Global Growth Opportunities and Market Integration

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Abstract

We exploit the intuition that price to earnings (PE) ratios should contain information about growth opportunities and countries with relatively heavy weights in high PE industries should grow relatively faster. Our results indicate that exogenous growth opportunities, measured using global price earnings ratios, are related to future changes in real GDP and investment. This relation is strongest in countries that have liberalized their capital accounts, equity markets, and banking system. Because growth opportunities should be competitively priced and exploited in globally integrated markets, this perspective provides a unique approach to test market integration. In a globally integrated world, the difference between a particular country's local PE ratio and its counterpart measured using global price earnings information should not predict the country's relative future economic growth. Conversely, the difference between a country's industrial composition and the world's, multiplied with the relevant global PE ratios, should be very informative about its future relative growth.

1 Introduction

In their classic study of 16 developed countries, Feldstein and Horioka (1980) found that domestic saving rates explain over 90% of the variation in investment rates. This result is strongly at odds with the notion of global integration: domestic savings finances domestic investment in contrast to seeking the potentially higher rate of returns with potentially lower risk in other countries. Because the Feldstein and Horioka sample ends in 1974, it does not reflect the considerable progress towards globalization in the 1970s and 1980s. However, Obstfeld and Rogoff (2000) continue to find a high correlation between domestic investment and savings for the 1990-97 period, both for the OECD countries and a group of mid-income emerging countries. This body of research suggests that investment capital does not necessarily seek the best global opportunities. In other words, there is a home bias in investment.

Home bias has been explored in many dimensions. A country is much more likely to trade within its own borders than with neighboring countries – and this is not explained by tariff barriers.[1] There is a home bias in trade. Despite uncontroversial diversification benefits, there is a strong preference for investing in domestic securities.[2] There is a home asset bias.

While the case for imperfect integration is strong when using real/quantity variables, it is more mixed when using prices and returns. For example, Harvey (1991) finds evidence that a global version of the CAPM cannot be rejected in a broad number of developed country equity returns. The model is rejected strongly for one country, Japan, in that the model could not explain the high level of Japanese equity prices in the 1980s. For emerging markets, Bekaert and Harvey (1995, 2000) provide sharp evidence against the hypothesis of global equity market integration.

While the welfare benefits from full integration may be large (see Lewis (1999)), the

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[1]See, for example, McCallum (1995) and Helliwell (1998).

[2]See, for example, French and Poterba (1991), Tesar and Werner (1995), Baxter and Jermann (1997), and Lewis (1999).

benefits of increasing globalization are being questioned.[3] We add a new perspective. While considerable attention has been paid to real quantities, such as savings, investment and trade, we attempt to directly measure the degree to which global growth opportunities are exploited.

Our research proposes a simple measure of growth opportunities in global stock markets based on relative price to earnings (PE) ratios. Price earnings ratios contain information about growth opportunities. If markets are globally integrated, we can measure a country's growth opportunities by investigating how its industry mix is priced in global capital markets using the price earnings ratios of global industry portfolios. This perspective potentially offers a number of useful economic insights.

First, for each country in the world, it permits the construction of an *exogenous* growth opportunity measure that does not use local price information. Such a measure may prove useful in numerous empirical studies seeking to avoid endogeneity problems. One example is the study by Bekaert, Harvey and Lundblad (2004), which seeks to examine the effect of equity market liberalization on growth. If countries liberalize when growth opportunities are abundant, regressions of future growth on a liberalization dummy suffer from a severe endogeneity problem. Measures of growth opportunities that use local price information are useless because they may either reflect "exogenous" growth opportunities or better growth prospects induced by the liberalization decision. A major condition for the exogenous growth opportunity measure to be useful is that it must actually predict growth. That is, countries that happen to have a high concentration of high PE industries should grow faster than average. We find that it does.

Second, the measure can be used in formal tests of market integration that bridge research on real quantities with price-based measures. When growth opportunities are competitively priced and exploited in internationally integrated markets, PE's for firms in the same industry should be equalized (barring risk differences) across countries. Consequently, under the null of market integration, the difference between a country's industry weighted PE ratio and the world PE ratio predicts future real GDP growth relative to world growth.

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[3]See, for example, Rodrik (1998) and Stiglitz (2000).

Conversely, the difference between a country's global and local PE ratio should not predict growth in excess of world growth. Finally, if financial liberalization is effective, the degree of predictability should depend on a country's level of openness. We find that countries that have liberalized their capital accounts, equity markets, or banking sectors, display a closer association between growth opportunities and future real activity.

Our measure is closely related to the literature on Tobin's Q and its proxies, particularly in the field of corporate finance. For example, Smith and Watts (1992) use the book value to market value of equity ratio as a proxy for a firm's investment opportunities. More recently, Booth et al. (2001) use the book to market ratio as a measure of investment opportunities for their study of cross-country differences in capital structure in emerging markets. Allayannis et al. (2003) use the same measure to explain variation in leverage ratios for East Asian countries. Baker, Foley and Wurgler (2004) use an investment opportunities measure to explain variation in foreign direct investment. In contrast to these papers, we construct an exogenous country-wide measure of investment opportunities that is driven by industrial composition and world industry growth opportunities.

The remainder of the paper is organized as follows. Section two motivates our growth opportunities measure using a simple present value model, details its construction, and provides some summary statistics. The third section checks whether our growth opportunity measures indeed predict growth, contrasting the predictive performance of local with global measures. The fourth section formulates and conducts our test of market integration. Some concluding remarks are offered in the final section.

2   Measuring Growth Opportunities

2.1   *Growth opportunities, market integration, and economic growth*

A simple measure of growth opportunities is the price to earnings ratio (PE). Holding a number of factors constant, higher price earnings ratios indicate high growth opportunities. Investors are willing to pay a large multiple of today's earnings for the stock price only if they believe that there will be a high rate of growth in the future. Of course, there are other

determinants of the price to earnings ratio, such as risk.

Others have proposed different proxies for growth opportunities. As cited earlier, the corporate finance literature often uses market to book value as a measure of investment opportunities. Fisman and Love (2003) and Gupta and Yuan (2004) use historical sales growth of U.S. industries as a measure of growth opportunities. In contrast to sales growth, PE has the advantage of being forward looking.

In integrated world capital markets, growth opportunities are competitively priced. This implies that a country's PE ratio for a particular industry should not significantly differ from its world counterpart. However, there are obviously different growth opportunities across industries. Hence, one source of local GDP growth relative to world GDP growth is the weighting of industries within a particular country. If a country has a large concentration in high PE (high growth opportunity) industries, then it should grow faster than the world.

To formalize this, we view each country as consisting of a set of industries that receive stochastic growth opportunities. Under full integration, all opportunities are competitively priced and exploited, so there is no country-specific growth opportunity for any industry. Let earnings growth be denoted by ea_t and let countries and industries be indexed by i and j, respectively. Assume

$$ea_{i,j,t} = GO_{w,j,t-1} + \epsilon_{i,j,t} \tag{1}$$

There is a stochastic growth opportunity for each industry j which does not depend on the country to which the industry belongs. The discount rate process for each industry is an affine function of the world discount rate, as would be true in a financially integrated market.

$$\delta_{i,j,t} = r_f(1 - \beta_{i,j}) + \beta_{i,j}\delta_{w,t} \tag{2}$$

In addition, suppose that

$$\beta_{i,j} = \beta_j. \tag{3}$$

That is, industry systematic risk is the same across integrated countries. Of course, this assumption will not hold if there are leverage differences across countries.

For quite general dynamics for δ_w and $GO_{w,j}$, but with normally distributed shocks, Appendix A shows that it is possible to derive, in closed-form, the PE ratio as an infinite

sum of exponentiated affine functions of the current realizations of the growth opportunity (with a positive sign) and the discount rate (with a negative sign).

While the resulting expression is unwieldy, it can be linearized to yield:

$$pe_{i,j,t} = \bar{a}_{i,j} + \bar{b}_{i,j}\delta_{w,t} + \bar{c}_j GO_{w,j,t} \tag{4}$$

where pe is the log PE ratio. Under full integration, $b_{i,j} = b_j$, and $\bar{c}_j$ does not depend on country i because of the assumption in equation (1). Why do certain countries grow faster than the average? In the fully integrated world, there are only two channels of growth for a particular country: luck (the error term) and an industry composition that differs from the world's. These assumptions also imply that industry PE ratios (whether in levels or logs) are similar across countries as they are determined primarily by global factors.[4]

Global industry PE ratios therefore contain the same information about industry growth opportunities in a given country as local PE ratios. As a consequence, as local and global industry PE ratios move together, the difference between them should contain no information about the country's future economic performance relative to the world economy. In contrast, this is not true when markets are not fully integrated and growth opportunities are not priced globally (but locally). That is, the link between our growth opportunities measures and future growth can lead to a test of market integration.

Let PE_i denote the vector of industry PE ratios in country i and PE_w the vector of world industry PE ratios. Similarly, define country and world industry weights by IW_i and IW_w, respectively. Combining these vectors for country i, we define local growth opportunities (LGO) and global growth opportunities (GGO):

$$LGO_{i,t} = ln[IW'_{i,t-1}PE_{i,t}] \tag{5}$$

$$GGO_{i,t} = ln[IW'_{i,t-1}PE_{w,t}] \tag{6}$$

These definitions are summarized in Table 1. In integrated markets, LGO and GGO reflect the same information and should hence both predict economic growth in country i.

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[4]There is a country-specific intercept, that comes from volatility terms, a potentially country-specific component to the discount rate etc., but the true variation in the discount rate is driven by global factors.

Furthermore, the difference between the two measures, which we call local excess growth opportunities ($LEGO$), should be constant and should therefore have no predictive power for relative economic growth. If markets are not fully integrated, though, LGO and GGO will display different temporal behavior and $LEGO$ should predict economic growth in country i in excess of world economic growth. In other words, the hypothesis of no predictability constitutes a market integration hypothesis.

If, on the other hand, we start from the hypothesis that markets are completely segmented, we would not expect that global industry PE ratios contain information about local growth opportunities. Hence, GGO should not necessarily predict economic growth in country i. Moreover, let's define the difference between GGO and the log of the world price-earnings ratio (WGO) as:

$$GEGO_{i,t} = GGO_{i,t} - WGO_t \tag{7}$$

where

$$WGO_t = ln[IW'_{w,t-1}PE_{w,t}]. \tag{8}$$

Under the null of market segmentation, $GEGO$ should not predict relative growth in country i. If the hypothesis of market segmentation is incorrect, $GEGO$ should predict economic growth in country i relative to world economic growth, because it reflects the difference between local and global industry composition. Under the above assumptions of market integration, this difference should be the only measure predicting relative growth. Predictive regressions of future relative economic growth onto $GEGO$ allow us therefore to also test the hypothesis of market segmentation. Table 1 summarizes the proposed measures of growth opportunities as well as their capability to predict economic growth under different assumptions.

2.2   *Constructing the growth opportunity measures*

We construct the measures of growth opportunities discussed above for a sample of 50 countries, listed in Appendix Table A1. The measures require price to earnings ratios for industries at the country and global level. We use monthly PE data from Datastream as the

primary source. A few countries in our sample are not covered by Datastream and we use PE ratios from Standard & Poor's Emerging Markets Data Base (IFC) instead. For Italy, Norway, Spain, and Sweden, we use PE ratios from MSCI to exploit the longer time series compared to Datastream.

In addition, we need information on a country's industry composition. We construct two alternative sets of country-specific industry weights. First, using data from IFC where available and from Datastream otherwise, we calculate the market capitalization of a country's industries relative to the country's stock market capitalization (MC). Second, we use value added data from the UNIDO Industrial Statistics Database which covers the manufacturing industries in a large number of countries. The weight of an industry in a given country is again determined by the industry-specific value added relative to the total value added (VA) by the manufacturing sector in that country.[5] To distinguish between the corresponding measures of growth opportunities, we attach the suffix (MC) to those measures that use the first set of weights and the suffix (VA) to those measures that use the second set of weights.[6]

Our tests may have low power when discount rate changes dominate the variation of the PE ratios. Therefore, we create an alternative measure by removing a 60-month moving average from the standard measure. For example, we define LGO_MA as:

$$LGO\_MA_{i,t} = LGO_{i,t} - \frac{1}{60} \sum_{s=t-60}^{t-1} LGO_{i,s} \qquad (9)$$

The relative measure is less likely to be dominated by discount rate changes, if discount rates are more persistent than growth opportunities, for which there is some empirical evidence. GGO_MA, $LEGO\_MA$, and $GEGO\_MA$ are calculated analogously.

While some of our growth opportunity measures are available at a monthly frequency from as early as January 1973 until December 2002, the starting points for measures using local PE ratios vary across the 50 countries and other macro variables are available only at an annual frequency. Therefore, we only use the December values of our growth opportunity

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[5]Appendix B details the construction of all measures of growth opportunities.

