 ^b	-3.763 ^c

Table VIII
SMB and HML Premiums PRE, POST, and AFTER Liberalization

Table reports for each country, the means for the small minus big (SMB) risk premium, high minus low (HML) book to market premium and the winner minus loser (WML) premium (in panel b). The winner minus loser premium is based in the returns of six month ranking and holding periods. PRE liberalization refers to the 36 month period from -43 to -7 months of liberalization, DURING refers to the 12 month period from -6 months to + 5 months of liberalization, AFTER refers to the 36 month period from +6 to +41 months of liberalization, and POST refers to the 36 month period from +42 to +77 months of liberalization. a, b, and c refer to significance at the 10%, 5%, and 1% levels respectively.

Panel A

Country	SMB(%)					HML(%)				
	PRE	POST	AFTER	POST - PRE	AFTER - PRE	PRE	POST	AFTER	POST - PRE	AFTER - PRE
Argentina	-1.237	6.678	0.965	7.915	2.202	0.985	4.120	0.114	3.136	-0.871
Brazil	-0.347	3.884	-2.373	4.231	-2.025	3.302	9.525	-0.090	6.223	-3.393
Chile	-0.418	0.861	-0.523	1.279	-0.105	0.524	2.901	-1.263	2.377	-1.787
Colombia	-2.656	-1.645	-1.640	1.012	1.016	-1.246	-0.261	-0.583	0.985	0.663
Greece	0.810	-0.913	-0.391	-1.722	-1.201	-7.930	1.894	0.221	9.824 ^a	8.151
India	0.538	-0.906	-0.669	-1.445	-1.208	0.148	-0.187	-1.916	-0.335	-2.064
Jordan	-1.437	-1.322	0.344	0.114	1.780	1.764	-0.721	0.104	-2.485 ^c	-1.660
Korea	-0.392	0.244	-0.535	0.636	-0.143	0.370	1.498	0.313	1.128	-0.058
Malaysia	-0.563	1.112	1.618	1.675	2.181	0.110	1.329	1.862	1.219	1.752
Mexico	5.261	-1.577	-0.503	-6.838 ^c	-5.765 ^b	10.782	-1.669	0.108	-12.451 ^c	-10.674 ^b
Nigeria	1.628	0.017	-1.490	-1.611	-3.118	3.166	0.930	0.308	-2.237	-2.859
Pakistan	-0.633	-0.105	-0.052	0.529	0.581	-0.023	-0.316	-0.187	-0.294	-0.164
Philippines	-0.519	-0.757	-1.437	-0.238	-0.918	1.787	0.963	-0.563	-0.823	-2.350
Taiwan	3.500	-0.615	-0.667	-4.115	-4.168	1.183	-0.702	1.082	-1.884	-0.101
Thailand	0.008	0.289	-2.087	0.281	-2.094	-2.325	-2.121	0.245	0.204	2.570
Turkey	2.666	-0.250	1.459	-2.916	-1.207	9.470	-2.993	7.924	-12.462	-1.546
Venezuela	0.804	5.276	0.402	4.472	-0.402	2.199	3.921	0.933	1.722	-1.267
Zimbabwe	2.120	-0.647	0.889	-2.768	-1.232	3.789	0.428	2.054	-3.361	-1.735
Equally Weighted across Firms	0.507	0.534	-0.372	0.027	-0.879 ^a	1.559	1.030	0.592	-0.528	-0.966