[6]In a related application, Almeida and Wolfenzon (2004) use the UNIDO weights and world industry measures of external financing needs, to construct an exogenous measure of a country's external financing needs.

measures from 1980 until 2002. In addition to the complete set of the 50 countries, we study the subset of 17 developed countries for which we are able to construct LGO and $LEGO$ for all years between 1980 and 2002. We also consider a subset of 30 emerging market countries for which the LGO and $LEGO$ time series are of varied length. Table 2 provides a summary of the construction of all the variables used in the article and the data sources.

2.3   *Comparing the growth opportunity measures*

Table 3 contains summary statistics for the main variables used in Sections 3 and 4, where we will investigate the predictive content of the different growth opportunity measures with respect to GDP growth and investment growth.

Panel A presents summary statistics for our unadjusted growth opportunity measures. The measure of local growth opportunities LGO is based on local price to earnings ratios. Not surprisingly, it exhibits substantial time-series as well as cross-sectional variation, with Israel displaying the lowest average value (1.842) over the sample period and Japan the highest (3.746). $GGO(MC)$ and $GGO(VA)$, our measures of exogenous growth opportunities, show lower volatility and less cross-sectional dispersion than LGO. When comparing the sample of developed countries to the emerging market sample, we find little difference in the means of LGO, $GGO(MC)$, $GGO(VA)$, and $LEGO$. $GEGO(MC)$ and $GEGO(VA)$ are on average higher for developed countries (0.044 vs. 0.009 and -0.004 vs. -0.064), possibly reflecting a more favorable industrial composition in developed countries. New Zealand displays the highest average value of $GEGO(MC)$ (0.219), while South Africa has the lowest average value (-0.160). With respect to $GEGO(VA)$, Singapore has the highest average value (0.036) and Trinidad and Tobago the lowest average value (-0.196).

Panel B presents correlations between the different unadjusted as well as adjusted measures of growth opportunities. In both cases, the correlation between LGO and WGO and LGO and GGO is substantially higher for the developed countries than for the emerging market countries. The correlations between $GGO(MC)$ and WGO as well as between $GGO(VA)$ and WGO are high for all countries, confirming that changes in GGO are mainly driven by changes in the global PE ratios rather than by slowly evolving industry weights. Finally,

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the correlation between our two alternative measures of exogenous growth opportunities, $GGO(MC)$ and $GGO(VA)$, is similarly high for all countries.

While developed countries should be more open than emerging countries, developed countries are also likely to have experienced increased international integration over the past 20 years. For the sample of developed countries, Figure 1 shows the evolution of the average absolute value of $LEGO$, i.e. the distance between LGO and GGO. While noisy, there appears to be a downward trend in the annual sample average, consistent with increasing market integration. Still using only observations from developed countries, we run a regression of the absolute value of $LEGO$ onto a (country-specific) constant and a time trend. We find a negative and highly significant trend coefficient (see Panel C of Table 3), confirming a reduction in the distance between LGO and GGO for our sample of developed countries.

While we expect local and global measures of growth opportunities to converge when countries become more integrated, we have no such prior with respect to $GEGO$ (the difference between GGO and the log of the world price to earnings ratio (WGO)). Figure 2 shows that for developed as well as emerging market countries the absolute value of $GEGO$ seems to have decreased over time up until about 1998.

One potential explanation is that differences in industrial composition across countries have decreased over time. To explore this further, we measure the difference between a country's industrial composition and the world's industrial composition. For each developed country, we add the absolute value of the differences between the country's industry weights and the world's industry weights for each year. Figure 3 shows the average of this measure of "industrial composition deviations" over time. This graph shows that differences between local and world industrial composition have on average decreased. For some countries this process is more pronounced. For example, the industrial composition of the Austrian economy has moved substantially closer to the world's industrial composition. On the other hand, the industrial composition of the US has changed little as it has always been close to world's industrial composition, which, given its economic weight in the world economy, is, of course, not surprising. Importantly, the graph shows that on average a country's industrial composition differs substantially from the world's industrial composition. Under the null

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of market integration, cross-sectional variation in this composition is the only factor that explains cross country growth differences.

3 Do Growth Opportunities Predict Growth?

3.1 *Econometric framework*

The first regressions we consider are

$$y_{i,t+k,k} = \alpha_{i,0} + \alpha_{i,1,t}LGO\_MA_{i,t} + \eta_{i,t+k,k} \tag{10}$$

$$y_{i,t+k,k} = \alpha_{i,0} + \alpha_{i,1,t}GGO\_MA_{i,t} + \eta_{i,t+k,k} \tag{11}$$

where $y_{i,t+k,k}$ is the k-year average growth rate of either real per capita gross domestic product or investment for country i. We follow the convention in the growth literature in employing $k = 5$ to minimize the influence of higher frequency business cycles in our sample. We maximize the time-series content of our estimates by using overlapping five-year periods.

We include a country specific fixed effect, $\alpha_{i,0}$, consistent with the model in Section 2, to capture cross-sectional heterogeneity and potentially omitted variables. Regressions (10) and (11) both verify whether our growth opportunity measures indeed predict growth. However, the *GGO*-measure should only predict growth in integrated markets. Therefore, the slope coefficient $\alpha_{i,1,t}$ is modelled as a linear function of various measures of openness, with the parameters constrained to be identical in the cross-section. We employ the pooled time-series, cross-sectional (panel) Generalized Method of Moments estimator presented in Bekaert, Harvey, and Lundblad (2001). Standard errors are constructed to account for cross-sectional heteroskedasticity and the overlapping nature of the growth shocks, $\eta_{i,t+k,k}$. This estimator looks like an instrumental variable estimator but it reduces to pooled OLS under simplifying assumptions on the weighting matrix.

3.2 *Local versus (exogenous) global growth opportunities*

We present estimates for $\alpha_{i,1,t}$ in Table 4 for each of our three samples (fixed effects are not reported) for both GDP and investment growth. In the table, we force $\alpha_{i,1,t}$ to be an

identical time-invariant constant across all countries. In Panel A, we present estimates for regression (10), which explore the extent to which reported local market PE ratios house information about country-specific growth opportunities, using both LGO and LGO_MA. Unfortunately, the time-series history on local market PE ratios is limited (see Appendix Table A1); hence, we report estimates for an unbalanced panel, maximizing the sample history for each country.

Overall, country-specific growth opportunities, as measured by local PE ratios, are informative about future economic activity. For example, the estimates for all countries suggest that, on average, a one standard deviation increase in local growth opportunities, that is an increase of 0.3541 in LGO_MA, is associated with a 15 and 55 basis point increase in annual output and investment growth, respectively. The estimated effect is somewhat more pronounced for the developed markets than the general case (all countries), but in both cases highly statistically significant.

For the emerging markets, the association is positive, but weak economically and not uniformly significant. There are many possible reasons for this apart from a true lack of predictive information. First, we have fewer data for emerging markets and they are likely of lower quality. Intriguingly, it is not only the earnings data that may be less informative, but prices themselves may provide poorer signals about future growth opportunities when markets are relatively inefficient. Second, our tests may have less power for emerging markets because other factors, such as political risk or structural changes (market reforms for instance) may be relatively more important in driving prices than growth opportunities Finally, the stock market in these countries is generally smaller and less representative of the total economy compared to developed markets.

In Table 4 (Panel B), we present evidence for regression (11) with exogenous growth opportunities. Recall that GGO and GGO_MA reflect the industrial composition, both for the market capitalization and value added measures, within each country in accordance with the growth opportunities available to those industries in the global market. In this case, we obtain estimates for a full balanced panel across all three samples. Overall the global growth opportunity measure appears to be a strong, robust, and significant predictor of future

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output and investment growth in all samples. For example, the estimates for all countries suggest that, on average, a one standard deviation increase in global growth opportunities, that is an increase of 0.1866 in GGO_MA (MV), is associated with a 27 and 74 basis point increase in annual output and investment growth, respectively. For the developed markets, the predictive power of the global measure is slightly weaker than the local measure for the level measures but stronger for the measures with a past moving average removed.

For emerging markets, the predictive power of the global measure is significantly better than the local measure, especially for investment growth. Except in the case of the GGO_MA (VA) measure, the coefficients are always statistically significantly different from zero. Consequently, even though emerging markets may be segmented from global capital markets, local price information in emerging markets does a poorer job predicting future growth opportunities than global price information. Interestingly, using value added information about industrial composition rather than the industrial composition reflected in the stock market is not helpful. Recall that Table 3, Panel B established that the two measures correlate quite highly for most emerging markets.

3.3 *The effects of financial sector openness*

Many of the countries in our sample have undergone regulatory reforms that may have implications for the ability of industries to capitalize on the growth opportunities available to them. In particular, we focus on the liberalization of the capital account, equity market, and banking sector. Countries which are closed to foreign investors typically also restrict the ability of their firms to raise capital abroad, preventing them from exploiting growth opportunities available to comparable industries in the global market. For example, an ADR issue cannot happen efficiently as long as the domestic stock market is subject to foreign ownership restrictions. Consequently, we expect growth opportunities to more strongly predict future growth in more financially open markets.

Capital account openness

The first panel in Table 5 presents estimates of the interaction between general capital

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account openness and exogenous growth opportunities in predicting future growth.[7] The relationship between growth and capital account liberalization is itself controversial. Rodrik (1998), Edison et al. (2002) claim that there is no correlation between capital account liberalization and growth prospects, whereas Edwards (2001) documents a positive relationship. Arteta, Eichengreen and Wyplosz (2003) conduct robustness experiments using different measures of openness and conclude that the relation between growth and capital account openness is fragile. We focus on our largest sample to maximize the cross-sectional variation in our various openness measures.

Our measures of capital account openness (see also Grilli and Milesi-Ferretti (1995)) are based on the IMFs Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The first is an indicator variable that takes on a value of zero if the country has at least one restriction in the restrictions on payments for the capital account transactions category. The second measure, developed by Quinn (1997) and Quinn and Toyoda (2003), attempts to measure the degree of capital account openness; the measure is scored from 0 to 4, in half integer units, with a 4 representing a fully open economy. We transform each measure into a 0 to 1 scale. The measure is available for 48 of the 50 countries in our broadest sample.

For both the IMF and Quinn based measures of capital account openness, we find that the coefficient on the interaction between GGO_MA and the associated capital account openness indicator is positive in all cases. However, the interaction coefficient is never statistically significant at the 5% level.

Equity market liberalization

In Table 5 (panel B), we explore the interaction effect between the exogenous growth opportunity measure, GGO_MA, with indicators of equity market liberalization.

Our first measure, the official equity market liberalization indicator, is based on Bekaert and Harvey's (2002) detailed chronology of important financial, economic, and political events in many developing countries. The variable takes the value of one when it is possible

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[7]In Table 5, we focus on the market capitalization based measures of exogenous growth opportunities. The evidence for the value-added measures is similar and is available upon request.

for foreign portfolio investors to own the equity of a particular country and zero otherwise. Industrialized countries, such as the United States, are assumed to be fully liberalized throughout our sample. Our second measure uses data on foreign ownership restrictions to measure the degree of equity market openness. Following Bekaert (1995) and Edison and Warnock (2003), the measure is based upon the ratio of the market capitalization of the IFC investable to the IFC global indices in each country. The IFC's global stock index seeks to represent the local stock market whereas the investable index corrects the market capitalization for foreign ownership restrictions. Hence, a ratio of one means that all of the stocks in the local market are available to foreigners. Accordingly, $\alpha_{i,1,t}$ is a linear function of either the 0/1 indicator associated with official equity market liberalization or the continuous measure on the [0,1] interval capturing the degree of equity market openness.[8]

In contrast to the evidence for general capital account liberalization presented above, the link between growth opportunities and future output and investment growth is much stronger in economies that permit a greater degree of equity investment. The interaction coefficient is always statistically significant, both for the official equity market liberalization indicator and the liberalization intensity. The constant term is still positive, but no longer significant. This evidence suggests that there is a strong association between the ability to exploit global growth opportunities and the degree of foreign investor access to the domestic equity market.

Banking openness

Finally, in Panel C of Table 5, we introduce a 0/1 indicator variable that captures periods when foreign banks are allowed to enter the domestic market either through the establishment of branches or subsidiaries or through the acquisition of local banks. Using a variety of sources (in particular National Treatment Study, Fitch Ratings Country Reports, and interviews with local regulatory bodies), we have been able to determine important regulatory changes affecting foreign banks in 41 of our 50 countries over the past 23 years. The regression involving this new indicator reflects therefore a slightly smaller sample. The foreign

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[8]As a robustness check, we included year fixed effects. These indicator variables are not significant and do not alter the conclusions. These results are available on request.

banking liberalization indicator is equal to zero before and equal to one during and after the year of banking liberalization. Different from recent studies that have explored the effect of the presence of foreign banks onto the efficiency and stability of the local banking sector (e.g. Claessens, Demirgüç-Kunt, and Huizinga (2001)), our indicator variable is related to the regulatory environment foreign banks face with respect to establishing or expanding their operations in a local market. Unless foreign banks are allowed to enter a local market, we consider a country as closed with respect to foreign banks, even if some foreign banks are already present in that country. We also construct a first sign indicator that changes from zero to one when a country takes a substantial first steps to improve access for foreign banks. Table A4 in the Appendix lists the year of the banking liberalization for all 41 countries.

Similar to the equity market liberalization effect, there is a strong association between growth predictability and openness to foreign banks. The interaction coefficients between both of the banking liberalization indicators and growth opportunities are always positive and statistically significant. This evidence suggests a possible link between the opening of the banking sector to foreign banks and the ability to exploit exogenous growth opportunities.

4   Growth Opportunities and Market Integration

4.1   *Econometric framework*

In Table 4, we presented evidence that exogenous growth opportunities predict future output and investment growth. Table 5 shows that the degree of predictability increases with equity market and banking sector openness. In this section, we link this predictability to tests of market integration. First, we explore whether the differential between local and exogenous growth opportunities predicts future growth in excess of world growth. Under full market integration, this should not be the case. That is, we test the null of market integration. Second, we explore whether the differential between exogenous and world average growth opportunities predicts future growth. In integrated market, countries that contain high (low) PE industries should growth at a faster (slower) rate than the rest of the world. In other words, we test the null of market segmentation. Lastly, we explore what factors contribute

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to the ability of countries to take advantage of global growth opportunities. In particular, we investigate interaction effects between excess exogenous growth opportunities and capital account, equity market, and banking sector openness and liberalization.

To explore these questions, the regressions we consider are

$$y_{i,t+k,k} - y_{w,t+k,k} \quad = \quad \alpha_{i,0} + \alpha_{1,t}LEGO\_MA_{i,t} + \eta_{i,t+k,k} \qquad (12)$$

$$y_{i,t+k,k} - y_{w,t+k,k} \quad = \quad \alpha_{i,0} + \alpha_{1,t}GEGO\_MA_{i,t} + \eta_{i,t+k,k} \qquad (13)$$

where $y_{i,t+k,k} - y_{w,t+k,k}$ is the k-year average growth rate of either real per capita gross domestic product or investment for country i in excess of the "world" counterpart. $LEGO\_MA_{i,t}$ ($= LGO\_MA_{i,t} - GGO\_MA_{i,t}$) is the difference between local and exogenous growth opportunities, and $GEGO\_MA_{i,t}$ ($= GGO\_MA_{i,t} - WGO\_MA_t$) is the difference between exogenous growth opportunities and the growth opportunities measure for the world market. As before, the reported standard errors account for cross-sectional heteroskedasticity and the overlapping nature of the growth shocks.

4.2 *Tests of market integration and segmentation*

We first present results constraining $\alpha_{1,t}$ in equations (12) and (13) to be time-invariant constants.

4.2.1 *The null of market integration*

In integrated markets, (risk-adjusted) differences between local and exogenous growth opportunities should contain no information about future growth. We present results for regression (12) in Table 6 (Panel A). As before, the estimates for all countries and the emerging markets are obtained for an unbalanced panel (maximizing data availability). For these two samples, the observed relationship between local excess growth opportunities and excess output is not significant. The weak to insignificant predictive effects may be due to the limited time-series availability of local market PE ratios.

In sharp contrast, the predictive effects of local excess growth opportunities are statistically significant for the developed markets for which we have a full balanced sample.

This evidence suggests that, at least for this collection of countries, information contained in country-specific growth opportunities, as measured by the difference between local and exogenous PE ratios, is informative about future growth. Hence, one interpretation of this finding is that we *reject* the null hypothesis of market integration for the developed markets. Here, our tests confirm the extant results on real quantity variables regarding market integration, not the results obtained using price information, which are typically favorable for the market integration hypothesis.

Because the local growth opportunity measure has little predictive power for economic growth in emerging markets (see Table 4), our test results for emerging markets should not be interpreted as being in favor of market integration. In general, the main challenge we face in exploring market integration using local price earnings ratios is the limited sample that is available for inference. In the next section, however, we explore market integration in a different manner by evaluating the sources for country specific growth in excess of the world. The key advantage of this methodology is that we obtain a full time series across all countries as we require only global price information. Hence, these tests should have more power.

4.2.2 *The null of market segmentation*

In Table 6 (Panel B), we present evidence for the alternative regression (13) using *exogenous* growth opportunities in excess of their world counterpart.

In this regression, we explore the degree to which country-specific industrial composition (relative to the world) predicts *excess* output and investment growth (relative to the world). If a country has an industrial base tilted towards high PE industries in the global market it should grow faster than the world average. That is, integrated countries can only grow faster than the world through an industrial composition geared towards high growth opportunities.

We start the discussion with the emerging markets. None of the coefficients are significant, and some are even negative. Hence, we fail to reject the null of market segmentation for emerging countries. Consequently, even though we found strong predictive power of exogenous growth opportunities in the last section, these countries are, on average, not exploiting

the growth opportunities available to their particular industrial mix. This result suggests that linking the predictability to the degree of openness across these markets may be fruitful, and we will do so in section 4.3. For developed markets (and the results are similar for all countries combined), the coefficients are robustly positive, but we only reject the null of market segmentation in some cases, mostly for investment growth. It is possible that we obtain more powerful tests by taking financial openness into account.

4.3 *Exogenous growth opportunities and openness*

We now re-estimate regressions (12) and (13), employing a collection of alternative openness measures as interaction variables in $\alpha_{i,1,t}$. For this section, we focus on our largest sample of 50 countries in order to maximize both the cross-sectional and time-series information in our sample. Our conjecture is that more open economies should be better poised to exploit global growth opportunities.

Table 7 presents estimates of the interaction for both $LEGO$ (left-hand side) and $GEGO$ (right-hand side) measures. The three panels correspond to different measures of openness as in Table 5. We start the discussion with the $LEGO$ measure. Here, we expect the interaction effect to be negative. $LEGO$ should not predict growth or investment when markets are fully integrated. The interaction effect is always negative for both of our capital account openness measures (Panel A) and for the banking openness measures (Panel C). This is true for both investment and output growth, but only the investment growth results are statistically significant. Also, for investment growth, the constant term and the interaction term are of about the same magnitude and the constant term is significantly positive. Hence, for open countries $LEGO$ does not predict relative growth, but for segmented countries it does. For the equity liberalization measure, there are no significant coefficients, and some coefficients have the wrong sign.

For the $GEGO$ measure, we expect the interaction effect to be positive. $GEGO$ should predict relative growth for relative open countries, but should not predict relative growth for segmented countries. The results are definitely qualitatively consistent with this hypothesis. The constant terms in all three panels are not statistically different from zero. The

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interaction effects are invariably positive, again with stronger effects for investment growth. Unfortunately, the coefficients often fail to be statistically significant. We only find statistical significance for the equity market liberalization indicators in the growth regressions and for the First Sign banking sector liberalization indicator for both GDP and investment growth.

Nevertheless, the results go some way to help resolve the seemingly contradictory results in Table 6. For the developed markets, we rejected market integration, yet other tests suggested a rejection of market segmentation. For our largest sample, the evidence presented in Table 7 points towards (at least for some of our tests) a greater likelihood of market integration for countries with varying degrees of openness. Such a mixed outcome is consistent with partial or time-varying integration where the ability to capitalize on world growth opportunities depends critically on country-specific factors. Our results show that our various measures of openness help differentiate countries along this dimension, but we are likely still omitting important factors.

5 Conclusions

An important contribution of this article is the proposal of a simple measure of local growth opportunities based on price to earnings (PE) ratios set in global stock markets. To do so, we combine information about a country's industrial composition and the growth opportunities contained in global prices that each of these industries face. Importantly, we find that this measure of *exogenous* growth opportunities predicts future output and investment growth, and that the degree of predictability is positively associated with several measure of openness.

Next, we formulated a test of market integration based on the idea that if these growth opportunities are indeed globally priced and exploited, the difference between local and global price-earnings ratios should not predict the relative growth performance of a country. We present evidence that suggests a rejection of this hypothesis for developed countries but the test lacks power for a wider sample of countries. Conversely, in integrated markets, the difference in industrial composition relative to the world multiplied with world price earnings ratios should be a main driver of relative growth, as it should be the countries with the high

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PE ratio industries that capture the highest growth rates. Even though we have more data for this test, we find mixed evidence on the test of the null of market segmentation. For emerging markets, we fail to reject the null of market segmentation.

Of course, in reality the degree of integration varies across countries and across time. To allow for the possibility of a time-varying, country-specific ability to exploit global growth opportunities, we interact our measure of excess global growth opportunities with a number of measures capturing varying degrees of openness such as capital account, equity market, and banking sector liberalizations. Importantly, we find evidence that suggests a greater likelihood of market integration in more open economies; however, the evidence is not entirely uniform across openness measures and the relevant coefficients are not always statistically significant.

In future work, we plan to more accurately measure the variation in the degree of integration over time and its effect on the ability to exploit growth opportunities. For example, every additional country opening its capital markets (allowing both inward and outward investment) should enhance the overall ability to exploit global growth opportunities.

Of course, there is a large list of factors that may effectively segment or help integrate countries into the world economy. We have started to investigate measures of economic integration (trade openness), financial development, financing constraints (see the work of Rajan and Zingales (1998)) and corporate governance, political risk, the quality of local institutions, etc. We also have started to investigate whether international capital in the form of FDI and portfolio flows indeed "follows" growth opportunities. Finally, we want to more fully characterize how much of the cross-sectional differences in economic growth can be attributed to simple differences in industrial composition and industry-specific growth opportunities.

6   Appendix A: Price-Earnings Ratios and Growth Opportunities

We consider a simple present value model under the null of financial market integration. We begin by defining log earnings growth, $ea_t = \ln(\frac{EA_t}{EA_{t-1}})$ with EA_t the earnings level, in country i, industry j as:

$$ea_{i,j,t} = \gamma_{i,j}GO_{w,j,t-1} + \epsilon_{i,j,t} \tag{14}$$

Earnings growth is affected by world-wide growth opportunities in industry j, defined as $GO_{w,j,t}$ and an idiosyncratic noise term which we assume to be $N(0, \sigma_{i,j}^2)$. Growth opportunities themselves follow a persistent stochastic process:

$$GO_{w,j,t} = \mu_j + \varphi_j GO_{w,j,t-1} + \epsilon_{w,j,t} \tag{15}$$

We assume $\epsilon_{w,j,t} \sim N(0, \sigma_{i,j}^2)$. Because of market integration, the discount rate for each industry in each country is simply a multiple of the world discount rate:

$$\delta_{i,j,t} = r_f(1 - \beta_{i,j}) + \beta_{i,j}\delta_{w,t} \tag{16}$$

The constant term, with r_f equal to the risk free rate, arises because the discount rates are *total* not *excess* discount rates. An equation like (16) would follow from a logarithmic version of the standard world CAPM. The world discount rate process follows:

$$\delta_{w,t} = d_w + \phi_w \delta_{w,t-1} + \eta_{w,t} \tag{17}$$

with $\eta_{w,t} \sim N(0, s_w^2)$. An important assumption is that under the null of market integration, industries in different countries face the same discount rate; that is,

$$\beta_{i,j} = \beta_j. \tag{18}$$

Suppose that each industry pays out all earnings, EA_t, each period, then the valuation of the industry under (14)-(17) is:

$$V_{i,j,t} = E_t[\sum_{k=1}^{\infty} exp(-\sum_{l=0}^{k-1} \delta_{i,j,t+l})EA_{i,j,t+k}] \tag{19}$$

Because we model earnings growth as in equation (14), the earnings process is non-stationary. We must scale the current valuation by earnings, and impose a transversality condition to obtain a solution:

$$
\begin{aligned}
PE_{i,j,t} = \frac{V_{i,j,t}}{EA_{i,j,t}} &= E_t[\sum_{k=1}^{\infty} exp(\sum_{l=0}^{k-1} -\delta_{i,j,t+l} + ea_{i,j,t+1+l})] \\
&= \sum_{k=1}^{\infty} Q_{i,j,k,t}
\end{aligned} \tag{20}
$$

Note that for $k = 1$,

$$
\begin{aligned}
Q_{i,j,1,t} &= E_t[exp(-\delta_{i,j,t} + ea_{i,j,t+1})] \\
&= exp(-\beta_{i,j}\delta_{w,t} + \gamma_{i,j}GO_{w,j,t} - \frac{1}{2}\sigma_{i,j}^2)
\end{aligned} \tag{21}
$$

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Consequently, we conjecture

$$Q_{i,j,k,t} = exp(a_{i,j,k} + b_{i,j,k}\delta_{w,t} + c_{i,j,k}GO_{w,j,t}) \tag{22}$$

Although a full closed-form solution can be found, for our purposes it suffices to characterize the recursive equations describing the $a_{i,j,k}$, $b_{i,j,k}$, and $c_{i,j,k}$ coefficients.

$$
\begin{aligned}
Q_{i,j,k+1,t} &= E_t[exp(\sum_{l=0}^{k} -\delta_{i,j,t+l} + ea_{i,j,t+1+l})] \\
&= E_t[exp(-\delta_{i,j,t} + ea_{i,j,t+1}) \cdot exp(\sum_{l=0}^{k-1} -\delta_{i,j,t+1+l} + ea_{i,j,t+2+l})] \\
&= E_t[exp(-\delta_{i,j,t} + ea_{i,j,t+1} + a_{i,j,k} + b_{i,j,k}\delta_{w,t+1} + c_{i,j,k}GO_{w,j,t+1})] \quad (23)
\end{aligned}
$$