Table VIII (Continued)
Panel B: WML Premiums PRE, POST, and AFTER Liberalization

Country	WML (%)				
	PRE	POST	AFTER	POST – PRE	AFTER - PRE
Argentina	0.101	-0.599	1.682	-0.700	1.581 ^b
Brazil	-1.550	-1.432	2.353	0.119	3.904 ^c
Chile	2.368	1.483	0.818	-0.885 ^a	-1.550 ^c
Colombia	3.685	0.628	1.128	-3.057 ^a	-2.557 ^c
Greece	2.485	2.238	1.637	-0.248	-0.848
India	0.805	0.922	1.764	0.117	0.959 ^b
Jordan	0.793	1.109	-0.008	0.316	-0.802 ^b
Korea	-0.729	-0.577	0.465	0.151	1.193 ^a
Malaysia	0.681	0.055	0.398	-0.626	-0.283
Mexico	-2.230	1.559	3.427	3.789 ^c	5.657 ^c
Nigeria	0.900	1.291	0.869	0.391	-0.030
Pakistan	1.048	0.238	0.441	-0.811 ^b	-0.608
Philippines	-0.109	1.575	1.606	1.684 ^a	1.715 ^b
Taiwan	-0.606	0.299	-0.362	0.905	0.244
Thailand	-0.502	0.114	0.800	0.616	1.302 ^a
Turkey	-1.728	3.237	-2.246	4.965 ^c	-0.518
Venezuela	0.794	-2.793	1.832	-3.587 ^c	1.039
Zimbabwe	-0.045	2.593	2.593	2.638 ^c	2.638 ^a
Equally Weighted across Firms	0.342	0.663	1.066	0.320	0.724

Table IX
Cross-sectional Regressions on the Impact of Liberalization

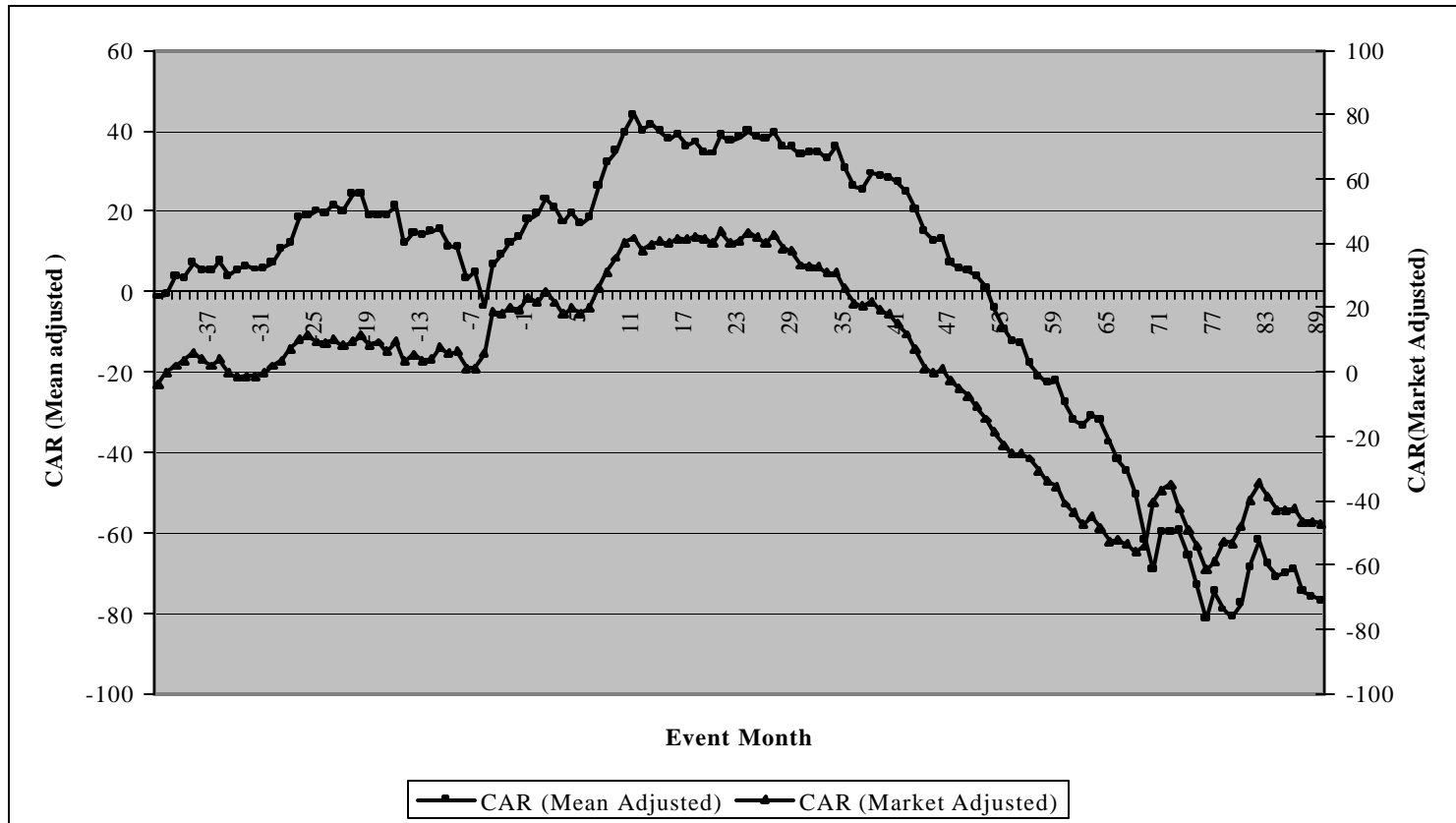
The pooled model includes a common intercept while the fixed effects model includes a dummy variable for each country (not reported). t-statistics derived from White heteroskedastic-consistent standard errors are given in parentheses. The fixed effect model is:

$$Dr_{i,j} = a_j + g(Size_{ij}) + I(Manuf_{i,j}) + h(Local\ beta_{i,j}) + d(Fx\ beta_{i,j}) + b(BTM_{i,j}) + m(DR_{i,j}) + e_{i,j}$$

where, $Dr_{i,j}$ = Change in mean return for firm i in country j for two event periods, Size is the log of the firm's equity value, the Manufacturing dummy equals one if the firm is in the manufacturing sector, local beta is the exposure to the local market index, while FX beta is exposure of the local currency against the US dollar. The DR dummy equals one for a regression if a firm issues a depositary receipt in that period, or before that period but after the PRE period. a, b, and c refer to significance at the 10%, 5%, and 1% levels, respectively.

	Returns DURING – Returns PRE		Returns POST – Returns PRE		Returns AFTER – Returns PRE	
	Pooled Regression	Fixed Effects	Pooled Regression	Fixed Effects	Pooled Regression	Fixed Effects
Size	-0.564 ^c (-2.681)	-0.503 ^b (-2.182)	-0.476 ^c (-3.272)	-0.492 ^b (-2.518)	-0.454 ^c (-3.635)	0.005 (0.029)
Manufacturing Dummy	-0.986 (-1.574)	-0.873 ^a (-1.816)	-0.677 (-1.457)	-0.318 (-0.758)	-0.628 (-1.564)	0.022 (0.066)
Local Beta	-2.130 ^b (-2.178)	-2.169 ^c (-3.307)	-3.137 ^c (-4.389)	-2.690 ^c (-3.909)	-0.970 ^b (-2.069)	-1.564 ^c (-4.026)
FX Beta	-0.496 ^b (-2.153)	-0.163 (-0.896)	0.270 (1.582)	0.334 ^b (2.263)	0.274 ^a (1.729)	0.271 ^a (1.854)
Book-to-Market	1.854 ^c (4.015)	0.514 (1.377)	0.614 ^a (1.675)	0.291 (0.859)	-0.184 (-1.003)	-0.140 (-0.993)
DR Dummy	-0.197 (-0.074)	3.027 ^b (2.063)	-0.482 (-0.446)	-0.477 (-0.553)	-1.357 ^b (-2.342)	-0.993 ^b (-2.139)
Number of Observations	540	540	523	523	438	438
Adjusted R ²	0.211	0.624	0.131	0.374	0.063	0.641

Figure 1



CARs for emerging market firms in the months around market liberalization.