Consequently,

$$
\begin{aligned}
&exp(a_{i,j,k+1} + b_{i,j,k+1}\delta_{w,t} + c_{i,j,k+1}GO_{w,j,t}) \\
&= exp\{a_{i,j,k} + b_{i,j,k}d_w + c_{i,j,k}\mu_j - r_f(1 - \beta_{i,j}) - \tfrac{1}{2}(\sigma_{i,j}^2 + b_{i,j,k}^2 s_w^2 + c_{i,j,k}^2 \sigma_{w,j}^2) \\
&\quad + (\gamma_{i,j} + c_{i,j,k}\varphi_j)GO_{w,j,t} + (-\beta_{i,j} + b_{i,j,k}\phi_w)\delta_{w,t}\}
\end{aligned} \tag{24}
$$

Hence, matching coefficients, we find:

$$a_{i,j,k+1} = a_{i,j,k} - r_f(1 - \beta_{i,j}) + b_{i,j,k}d_w + c_{i,j,k}\mu_j - \frac{1}{2}(\sigma_{i,j}^2 + b_{i,j,k}^2 s_w^2 + c_{i,j,k}^2 \sigma_{w,j}^2) \tag{25}$$

$$b_{i,j,k+1} = -\beta_{i,j} + b_{i,j,k}\phi_w \tag{26}$$

$$c_{i,j,k+1} = \gamma_{i,j} + c_{i,j,k}\varphi_j \tag{27}$$

$$\tag{28}$$

Because of the assumption (18), we can write $b_{i,j,k+1} = b_{j,k+1}$. Also, the country dependence in growth opportunities hinges entirely on $\gamma_{i,j}$. We assume that in a fully integrated world

$$\gamma_{i,j} = \gamma_j = 1. \tag{29}$$

That is, earnings growth in a particular industry should not depend on the country in which the industry is located. If that is the case, is it logical to assume that γ_j is 1 because growth opportunities are industry specific. Bringing everything together, we find that the price earnings ratio for a particular industry in a particular country can be written as:

$$PE_{i,j,t} = \sum_{k=1}^{\infty} exp(a_{i,j,k} + b_{j,k}\delta_{w,t} + c_{j,k}GO_{w,j,t}) \tag{30}$$

An improvement in growth opportunities revises price earnings ratios for the industry upward everywhere in the world, and the change in the PE-ratio is larger when $GO_{w,j,t}$ is more persistent. Similarly, a reduction in the world discount rate increases the PE-ratio with the magnitude of the response depending upon the persistence of the discount rate process and the beta of the industry. Equation (30) can be linearized around the mean values for $\delta_{w,t}$ and $GO_{w,j,t}$ leading to the expression in the text (equation (4)).

7 Appendix B: Constructing Measures of Growth Opportunities

In Section 2 we show how local and global industry PE ratios can be combined to obtain country-specific measures of growth opportunities. In particular, we define LGO, growth opportunities implied by local industry PE ratios, and GGO, growth opportunities implied by global industry PE ratios as well as two measures of growth opportunities in excess of world growth opportunities, $LEGO = LGO - GGO$ and $GEGO = GGO - WGO$. WGO is a measure of world growth opportunities. While the definition of our measures is straightforward, a number of issues arise in the actual construction of the measures. Here we discuss in detail how we construct these measures.

Local Growth Opportunities LGO as defined in (5) is the log of the market price to earnings ratio of a given country. We collect price to earnings ratios from Datastream for the last day of each month. Thirteen of our 50 countries are not covered by Datastream and we use price to earnings ratios from IFC instead. For Italy, Norway, Spain, and Sweden, we use data from MSCI to exploit the longer time series compared to Datastream. In a few cases, we encounter negative price to earnings ratios. We replace those by the maximum price to earnings ratio observed up to that point. The latter is in no case larger than 100. Table A1 reports for each country which data are used to construct LGO and in which month the coverage begins.

World Growth Opportunities WGO as defined in (8) is the log of the price to earnings ratio of the world market. The world market price to earnings ratio for the last of each month is collected from January 1973 until December 2002 from Datastream.

Exogenous Global Growth Opportunities GGO as defined in (6) is the log of the inner product of the vector of global industry PE ratios and the vector of lagged country-specific industry weights. We collect global industry PE ratios for the last of each month from January 1973 until December 2002 from Datastream. Datastream uses the FTSE industry classification, with 35 industrial sectors (level 3 in Datastream) and 101 industry sub-sectors (level 5 in Datastream) (excluding the "Investment Entities" sector).[9] The country-specific industry weights are derived from the industry's relative market capitalization (MC) and alternatively from the industry's relative value added (VA).

We obtain country-specific industry **market capitalizations** as of December 31 of each year from Datastream and IFC. Due to the generally longer time series, we use IFC data where available and Datastream data otherwise. For 21 countries we use the market values of the 35 industrial sectors reported by Datastream. Whenever a country is added to Datastream after 1973, we use the earliest available observation for the previous years without observations. For these 21 countries, combining the 35 monthly global industry PE ratios with the 35 annual industry weights of the previous year is straightforward.[10]

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[9]See "FTSE Global Classification System", available at http://www.ftse.com.

[10]If t = May 1985, $IW_{i,t-1}$ will reflect the industrial composition as of December 31, 1984. The only exceptions to this rule are 1973, where the industry weights are as of December 31, 1973, and cases where the Datastream country coverage starts after 1973.

For the remaining 29 countries in our sample, we use market values of the 82 SIC groups reported by IFC. Starting in 1975, we again use the earliest available observation for all previous years with missing observations. For 1973 and 1974, we use the same values as for 1975, when IFC coverage begins. For 2001, we use the values reported for 2000, thus keeping the industry structure constant between 2000 and 2001. In contrast to the case where we use Datastream market values, we cannot immediately multiply the IFC based industry weights with the global industry PE ratios from Datastream, as the two industry classifications are different. We therefore link the two classification schemes with the aim of obtaining global PE ratios for each SIC group. Table A2 shows the matrix linking the 82 SIC groups to the 101 Datastream sub-sectors. Whenever more than one Datastream sub-sector is included in an SIC group, we calculate the weighted average of the PE ratios of the entering sub-sectors using the sub-sectors' market values as of December 31 of the same year.[11] After these transformations, the vector of global industry PE ratios and the country-specific vector of lagged industry weights are conformable and the derivation of $GGO(MC)$ can proceed.[12]

As an alternative to the market capitalization weights, we also derive industry weights from an industry's relative **value added**. We obtain annual value added data for up to 28 manufacturing industries from the UNIDO Industrial Statistics Database starting in 1973. Since the UNIDO database contains information only on the manufacturing sector, industry weights are calculated relative to the value added of the manufacturing sector. We again use the earliest available observation for all previous years with missing observations. For 1999 to 2001, we use the values reported for 1998, thus keeping the industry structure constant between 1998 and 2001. We again have to link the ISIC industry classification used by UNIDO to the 101 Datastream sub-sectors to obtain a conformable vector of industry PE ratios. Table A3 shows the matrix linking the 28 manufacturing industries covered by UNIDO to the 101 Datastream sub-sectors. Whenever more than one Datastream sub-sector is included in an ISIC group, we calculate the weighted average of the PE ratios of the entering sub-sectors using the sub-sectors' market values as of December 31 of the same year. Finally, we obtain $GGO(VA)$ by combining the vector of industry weights of the previous year with the derived vector of PE ratios.[13]

Table A1 shows for each country whether Datastream of IFC market values are used to derive market capitalization based industry weights. It also gives the first year for which market values are reported and for which we obtain value added information from the UNIDO

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[11]For the sub-sector "Mortgage Finance" we replace the PE ratio between December 1981 and February 1983 by the PE ratio of the industrial sector "Spc. and Other Finance" (after adjusting its level appropriately), as the original PE ratio takes on extreme values of up to 1976.

[12]If $t = $ May 1985, $IW_{i,t-1}$ will reflect the industrial composition as of December 31, 1984. The only exceptions to this rule are the years 1973 through 1975, where the industry weights are as of December 31, 1975, cases where IFC country coverage starts after 1975, and values for 2001 where the industry weights are as of December 31, 2000.

[13]If $t = $ May 1985, $IW_{i,t-1}$ will reflect the industrial composition as of December 31, 1984. The only exceptions to this rule are cases where UNIDO country coverage starts after 1973, and values for 1999 through 2001 where the industry weights are same as in 1998.

database.

Measures of Excess Growth Opportunities For the construction of $LEGO$ we use $GGO(MC)$. We construct $GEGO(MC)$ by subtracting WGO from $GGO(MC)$. When constructing $GEGO(VA)$, we adjust WGO so that it only contains manufacturing industries.

Moving Average Correction By subtracting a 60-month moving average from each original series we obtain adjusted series which we denote by the extension "$\_MA$". For example, LGO_MA is calculated as:

$$LGO\_MA_{i,t} = LGO_{i,t} - \frac{1}{60} \sum_{s=t-60}^{t-1} LGO_{i,s} \tag{31}$$

$GGO\_MA(MC)$,$GGO\_MA(VA)$, $LEGO\_MA$, $GEGO\_MA(MC)$ and $GEGO\_MA(VA)$ are

calculated analogously.

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Figure 1: Sample Average of Abs. Value of LEGO (■):
Developed Countries
1980-2002
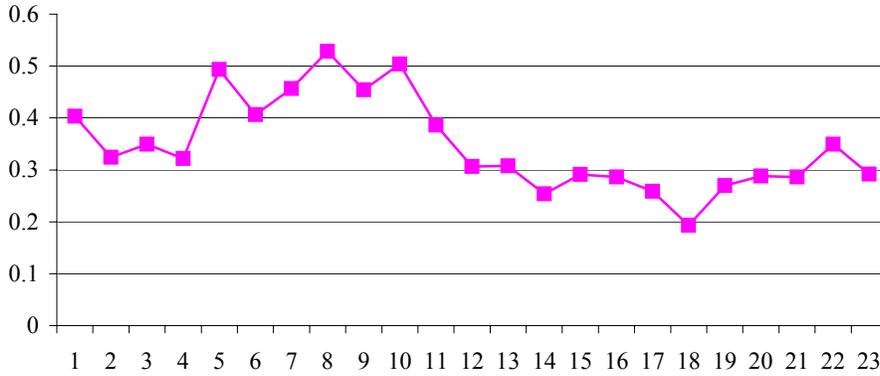
The graph shows the cross-sectional average of the December value of the absolute value of LEGO for each year between 1980 and 2002.

Figure 2: Sample Average of Absolute Value of GEGO (MC):
Developed Countries (■), Emerging Countries (▲) 1980-2002
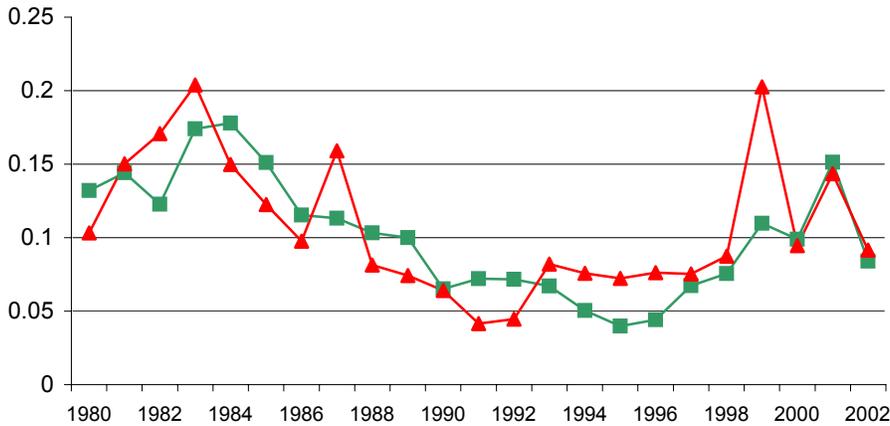
For each sample, the graph shows the cross-sectional average of the absolute value of GEGO (MC) for each year between 1980 and 2002.

Figure 3: Absolute Difference btw. Local and Global Industry
Weights: Developed Countries (▲), Austria (●), USA (■) -
1980 - 2002
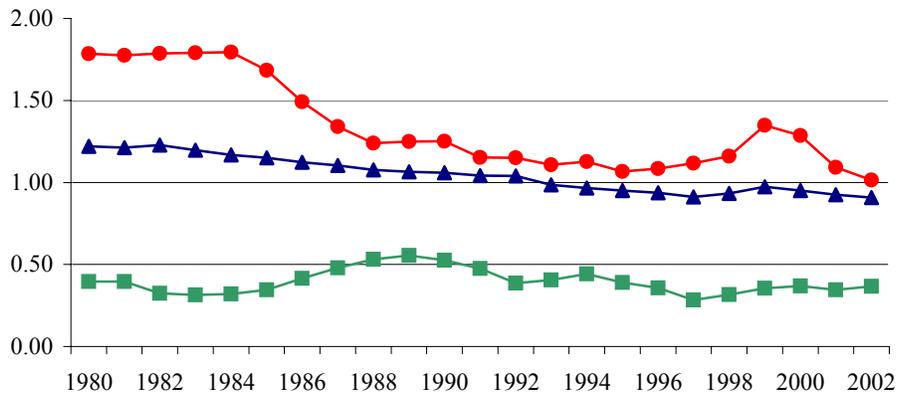
For each country, the absolute value of the differences between the country-specific
industry weights (based on relative market capitalization) and the world industry weights
are added across all industries each year. For the sample of developed countries, the
graph shows the average value across countries.

Table 1

Predictive Power of Growth Opportunity Measures in Integrated and Segmented Markets

	Predicting Economic Growth	
Definition	*Market Integration*	*Market Segmentation*
LGO is a local measure of country-specific growth opportunities. LGO is the weighted sum of a country's industry PE ratios. The weights are the relative capitalization of industries within the country. It is expressed in logs.	LGO **predicts** economic growth independently from the degree of market integration.	
GGO is a global measure of growth opportunities, i.e. country specific growth opportunities implied by the global market. GGO is the weighted sum of global industry PE ratios. The weights are the relative market capitalization (MC) or relative value added (VA) of industries in the country. It is expressed in logs.	GGO **predicts** economic growth, since LGO and GGO move closely together.	GGO does **not predict** economic growth, since global prices are not relevant for local markets.
LEGO is a local measure of country-specific growth opportunities in excess of world growth opportunities. LEGO is the difference between LGO and GGO.	LEGO does **not predict** economic growth since it is zero or constant.	LEGO **predicts** economic growth in excess of world economic growth. Local and global prices contain different information.
GEGO is a global measure of country-specific growth opportunities in excess of world growth opportunities. GEGO is the difference between GGO and the log of the world market PE ratio (WGO). GEGO is different from zero when a country's industry composition differs from the world's industry composition.	GEGO **predicts** economic growth in excess of world economic growth. Differences in industry composition are the only factors leading to differences in economic growth.	GEGO does **not predict** economic growth, since global prices are not relevant for local markets.

For each growth opportunity measure we state its ability to predict economic growth under the two opposing assumptions of market integration and segmentation.

Table 2
Description of the Variables
All data are employed at the annual frequency.

Variable	Description
LGO and LGO_MA	LGO and LGO_MA are local measures of country-specific growth opportunities. LGO is the log of a country's market PE ratio. LGO_MA is LGO less a 60-month moving average. For a subset of 17 developed countries, both variables are available from 1980 through 2002. For the other countries, starting points vary. For details see Appendix B. Source: *Datastream, S&P Emerging Markets Data Base, MSCI.*
GGO and GGO_MA	GGO and GGO_MA are global measures of country-specific growth opportunities. GGO is the log of the inner product of the vector of global industry PE ratios and the vector of country-specific industry weights. Country-specific industry weights are the relative market capitalization (MC) or the relative value added (VA) of the industries in a country. GGO_MA is GGO less a 60-month moving average. Available for all 50 countries from 1980 through 2002. See Appendix B for details. Source: *Datastream, S&P Emerging Markets Data Base, UNIDO Industrial Statistics Database*
LEGO and LEGO_MA	LEGO and LEGO_MA are local measures of country-specific growth opportunities in excess of world growth opportunities. LEGO is the difference between LGO and GGO. LEGO_MA is LEGO less a 60-month moving average. For sample II (17 countries) both variables are available from 1980 through 2002. For other countries, starting points vary. See Appendix B for details. Source: *Datastream, S&P Emerging Markets Data Base, MSCI.*
GEGO and GEGO_MA	GEGO and GEGO_MA are global measures of country-specific growth opportunities in excess of world growth opportunities. GEGO is the difference between GGO and WGO, the log of the world market price to earnings ratio. GEGO_MA is GEGO less a 60-month moving average. Available for all 50 countries from 1980 through 2002. See Appendix B for details. Source: *Datastream, S&P Emerging Markets Data Base, UNIDO Industrial Statistics Database*
Gross domestic product (GDP) growth	Growth of real per capita gross domestic product. Available for all countries from 1980 through 2002. Source: *World Bank Development Indicators* CD-ROM.
Investment growth	Growth of real per capita gross fixed capital formation, which includes land improvements (fences, ditches, drains, and so on), plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Available for all countries from 1980 through 2002. Source: *World Bank Development Indicators* CD-ROM.
	Measures of Openness
IMF Capital account liberalization indicator	We measure capital account openness by employing the the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). This publication reports six categories of information. The capital account liberalization indicator takes on value of zero if the country has at least one restriction in the "restrictions on payments for the capital account transaction" category.
Quinn Capital account liberalization indicator	Quinn's capital account openness measure is also created from the text of the annual volume published by the International Monetary Fund (IMF), *Exchange Arrangements and Exchange Restrictions*. Rather than the indicator constructed by the IMF that takes a 1 if any restriction is in place, Quinn's openness measure is scored 0-4, in half integer units, with 4 representing a fully open economy. The measure hence facilitates a more nuanced view of capital account openness, and is available for 48 countries in our study. We transform each measure into a 0 to 1 scale.

Table 2
(Continued)

Variable	Description
Official equity market liberalization indicator	Corresponding to a date of formal regulatory change after which foreign investors officially have the opportunity to invest in domestic equity securities. Official Liberalization dates are based on Bekaert and Harvey (2002) *A Chronology of Important Financial, Economic and Political Events in Emerging Markets,* http://www.duke.edu/~charvey/chronology.htm. This chronology is based on over 50 different source materials. A condensed version of the chronology, along with the selection of dates for a number of countries appears in Bekaert and Harvey (2000). We have extended their official liberalization dates to include Japan, New Zealand, and Spain. For the liberalizing countries, the associated official liberalization indicator takes a value of one when the equity market is officially liberalized and thereafter, and zero otherwise. For the remaining countries, fully segmented countries are assumed to have an indicator value of zero, and fully liberalized countries are assumed to have an indicator value of one. These dates appear in Appendix Table A4.
Intensity equity market liberalization indicator	Following Bekaert (1995) and Edison and Warnock (2003), the intensity measure is based on the ratio of the market capitalization of the constituent firms comprising the IFC Investable index to those that comprise the IFC Global index for each country. The IFC Global index, subject to some exclusion restrictions, is designed to represent the overall market portfolio for each country, whereas the IFC Investable index is designed to represent a portfolio of domestic equities that are available to foreign investors. A ratio of one means that all of the stocks are available to foreign investors. We denote this measure: *Intensity A* . We also explore a related measure, *Intensity B,* by calculating the ratio of the number of firms in the investable and global indices for each country. In both cases, fully segmented countries have an intensity measure of zero, and fully liberalized countries have an intensity measure of one.
Foreign banking liberalization indicator	Using a variety of sources (e.g. National Treatment Study, FitchRatings Country Reports, interviews with local regulatory bodies) we determine when foreign banks gain access to the domestic banking market through the establishment of branches or subsidiaries or through the acquisition of local banks. The Foreign banking liberalization indicator is equal to zero before and equal to one during and after the year of banking liberalization. We also construct a First Sign indicator that changes from zero to one when a country takes substantial first steps to improve access for foreign banks. Both indicator variables are available for 41 countries. Banking liberalization dates appear in Appendix Table A4.

Table 3 - Panel A

Summary Statistics: LGO, GGO, LEGO, and GEGO

1980 - 2002 - Annual Frequency

Country			Mean						Standard Deviation					
			LGO	GGO (MC)	GGO (VA)	LEGO	GEGO (MC)	GEGO (VA)	LGO	GGO (MC)	GGO (VA)	LEGO	GEGO (MC)	GEGO (VA)
Sample	Country	Code												
World	World	-	2.902	-	-	-	-	-	0.298	-	-	-	-	-
I	Sample I: All Countries	-	2.720	2.932	3.016	-0.339	0.030	-0.041	0.583	0.295	0.245	0.522	0.150	0.104
II	Sample II: Developed	-	2.794	2.945	3.052	-0.208	0.044	-0.004	0.518	0.288	0.253	0.369	0.128	0.061
III	Sample III: Emerging	-	2.601	2.911	2.993	-0.494	0.009	-0.064	0.617	0.298	0.238	0.599	0.152	0.119
I, III	Argentina	ARG	2.979	2.911	2.973	-0.142	0.010	-0.084	0.796	0.348	0.232	0.850	0.076	0.053
I, II	Australia	AUS	2.695	2.899	3.036	-0.203	-0.003	-0.021	0.341	0.315	0.239	0.200	0.091	0.060
I, II	Austria	AUT	2.838	2.905	3.074	-0.068	0.004	0.018	0.253	0.229	0.254	0.320	0.151	0.029
I, III	Bangladesh	BGD	2.470	3.031	3.004	-0.651	0.129	-0.052	0.682	0.165	0.167	0.711	0.189	0.179
I, II	Belgium	BEL	2.513	2.940	3.042	-0.428	0.039	-0.014	0.303	0.222	0.246	0.182	0.164	0.070
I, III	Brazil	BRA	2.206	2.821	3.037	-0.963	-0.081	-0.019	0.072	0.412	0.260	0.338	0.140	0.110
I, II	Canada	CAN	2.756	2.963	3.017	-0.207	0.061	-0.039	0.312	0.305	0.244	0.200	0.116	0.041
I, III	Chile	CHL	2.680	2.900	3.029	-0.381	-0.002	-0.027	0.463	0.285	0.287	0.418	0.079	0.179
I, III	Colombia	COL	2.109	2.847	2.998	-0.858	-0.055	-0.058	0.567	0.248	0.224	0.555	0.101	0.077
I, III	Cote d'Ivoire	CIV	1.986	2.903	2.923	-1.152	0.002	-0.133	0.347	0.325	0.225	0.395	0.095	0.094
I, II	Denmark	DNK	2.722	3.059	3.023	-0.338	0.158	-0.034	0.438	0.234	0.252	0.377	0.096	0.062
I, III	Egypt	EGY	2.209	2.973	3.023	-0.885	0.072	-0.034	0.377	0.221	0.197	0.418	0.145	0.127
I	Finland	FIN	2.626	3.077	3.044	-0.628	0.175	-0.013	0.569	0.376	0.284	0.415	0.234	0.056
I, II	France	FRA	2.563	2.928	3.029	-0.366	0.027	-0.028	0.323	0.305	0.245	0.127	0.069	0.020
I, II	Germany	DEU	2.811	2.912	3.059	-0.101	0.011	0.002	0.242	0.275	0.260	0.211	0.053	0.018
I, III	Greece	GRC	2.629	2.921	3.030	-0.446	0.019	-0.026	0.403	0.347	0.201	0.314	0.112	0.082
I, III	India	IND	2.663	3.110	3.080	-0.530	0.208	0.023	0.623	0.248	0.231	0.613	0.155	0.123
I, III	Indonesia	IDN	2.740	3.002	3.036	-0.352	0.100	-0.020	0.376	0.236	0.258	0.373	0.144	0.064
I, II	Ireland	IRL	2.473	2.913	3.057	-0.440	0.011	0.001	0.429	0.270	0.287	0.258	0.120	0.114
I, III	Israel	ISR	1.842	2.972	3.073	-1.333	0.071	0.017	1.053	0.298	0.249	1.172	0.074	0.058
I	Italy	ITA	3.193	2.908	3.072	0.180	0.007	0.016	0.752	0.277	0.235	0.710	0.075	0.051
I, III	Jamaica	JAM	1.918	2.905	2.942	-1.221	0.004	-0.115	0.251	0.345	0.291	0.456	0.089	0.154
I, II	Japan	JPN	3.746	3.021	3.090	0.724	0.120	0.034	0.382	0.254	0.255	0.218	0.091	0.016
I, III	Jordan	JOR	2.651	2.819	2.891	-0.329	-0.082	-0.165	0.245	0.335	0.242	0.256	0.150	0.082
I, III	Kenya	KEN	2.735	2.823	2.971	-0.107	-0.079	-0.085	1.634	0.228	0.219	1.716	0.152	0.088
I, III	Korea, South	KOR	2.814	3.068	3.076	-0.382	0.166	0.020	0.464	0.282	0.247	0.460	0.124	0.046
I, III	Malaysia	MYS	2.985	2.910	3.047	-0.065	0.009	-0.009	0.306	0.291	0.285	0.268	0.079	0.071
I, III	Mexico	MEX	2.538	2.924	3.038	-0.605	0.023	-0.018	0.113	0.348	0.241	0.252	0.117	0.083
I, III	Morocco	MAR	2.671	2.992	2.972	-0.296	0.091	-0.085	0.294	0.180	0.165	0.192	0.238	0.123
I, II	Netherlands	NLD	2.539	2.947	3.037	-0.407	0.045	-0.020	0.438	0.217	0.247	0.257	0.131	0.022
I	New Zealand	NZL	2.648	3.121	3.017	-0.488	0.219	-0.039	0.316	0.179	0.245	0.245	0.230	0.072
I, III	Nigeria	NGA	2.134	2.884	2.997	-0.899	-0.017	-0.060	0.362	0.296	0.211	0.377	0.050	0.115
I, II	Norway	NOR	2.578	2.855	3.035	-0.277	-0.047	-0.022	0.616	0.340	0.246	0.499	0.091	0.063
I, III	Pakistan	PAK	2.529	2.942	2.985	-0.552	0.040	-0.071	0.547	0.322	0.212	0.547	0.107	0.130
I, III	Philippines	PHL	2.840	2.862	2.985	-0.209	-0.040	-0.071	0.417	0.352	0.248	0.365	0.079	0.073
I, III	Portugal	PRT	2.803	2.908	3.008	-0.223	0.006	-0.049	0.287	0.276	0.193	0.277	0.087	0.092
I, II	Singapore	SGP	2.983	3.003	3.092	-0.020	0.102	0.036	0.248	0.316	0.309	0.374	0.085	0.098
I, II, III	South Africa	ZAF	2.470	2.741	3.044	-0.271	-0.160	-0.012	0.372	0.342	0.244	0.181	0.141	0.071
I	Spain	ESP	2.630	2.836	3.030	-0.206	-0.065	-0.027	0.368	0.325	0.227	0.318	0.105	0.043
I, III	Sri Lanka	LKA	2.402	2.862	2.860	-0.583	-0.039	-0.196	0.508	0.222	0.238	0.530	0.104	0.129
I, II	Sweden	SWE	2.733	3.041	3.062	-0.308	0.139	0.006	0.507	0.277	0.265	0.298	0.096	0.036
I, II	Switzerland	CHE	2.691	3.005	3.092	-0.313	0.103	0.035	0.311	0.278	0.268	0.220	0.094	0.072
I, III	Thailand	THA	2.684	2.899	2.990	-0.339	-0.002	-0.066	0.507	0.293	0.216	0.487	0.091	0.114
I, III	Trinidad and Tobago	TTO	2.686	2.796	2.860	-0.186	-0.105	-0.196	0.142	0.287	0.285	0.217	0.139	0.118
I, III	Tunisia	TUN	2.536	2.851	2.953	-0.392	-0.050	-0.103	0.358	0.238	0.215	0.434	0.175	0.134
I, III	Turkey	TUR	2.708	2.990	2.987	-0.304	0.089	-0.070	0.516	0.271	0.241	0.481	0.261	0.092
I, II	United Kingdom	GBR	2.638	2.959	3.042	-0.321	0.057	-0.014	0.336	0.263	0.242	0.148	0.056	0.023
I, II	United States	USA	2.777	2.976	3.053	-0.200	0.075	-0.003	0.393	0.345	0.261	0.136	0.094	0.042
I, III	Venezuela	VEN	2.823	2.899	2.928	-0.217	-0.002	-0.128	0.354	0.275	0.260	0.411	0.097	0.095
I, III	Zimbabwe	ZWE	1.927	2.852	3.039	-1.078	-0.049	-0.018	0.519	0.321	0.220	0.505	0.130	0.086

LGO is the log of the country's market price to earnings ratio. Data are not available for all years. See Appendix B for details. GGO (MC) is the log of the product of country-specific industry weights (reflecting the industry's relative market capitalization) and global industry PE ratios. GGO (VA) is the log of the product of country-specific industry weights (reflecting the industry's relative value added) and global industry PE ratios. Data are available for all years. LEGO is LGO - GGO. GEGO (MC) is GGO (MC) - WGO. GEGO (VA) is GGO (VA) - WGO. WGO is the log of the world market PE ratio. I, II, and III refer to samples of all 50, 17 developed, and 30 emerging economies. World refers to the global stock market index as covered by Datastream.

Table 3 - Panel B

Summary Statistics: Correlations between Measures of Growth Opportunities

1980 - 2002 - Annual Frequency

Country		Growth Opportunities						Growth Opportunities with MA-Adjustment					
Sample	Code	LGO, WGO	LGO, GGO (MC)	LGO, GGO (VA)	GGO (MC), WGO	GGO (VA), WGO	GGO (MC), GGO (VA)	LGO, WGO	LGO, GGO (MC)	LGO, GGO (VA)	GGO (MC), WGO	GGO (VA), WGO	GGO (MC), GGO (VA)
World	-	-	-	-	-	-	-	-	-	-	-	-	-
I	-	0.252	0.298	0.317	0.870	0.805	0.782	0.273	0.323	0.320	0.857	0.743	0.735
II	-	0.498	0.560	0.514	0.903	0.853	0.822	0.484	0.545	0.492	0.882	0.757	0.772
III	-	0.097	0.103	0.097	0.866	0.779	0.764	0.048	0.117	0.119	0.852	0.737	0.725
I, III	ARG	-0.177	-0.140	-0.096	0.984	0.906	0.906	-0.047	0.046	0.061	0.960	0.824	0.793
I, II	AUS	0.800	0.818	0.698	0.957	0.806	0.886	0.518	0.622	0.543	0.887	0.702	0.834
I, II	AUT	0.018	0.121	-0.021	0.868	0.831	0.737	0.048	0.013	0.028	0.812	0.756	0.674
I, III	BGD	-0.218	-0.097	0.316	0.816	0.593	0.817	-	-	-	0.828	0.756	0.893
I, II	BEL	0.837	0.802	0.750	0.840	0.837	0.839	0.770	0.749	0.572	0.856	0.787	0.806
I, III	BRA	-0.734	-0.662	-0.745	0.974	0.703	0.650	-	-	-	0.902	0.698	0.599
I, II	CAN	0.694	0.791	0.874	0.926	0.834	0.949	0.379	0.647	0.806	0.856	0.698	0.914
I, III	CHL	0.325	0.436	0.566	0.965	0.542	0.617	0.148	0.190	0.510	0.888	0.546	0.714
I, III	COL	-0.051	0.205	0.178	0.948	0.926	0.922	-0.658	-0.863	-0.733	0.904	0.856	0.857
I, III	CIV	0.207	0.061	0.384	0.957	0.872	0.863	-	-	-	0.877	0.684	0.626
I, II	DNK	0.609	0.511	0.612	0.963	0.945	0.876	0.210	0.145	0.227	0.953	0.857	0.767
I, III	EGY	0.651	-0.089	0.698	0.885	0.743	0.823	-	-	-	0.843	0.771	0.847
I	FIN	0.722	0.654	0.587	0.782	0.856	0.854	0.790	0.570	0.526	0.593	0.719	0.774
I, II	FRA	0.852	0.920	0.859	0.974	0.894	0.915	0.745	0.860	0.721	0.944	0.798	0.870
I, II	DEU	0.625	0.675	0.741	0.986	0.880	0.908	0.663	0.740	0.775	0.966	0.788	0.844
I, III	GRC	0.620	0.640	0.450	0.951	0.823	0.780	0.860	0.920	0.787	0.892	0.788	0.640
I, III	IND	0.286	0.219	0.301	0.855	0.624	0.889	0.331	0.548	0.645	0.844	0.706	0.933
I, III	IDN	0.121	0.282	-0.006	0.878	0.807	0.901	-0.084	-0.001	-0.054	0.909	0.718	0.896
I, II	IRL	0.907	0.823	0.901	0.915	0.943	0.812	0.713	0.676	0.691	0.863	0.897	0.712
I, III	ISR	-0.230	-0.603	-0.442	0.969	0.903	0.919	-0.704	-0.717	-0.585	0.937	0.824	0.815
I	ITA	0.328	0.364	0.495	0.969	0.801	0.793	0.309	0.327	0.556	0.934	0.754	0.745
I, III	JAM	-0.924	-0.911	-0.670	0.972	0.701	0.682	-	-	-	0.921	0.689	0.608
I, II	JPN	0.896	0.841	0.719	0.958	0.848	0.934	0.787	0.692	0.535	0.932	0.763	0.912
I, III	JOR	0.453	0.258	0.522	0.894	0.924	0.791	0.180	0.287	0.384	0.832	0.815	0.591
I, III	KEN	-0.617	-0.813	-0.691	0.866	0.952	0.802	-	-	-	0.882	0.868	0.772
I, III	KOR	0.371	0.244	0.389	0.910	0.821	0.850	0.685	0.755	0.764	0.797	0.762	0.822
I, III	MYS	0.158	0.486	0.006	0.965	0.869	0.802	0.406	0.649	0.564	0.931	0.764	0.688
I, III	MEX	-0.113	0.041	-0.445	0.946	0.742	0.717	-0.130	-0.134	-0.509	0.885	0.695	0.769
I, III	MAR	0.646	0.889	0.713	0.601	0.834	0.772	1.000	1.000	1.000	0.804	0.814	0.801
I, II	NLD	0.910	0.909	0.832	0.917	0.892	0.858	0.772	0.858	0.604	0.854	0.793	0.709
I	NZL	0.595	0.643	0.800	0.635	0.905	0.716	0.518	0.635	0.599	0.755	0.778	0.838
I, III	NGA	0.181	0.064	0.028	0.986	0.939	0.935	-0.343	-0.376	-0.329	0.957	0.874	0.852
I, II	NOR	0.600	0.589	0.653	0.968	0.788	0.813	0.352	0.309	0.357	0.918	0.645	0.705
I, III	PAK	0.288	0.211	0.324	0.943	0.764	0.674	0.185	0.057	0.440	0.897	0.791	0.750
I, III	PHL	0.389	0.512	0.485	0.984	0.859	0.842	0.211	0.379	0.320	0.936	0.715	0.654
I, III	PRT	0.410	0.330	0.122	0.957	0.795	0.810	0.284	0.202	0.004	0.917	0.787	0.788
I, II	SGP	0.119	0.138	0.139	0.964	0.924	0.865	0.556	0.463	0.663	0.944	0.852	0.794
I, II, III	ZAF	0.738	0.874	0.651	0.913	0.776	0.787	0.484	0.838	0.518	0.730	0.734	0.788
I	ESP	0.642	0.586	0.403	0.947	0.828	0.734	0.710	0.653	0.614	0.892	0.740	0.526
I, III	LKA	-0.283	-0.010	-0.278	0.961	0.965	0.952	-0.776	-0.873	-0.909	0.931	0.835	0.833
I, II	SWE	0.754	0.872	0.880	0.947	0.830	0.917	0.499	0.748	0.785	0.911	0.700	0.863
I, II	CHE	0.732	0.727	0.454	0.948	0.757	0.650	0.358	0.455	0.075	0.854	0.695	0.457
I, III	THA	0.394	0.259	0.440	0.953	0.919	0.897	0.453	0.414	0.471	0.913	0.819	0.808
I, III	TTO	-0.215	-0.123	-0.258	0.888	0.923	0.770	-	-	-	0.876	0.789	0.628
I, III	TUN	-0.049	-0.490	0.077	0.808	0.636	0.494	-	-	-	0.750	0.711	0.424
I, III	TUR	0.156	0.365	0.306	0.581	0.797	0.875	-0.217	0.203	0.161	0.688	0.773	0.903
I, II	GBR	0.903	0.906	0.853	0.987	0.895	0.907	0.753	0.775	0.708	0.966	0.797	0.816
I, II	USA	0.862	0.940	0.851	0.968	0.895	0.919	0.634	0.747	0.653	0.959	0.784	0.821
I, III	VEN	-0.040	-0.135	0.011	0.946	0.814	0.770	-0.234	-0.302	-0.320	0.917	0.767	0.676
I, III	ZWE	0.203	0.244	-0.072	0.915	0.833	0.816	0.042	0.271	0.136	0.764	0.784	0.736

For a definiton of the different measures for growth opportunities, LGO, WGO, GGO (MC), and GGO (VA), please see Panel A. Growth opportunities with MA-Adjustment are LGO, WGO, GGO(MC), and GGO (VA) less a 60-month moving average.

Table 3 - Panel C
Market Integration over Time
Developed Countries 1980-2002

	Absolute Value of LEGO	
	without F.E.	with F.E.
Time Trend	-0.0076	-0.0076
Std. error	*0.0018*	*0.0015*

This sample consists of 17 developed countries. The absolue value of LEGO (MC) measures the distance between local (LGO) and global growth opportunities (GGO (MC)). We regress the absolute value of LEGO (MC) on a time trend and a constant (column "without F.E.") as well as on a time trend and country dummies (column "with F.E."). We report only the coefficient on the time trend. Standard errors are corrected for cross-sectional heteroskedasticity.

Table 4
Growth Predictability
Annual Average Real GDP and Investment Growth (Five-year horizon)
1980-2002

Panel A: Local Growth Opportunities

	GDP growth (5-year)			Investment growth (5-year)		
	All Countries	Developed	Emerging	All Countries	Developed	Emerging
LGO	0.0026	0.0072	0.0017	0.0071	0.0256	0.0001
Std. error	*0.0004*	*0.0013*	*0.0006*	*0.0017*	*0.0044*	*0.0042*
LGO_MA	0.0043	0.0097	0.0040	0.0154	0.0279	0.0118
Std. error	*0.0001*	*0.0018*	*0.0125*	*0.0040*	*0.0062*	*0.0075*

Panel B: Exogenous (Implied) Global Growth Opportunities

	GDP growth (5-year)			Investment growth (5-year)		
	All Countries	Developed	Emerging	All Countries	Developed	Emerging
GGO (MC)	0.0070	0.0033	0.0131	0.0408	0.0211	0.0704
Std. error	*0.0019*	*0.0026*	*0.0026*	*0.0060*	*0.0085*	*0.0080*
GGO_MA (MC)	0.0142	0.0163	0.0106	0.0397	0.0489	0.0223
Std. error	*0.0023*	*0.0031*	*0.0035*	*0.0071*	*0.0102*	*0.0112*
GGO (VA)	0.0081	0.0061	0.0117	0.0347	0.0252	0.0552
Std. error	*0.0017*	*0.0023*	*0.0027*	*0.0055*	*0.0072*	*0.0089*
GGO_MA (VA)	0.0101	0.0114	0.0056	0.0235	0.0345	0.0052
Std. error	*0.0018*	*0.0024*	*0.0030*	*0.0056*	*0.0075*	*0.0088*

The samples included reflect 50 (all), 17 (developed), and 30 (emerging) countries detailed in the data appendix. The dependent variables are either the 5-year average growth rate of real per capita gross domestic product or investment. We include in the regressions, but do not report, fixed effects. We report the coefficient on the lagged growth opportunities measure. In Panel A, we measure local growth opportunities. For the full sample and the emerging markets, these regressions are unbalanced based on data availability. In Panel B, we measure exogenous growth opportunities. The weighting matrix we employ in our GMM estimation provides a correction for cross-sectional heteroskedasticity. All standard errors account for the overlapping nature of the data.

Table 5

Exogenous Growth Opportunities and Openness

Annual Average Real GDP and Investment Growth (Five-year horizon)
50 countries: 1980-2002

Panel A: Capital Account Openness	GDP	Investment	**Panel B: Equity Market Openness**	GDP	Investment	**Panel C: Banking Sector Openness**	GDP	Investment
GGO_MA (MC)	0.0123	0.0325	GGO_MA (MC)	0.0061	0.0143	GGO_MA (MC)	0.0074	0.0171
Std. error	*0.0029*	*0.0084*	*Std. error*	*0.0037*	*0.0120*	*Std. error*	*0.0042*	*0.0116*
GGO_MA (MC)*Capital Account Openness (IMF)	0.0032	0.0183	GGO_MA (MC)*Official Equity Market Liberalization	0.0122	0.0372	GGO_MA (MC)*Banking Sector Liberalization	0.0118	0.0419
Std. error	*0.0044*	*0.0137*	*Std. error*	*0.0044*	*0.0141*	*Std. error*	*0.0048*	*0.0145*
GGO_MA (MC)	0.0060	0.0167	GGO_MA (MC)	0.0063	0.0118	GGO_MA (MC)	0.0072	0.0071
Std. error	*0.0053*	*0.0171*	*Std. error*	*0.0037*	*0.0113*	*Std. error*	*0.0049*	*0.0130*
GGO_MA (MC)*Capital Account Degree of Openness (Quinn)	0.0105	0.0343	GGO_MA (MC)*Equity Market Degree of Openness	0.0127	0.0439	GGO_MA (MC)*Banking Sector Liberalization (First Sign)	0.0107	0.0475
Std. error	*0.0074*	*0.0242*	*Std. error*	*0.0045*	*0.0142*	*Std. error*	*0.0053*	*0.0147*

The sample includes 50 developed and emerging countries detailed in the data appendix. The dependent variables are either the 5-year average growth rate of real per capita gross domestic product or investment. We include in the regressions, but do not report, fixed effects. We measure exogenous growth opportunities as GGO_MA, where (MC) refers to the market capitalization based industry weights. We report the coefficient on the growth opportunities measure and interaction terms with 1) a 0/1 indicator of capital account openness from the IMF, 2) a continuous measure of the degree of capital account openness from Quinn (only 48 countries are available), 3) official equity market liberalization from Bekaert, Harvey and Lundblad (2004), 4) the degree of equity market openness (investability), and 5) two indicators of banking sector liberalalization -- opening the banking sector to foreign banks (give data limitations, this regression covers only 41 countries). The weighting matrix we employ in our GMM estimation provides a correction for cross-sectional heteroskedasticity. All standard errors account for the overlapping nature of the data.

Table 6

Exploiting Growth Opportunities

Annual Average Excess Real GDP and Investment Growth (Five-year horizon)
1980-2002

Panel A: Local vs. Implied Global Growth Opportunities

	Excess GDP growth (5-year)				Excess Investment growth (5-year)		
	All Countries	Developed	Emerging		All Countries	Developed	Emerging
LEGO	0.0011	0.0099	-0.0004		0.0002	0.0255	-0.0011
Std. error	*0.0018*	*0.0014*	*0.0009*		*0.0060*	*0.0046*	*0.0046*
LEGO_MA	0.0006	0.0063	-0.0017		0.0050	0.0114	0.0066
Std. error	*0.0007*	*0.0016*	*0.0013*		*0.0034*	*0.0053*	*0.0090*

Panel B: Excess Exogenous (Implied) Global Growth Opportunities

	Excess GDP growth (5-year)				Excess Investment growth (5-year)		
	All Countries	Developed	Emerging		All Countries	Developed	Emerging
GEGO (MC)	0.0021	0.0039	-0.0004		0.0151	0.0246	-0.0066
Std. error	*0.0027*	*0.0038*	*0.0042*		*0.0080*	*0.0105*	*0.0139*
GEGO_MA (MC)	0.0064	0.0075	0.0007		0.0192	0.0225	0.0076
Std. error	*0.0032*	*0.0045*	*0.0055*		*0.0091*	*0.0121*	*0.0164*
GEGO (VA)	0.0081	0.0140	-0.0035		0.0138	0.0435	-0.0082
Std. error	*0.0050*	*0.0100*	*0.0061*		*0.0162*	*0.0319*	*0.0196*
GEGO_MA (VA)	0.0077	0.0181	-0.0011		0.0334	0.0530	0.0156
Std. error	*0.0051*	*0.0098*	*0.0063*		*0.0164*	*0.0310*	*0.0204*

The samples included reflect 50 (all), 17 (developed), and 30 (emerging) countries detailed in the data appendix. The dependent variables are either the 5-year average growth rate of real per capita gross domestic product or investment in excess of the total world counterpart. We include in the regressions, but do not report, fixed effects. In Panel A, we measure excess local growth opportunities as LEGO, the difference between local and exogenous growth opportunities (LGO-GGO). For the full sample and the emerging markets, these regressions are unbalanced based on data availability. In Panel B, we measure excess exogenous growth opportunities as GEGO, the difference between exogenous and total world growth opportunities (GGO-WGO). We report the coefficient on the lagged growth opportunities measure. The weighting matrix we employ in our GMM estimation provides a correction for cross-sectional heteroskedasticity. All standard errors account for the overlapping nature of the data.

Table 7
Exploiting Growth Opportunities and Market Integration
Annual Average Excess Real GDP and Investment Growth (Five-year horizon)
Sample I (50 countries): 1980-2002

Panel A: Capital Account Openness

	GDP	Investment		GDP	Investment
LEGO_MA	0.0019	0.0160	GEGO_MA (MC)	0.0032	0.0044
Std. error	*0.0013*	*0.0033*	*Std. error*	*0.0041*	*0.0124*
LEGO_MA (MC)*Capital Account			GEGO_MA (MC)*Capital Account		
Openness (IMF)	-0.0019	-0.0189	Openness (IMF)	0.0080	0.0324
Std. error	*0.0016*	*0.0056*	*Std. error*	*0.0065*	*0.0183*
LEGO_MA	0.0056	0.0502	GEGO_MA (MC)	-0.0051	-0.0153
Std. error	0.0034	0.0146	*Std. error*	*0.0086*	*0.0275*
LEGO_MA (MC)*Capital Account			GEGO_MA (MC)*Capital Account		
Degree of Openness (Quinn)	-0.0051	-0.0530	Degree of Openness (Quinn)	0.0181	0.0481
Std. error	0.0039	0.0174	*Std. error*	*0.0122*	*0.0363*

Panel B: Equity Market Openness

	GDP	Investment		GDP	Investment
LEGO_MA	-0.0029	-0.0165	GEGO_MA (MC)	-0.0059	-0.0001
Std. error	*0.0081*	*0.0248*	*Std. error*	*0.0058*	*0.0177*
LEGO_MA (MC)*Official Equity			GEGO_MA (MC)*Official Equity		
Market Liberalization	0.0040	0.0227	Market Liberalization	0.0196	0.0278
Std. error	*0.0082*	*0.0250*	*Std. error*	*0.0069*	*0.0206*
LEGO_MA	-0.0003	0.0194	GEGO_MA (MC)	-0.0029	-0.0035
Std. error	*0.0033*	*0.0147*	*Std. error*	*0.0060*	*0.0203*
LEGO_MA (MC)*Equity Market			GEGO_MA (MC)*Equity Market		
Degree of Openness	0.0015	-0.0158	Degree of Openness	0.0160	0.0319
Std. error	*0.0036*	*0.0156*	*Std. error*	*0.0074*	*0.0242*

Panel C: Banking Sector Openness

	GDP	Investment		GDP	Investment
LEGO_MA	0.0023	0.0172	GEGO_MA (MC)	0.0005	0.0031
Std. error	*0.0020*	*0.0107*	*Std. error*	*0.0065*	*0.0172*
LEGO_MA (MC)*Banking Sector			GEGO_MA (MC)*Banking Sector		
Liberalization	-0.0009	-0.0182	Liberalization	0.0121	0.0252
Std. error	*0.0023*	*0.0040*	*Std. error*	*0.0075*	*0.0208*
LEGO_MA	0.0028	0.0342	GEGO_MA (MC)	-0.0088	-0.0286
Std. error	*0.0038*	*0.0121*	*Std. error*	*0.0076*	*0.0200*
LEGO_MA (MC)*Banking Sector			GEGO_MA (MC)*Banking Sector		
Liberalization (First Sign)	-0.0007	-0.0294	Liberalization (First Sign)	0.0221	0.0616
Std. error	*0.0040*	*0.0127*	*Std. error*	*0.0084*	*0.0227*

This sample includes 50 developed and emerging countries detailed in the data appendix. The dependent variables are either the 5-year average growth rate of real per capita gross domestic product or investment in excess of the total world counterpart. We include in the regressions, but do not report, fixed effects. We measure excess exogenous growth opportunities as GEGO_MA, the difference between exogenous and total world growth opportunities (GGO_MA-WGO_MA). We report the coefficient on the growth opportunities measure and interaction terms with 1) a 0/1 indicator of capital account openness from the IMF, 2) a continuous measure of the degree of capital account openness from Quinn (only 48 countries are available), 3) official equity market liberalization from Bekaert, Harvey and Lundblad (2004), 4) the degree of equity market openness (investability), and 5) two indicators of banking sector liberalalization -- opening the banking sector to foreign banks (give data limitations, this regression covers only 41 countries). The weighting matrix we employ in our GMM estimation provides a correction for cross-sectional heteroskedasticity. All standard errors account for the overlapping nature of the data.

Appendix Table A1
Sample Composition and Data Sources

Sample Composition			LGO: Sources and Availability of PE			GGO: Sources and Availability of Industry Weights (IW)		
Sample	Country	Code	Datastream: available since	IFC: available since	MSCI: available since	Datastream: Annual IW start in	IFC: Annual IW start in	UNIDO: Annual IW start in
-	World	-	Jan-73			-	-	-
I, III	Argentina	ARG	Jul-91				1984	1983
I, II	Australia	AUS	Jan-73			1973		1973
I, II	Austria	AUT	Jan-73			1973		1973
I, III	Bangladesh	BGD		Jan-96			1996	1973
I, II	Belgium	BEL	Jan-73			1973		1973
I, III	Brazil	BRA	May-99				1983	1990
I, II	Canada	CAN	Jan-73			1973		1973
I, III	Chile	CHL	Jul-89				1975	1973
I, III	Colombia	COL	Feb-93				1984	1973
I, III	Cote d'Ivoire	CIV		Jan-96			1996	1973
I, II	Denmark	DNK	Jan-73			1973		1973
I, III	Egypt	EGY		Jan-96			1996	1973
I	Finland	FIN	Mar-88			1988		1973
I, II	France	FRA	Jan-73			1973		1973
I, II	Germany	DEU	Jan-73			1973		1973
I, III	Greece	GRC	Jan-90				1975	1973
I, III	India	IND	Jan-90				1975	1973
I, III	Indonesia	IDN	Jan-91				1989	1973
I, II	Ireland	IRL	Jan-73			1973		1973
I, III	Israel	ISR	Jan-93				1997	1973
I	Italy	ITA			Apr-84	1973		1973
I, III	Jamaica	JAM		Jan-96			1996	1973
I, II	Japan	JPN	Jan-73			1973		1973
I, III	Jordan	JOR		Jul-86			1979	1973
I, III	Kenya	KEN		Jan-96			1996	1973
I, III	Korea, South	KOR	Jan-88				1975	1973
I, III	Malaysia	MYS	Jan-86				1984	1973
I, III	Mexico	MEX	Jul-90				1975	1973
I, III	Morocco	MAR		Jan-96			1996	1973
I, II	Netherlands	NLD	Jan-73			1973		1973
I	New Zealand	NZL	Jan-88			1988		1973
I, III	Nigeria	NGA		Sep-86			1984	1973
I, II	Norway	NOR			Jan-73	1980		1973
I, III	Pakistan	PAK		Apr-86			1984	1973
I, III	Philippines	PHL	Sep-87				1984	1973
I, III	Portugal	PRT	Jan-90				1986	1973
I, II	Singapore	SGP	Jan-73			1973		1973
I, II, III	South Africa	ZAF	Jan-73			1992		1973
I	Spain	ESP			Jan-80	1987		1973
I, III	Sri Lanka	LKA		Jan-93			1992	1973
I, II	Sweden	SWE			Jan-73	1982		1973
I, II	Switzerland	CHE	Jan-73			1973		1986
I, III	Thailand	THA	Jan-87				1976	1973
I, III	Trinidad and Tobago	TTO		Jan-96			1996	1973
I, III	Tunisia	TUN		Jan-96			1996	1973
I, III	Turkey	TUR	Apr-90				1986	1973
I, II	United Kingdom	GBR	Jan-73			1973		1973
I, II	United States	USA	Jan-73			1973		1973
I, III	Venezuela	VEN	Mar-92				1984	1973
I, III	Zimbabwe	ZWE		Jan-86			1975	1973

For the construction of LGO, market PE ratios from Datastream (preferred source), IFC, and MSCI are used. The table shows which source is used and the first month for which data are available. For the construction of GGO (MC), industry weights (IW) are obtained from IFC (preferred source) and Datastream. The table reports which source is used and since which year market values are available. For the construction of GGO (VA), industry weights (IW) are obtained from UNIDO Industrial Statistics Database. The table reports which source is used and since which year market values are available.

SIC Groups and Datastream (Level 5) Sub-Sectors

Datastream (Level 5) Sub-Sectors

The column headers (Datastream Level 5 Sub-Sectors), in order, are: Aerospace, Airlines & Airports, Asset Managers, Auto Parts, Automobiles, Banks, Biotechnology, Building & Construction Material, Builders Merchants, Brewers, Business Support Services, Chemicals, Commodity, Chemicals, Advanced Materials, Chemicals, Speciality, Clothing & Footwear, Computer Services, Consumer Electronics, Consumer Finance, Commercial Vehicles, Computer Hardware, Defense, Delivery Services, Distillers & Vintners, Diversified Industrials, Discount & Superstores & Warehouses, Vehicle Distribution, Education, Training, Electricity, Electrical Equipment, Electronic Equipment, Engineering Contractors, Engineering Fabricators, Engineering General, Retailers e-commerce, Food Processors, Food & Drug Retailers, Farming & Fishing, Forestry, Furnishings & Floor coverings, Gambling, Gas Distribution, Gold Mining, Household Appliances & Housewares, Retailers, Hardlines, Health Maintenance Organisations, Hospital Management, Hotels, House Building, Household Products, Insurance Brokers, Insurance Non-Life, Internet, Investment Banks, Investment Companies, Leisure Facilities, Life Assurance, Leisure Equipment, Media Agencies, Medical Equipment & Supplies, Mining Finance, Other Mineral Extractors, Other Financial, Mortgage Finance, Multi-Utilities, Non-Ferrous Metals, Oil & Gas Exploration & Production, Oil Integrated, Oil Services, Other Construction, Other Health Care, Other Insurance, Paper, Photography, Pharmaceuticals, Personal Products, Property Agencies, Publishing & Printing, Reinsurance, Real Estate Investment Trusts, Restaurants & Pubs, Real Estate Development, Rail, Road & Freight, Security & Alarm, Semiconductors, Shipping & Ports, Soft Drinks, Retailers-Soft Goods, Software, Steel, Subscription Entertainment Netw., Telecom Equipment, Telecom Fixed Line, Telecom Wireless, Textiles & Leather, Tobacco, Transaction & Payroll Services, Television, Radio & Filmed Entertainment, Tyres & Rubber, Environmental Control, Water.

SIC	SIC Industry Group	Number of DS Sub-Sectors per SIC Group
01	Agricultural Production Crops	1
02	Agricultural Production Livestock And Animal Specialties	1
07	Agricultural Services	1
08	Forestry	1
09	Fishing, Hunting, And Trapping	1
10	Metal Mining	2
12	Coal Mining	1
13	Oil And Gas Extraction	3
14	Mining And Quarrying Of Nonmetallic Minerals, Except Fuels	1
15	Building Construction General Contractors And Operative Builders	2
16	Heavy Construction Other Than Building Construction Contractors	1
17	Construction Special Trade Contractors	2
20	- Food And Kindred Products	4
21	Tobacco Products	1
22	Textile Mill Products	1
23	Apparel And Other Finished Products Made From Fabrics And Similar Materials	1
24	Lumber And Wood Products, Except Furniture	1
25	Furniture And Fixtures	1
26	Paper And Allied Products	1
27	Printing, Publishing, And Allied Industries	7
28	Chemicals And Allied Products	7
29	Petroleum Refining And Related Industries	1
30	Rubber And Miscellaneous Plastics Products	1
31	Leather And Leather Products	2
32	Stone, Clay, Glass, And Concrete Products	1
33	Primary Metal Industries	2
34	Fabricated Metal Products, Except Machinery And Transportation Equip.	2
35	Industrial And Commercial Machinery And Computer Equipment	2
36	Electronic & Other Electrical Equip. & Components, Except Computer Equip.	5
37	Transportation Equipment	4
38	Measuring, Analyzing, & Controlling Insts.; Photo, Med.& Opt. Goods; Watches	2
39	Miscellaneous Manufacturing Industries	3
40	Railroad Transportation	1
41	Local And Suburban Transit And Interurban Highway Passenger Transportation	1
42	Motor Freight Transportation And Warehousing	2
43	United States Postal Service	0
44	Water Transportation	1
45	Transportation By Air	2
46	Pipelines, Except Natural Gas	1
47	Transportation Services	2
48	Communications	4
49	Electric, Gas, And Sanitary Services	4
50	Wholesale Trade-durable Goods	3
51	Wholesale Trade-non-durable Goods	2
52	Building Materials, Hardware, Garden Supply, And Mobile Home Dealers	1
53	General Merchandise Stores	2
54	Food Stores	2
55	Automotive Dealers And Gasoline Service Stations	2
56	Apparel And Accessory Stores	3
57	Home Furniture, Furnishings, And Equipment Stores	3
58	Eating And Drinking Places	1
59	Miscellaneous Retail	1
60	Depository Institutions	1
61	Non-depository Credit Institutions	2
62	Security And Commodity Brokers, Dealers, Exchanges, And Services	4
63	Insurance Carriers	4
64	Insurance Agents, Brokers, And Service	1
65	Real Estate	2
67	Holding And Other Investment Offices	2
70	Hotels, Rooming Houses, Camps, And Other Lodging Places	2
72	Personal Services	2
73	Business Services	5
75	Automotive Repair, Services, And Parking	1
76	Miscellaneous Repair Services	1
78	Motion Pictures	1
79	Amusement And Recreation Services	2
80	Health Services	2
81	Legal Services	1
82	Educational Services	1
83	Social Services	0
84	Museums, Art Galleries, And Botanical And Zoological Gardens	0
86	Membership Organizations	0
87	Engineering, Accounting, Research, Management, And Related Services	3
88	Private Households	0
91	Executive, Legislative, And General Government, Except Finance	0
92	Justice, Public Order, And Safety	0
93	Public Finance, Taxation, And Monetary Policy	0
94	Administration Of Human Resource Programs	0
95	Administration Of Environmental Quality And Housing Programs	0
96	Administration Of Economic Programs	0
97	National Security And International Affairs	0
99	Nonclassifiable Establishments	1

Number of SIC Industrial Groups DS Sub-Sector Enters

In this Table, we link the 82 SIC Industry Groups used by S&P Emerging Markets Data Base to the 101 Datastreams sub-sectors. For a detailed description, see Appendix B.

Whenever the number of Datastream sub-sectors per SIC group is larger than one, we calculate the weighted average of the PE ratios of the entering sub-sectors using the sub-sectors' market values.

ISIC Groups and Datastream (Level 5) Sub-Sectors

Datastream (Level 5) Sub-Sectors

The following table links the 28 ISIC Industries to the Datastream (Level 5) sub-sectors. For each ISIC group the "Number of DS Sub-Sectors per ISIC Group" and the sub-sectors marked with an "X" are listed below.

ISIC	ISIC – Industry	Number of DS Sub-Sectors per ISIC Group	Datastream (Level 5) Sub-Sectors marked (X)
311	Food products	1	Food Processors
313	Beverages	3	Brewers; Distillers & Vintners; Soft Drinks
314	Tobacco	1	Tobacco
321	Textiles	1	Textiles & Leather
322	Wearing apparel, except footwear	1	Clothing & Footwear
323	Leather products	1	Textiles & Leather
324	Footwear, except rubber or plastic	1	Clothing & Footwear
331	Wood products, except furniture	1	Forestry
332	Furniture, except metal	1	Furnishings & Floor coverings
341	Paper and products	1	Paper
342	Printing and publishing	1	Publishing & Printing
351	Industrial chemicals	3	Chemicals,Commodity; Chemicals,Advanced Materials; Chemicals,Speciality
352	Other chemicals	3	Medical Equipment & Supplies; Pharmaceuticals; Personal Products
353	Petroleum refineries	1	Oil Integrated
354	Miscellaneous petroleum and coal products	1	Building & Construction Material
355	Rubber products	1	Tyres & Rubber
356	Plastic products	1	Chemicals,Speciality
361	Pottery, china, earthenware	1	Building & Construction Material
362	Glass and products	1	Building & Construction Material
369	Other non-metallic mineral products	1	Building & Construction Material
371	Iron and steel	1	Steel
372	Non-ferrous metals	1	Non-Ferrous Metals
381	Fabricated metal products	2	Diversified Industrials; Household Products
382	Machinery, except electrical	3	Commercial Vehicles; Computer Hardware; Diversified Industrials
383	Machinery, electric	5	Consumer Electronics; Electrical Equipment; Electronic Equipment; Household Appliances & Housewares; Telecom Equipment
384	Transport equipment	5	Aerospace; Auto Parts; Automobiles; Commercial Vehicles; Shipping & Ports
385	Professional and scientific equipment	2	Medical Equipment & Supplies; Photography
390	Other manufactured products	1	Diversified Industrials

Number of ISIC Industries DS Sub-Sector Enters (bottom row per column): 1, 0, 0, 1, 1, 0, 0, 4, 0, 1, 0, 2, 1, 2, 0, 1, 0, 2, 1, 1, 0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 2, 1, 0, 1, 0, 0

In this Table, we link the 28 ISIC Industries used by UNIDO Industrial Statistics Database to the 101 Datastream sub-sectors. For a detailed description, see Appendix B.

Whenever the number of Datastream sub-sectors per ISIC group is larger than one, we calculate the weighted average of the PE ratios of the entering sub-sectors using the sub-sectors' market values.

Appendix Table A4
Dating Liberalization

Country	Official Equity Market Liberalization Year	Banking Liberalization Year	Banking Liberalization "First Sign" Year
Argentina (ARG)	1989	1980 - 1983, 1994	1980 - 1983, 1994
Bangladesh (BGD)	1991	-	-
Brazil (BRA)	1991	1995	1995
Chile (CHL)	1992	1998	1998
Colombia (COL)	1991	1990	1990
Cote d'Voire (CIV)	1995	-	-
Egypt (EGY)	1992	1993	1993
Greece (GRC)	1987	1992	1987
India (IND)	1992	closed	1992
Indonesia (IDN)	1989	1999	1988
Israel (ISR)	1993	open	open
Jamaica (JAM)	1991	-	-
Japan (JPN)	1983	1985	1985
Jordan (JOR)	1995	-	-
Kenya (KEN)	1995	open	open
Korea (KOR)	1992	1998	1982
Malaysia (MYS)	1988	closed	closed
Mexico (MEX)	1989	1994	1991
Morocco (MAR)	1988	-	-
New Zealand (NZL)	1987	1987	1987
Nigeria (NGA)	1995	-	-
Pakistan (PAK)	1991	closed	1994
Philippines (PHL)	1991	2000	1994
Portugal (PRT)	1986	1984	1984
South Africa (ZAF)	1996	open	open
Spain (ESP)	1985	open	open
Sri Lanka (LKA)	1991	1998	1988
Thailand (THA)	1987	closed	1997
Trinidad & Tobago (TTO)	1997	-	-
Tunisia (TUN)	1995	-	-
Turkey (TUR)	1989	open	open
Venezuela (VEN)	1990	1994	1994
Zimbabwe (ZWE)	1993	-	-

The official equity market liberalization dates are based on Bekaert and Harvey (2000) and Bekaert, Harvey, and Lundblad (2003). Banking Liberalization dates and "First Sign" dates are defined in Table 2. Note that foreign banks could not enter the Argentinean banking market between 1984 and 1993. All other countries are considered fully liberalized from 1980-2002.